BLACKOUT:
SURVIVING THE AFTERMATH

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INTRODUCTION

Have you ever stopped to think about the aftermath of an Electro Magnetic Pulse (EMP)? It may not be in your daily thoughts but a single High Altitude EMP (HEMP) caused by the detonation of a nuclear weapon at an altitude of 20-40 kilometers high in the atmosphere could create a series of catastrophic events that could change the lives of you and your loved ones, those in your community, and even the entire country!

Even though it is not pleasant to think about such an event, it's important that you think about it *now* while you have the option of planning and preparing for the disaster. In the event of a disaster, the old adage *failing to plan is planning to fail* is most certainly true. If you fail to plan ahead of time for when a HEMP strikes, you are at risk for *failing* to protect yourself and your loved ones and survive the perilous days that follow. When a HEMP strikes, life as you know it will come to a screeching halt. Without electricity, commerce will be shut down. Not only will the luxuries that you enjoy today be instantly gone, but

necessities such as food, medications, and fuel will quickly vanish.

Most people may live as though there is an endless supply of food, fuel, clean water, and other necessities. However, stop and think about what happens when there is a warning that a hurricane will come close to shore. The evening world news agencies show clips and broadcasts that within a few short hours of the warning the grocery store shelves are empty. There is no food and water for those who did not get to the grocery store quickly. There are no flashlights, candles, and other emergency items left. It does not matter how much money a person has in their bank account to purchase what they need, what they need is simply not available.

There are long lines at the gas stations where people are fueling their cars so they can leave the area and go inland. Sometimes, the gas runs out before everyone is served and the delivery trucks do not risk bringing more, leaving people without enough gas to leave the path of the hurricane.

As the storm rolls in, there are power outages, and when the power goes out, everything in the area shuts down. There is no opportunity for business in person or online, hospitals do their best to take care of their patients with the help of generators, and darkness settles over the area when the sun goes down.

When there is a hurricane, people know that the storm will roar and then be gone. Even though there may be damage, the storm will pass and things will get back to normal fairly quickly. Not so with a HEMP strike. First, there will not be warnings for a few days before it happens. Secondly, the loss of power will not just happen in a small area, but will affect from 70% to 100% of the continental United States and parts of Canada and Mexico. Furthermore, the power outage will not last just a day or two or even just a week or two. In the executive report and critical infrastructure reports by the Commission to Assess the Threat to the United States from Electromagnetic Pulse (EMP) Attack and written testimony submitted to the US Congress in 2004 and 2008 indicates that it would likely take two to four years for power to be restored to the entire United States after a deliberate HEMP attack.

Given that the US is a nation that is highly dependent on electricity and that a HEMP will happen without warning during your lifetime, it only makes sense to plan and prepare for when it happens. The opportunity to plan will be gone once a HEMP strikes, and you and your loved ones could be vulnerable to severe hardships that could have been mitigated with careful planning.

Certainly, you cannot possibly prepare for every disaster and every scenario that could possibly happen when a HEMP strikes, there is much that you *can* do to prepare for the incidents that are most likely to happen and that will impact you and your loved ones the most. You can use this book as a guide for preparing for universal needs such as food, shelter, water, fuel, medications, medical supplies, communication methods, transportation, and safety. Beyond that, you can customize the plan for you and your family as you consider your specific circumstances and needs.

Even if you have no idea where to start with your planning, this book will provide all the information you need for careful planning and preparation. Taking the first step of careful research on how to maintain control over your life in the event of

HEMP has already been done for you. All you need to do is apply the well-researched information that you read in this book.

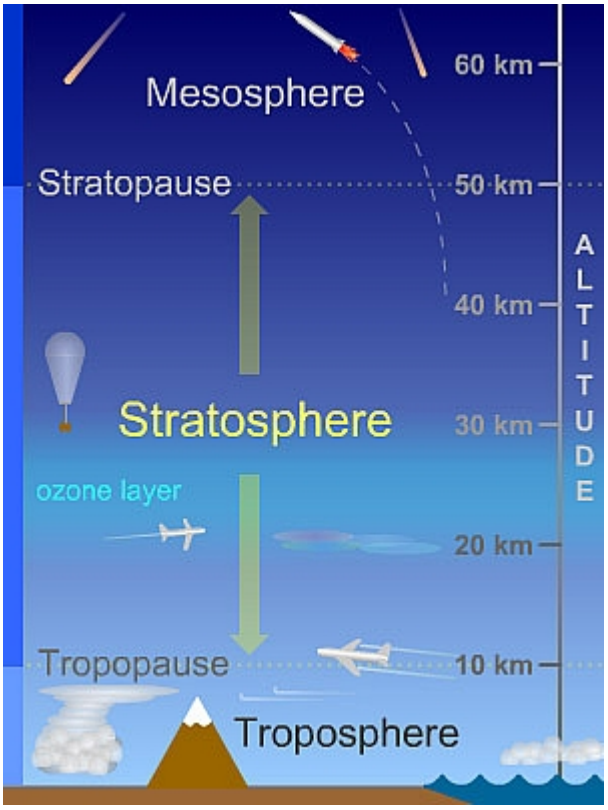
The key is to start preparing *now*. You simply cannot know when a HEMP is going to hit and turn your world into something that you do not recognize. Once that happens, no matter how much you wish you had prepared, there will be no turning back the clock for preparation time. After a HEMP, you will have little control over what happens to you and your loved ones if you are not well prepared.

1: HEMP

WHAT IS HEMP?

The acronym HEMP stands for high altitude electromagnetic pulse. HEMP is the result of the detonation of a nuclear weapon at above about 20-40 kilometers. When the weapon is detonated higher than the earth's upper-stratosphere, some of the energy is

released as gamma rays that travel at the speed of light. When the gamma rays collide with the air molecules in the upper-stratosphere, they are ionized. When that happens, the air currents interact with the earth's magnetic field. The graphic below shows the stratosphere in relation to the earth's surface.



Stratosphere Randy Russell, UCAR

The Compton Effect is a result of the gamma rays colliding with molecules in the middle-stratosphere. Compton Electrons, which is the name given to the electrons that are ionized, travel to the earth's surface at about 94% of the speed of light and have about three times their normal mass. The powerful current that they create, which can be over a million volts, is called the Compton Current. The Compton Currents interact with the earth's magnetic field to radiate a powerful electromagnetic pulse downward toward the earth's

surface. The negative-charged electrons create a brief electromagnetic pulse called EMP.

EMP and HEMP last only a few seconds and in daylight nuclear HEMP would appear as only a brief flash in the sky. At night, it would appear as a flash and then faint, dissipating light. Even though the EMP cannot physically damage a person, the results can be devastating for a society that is dependent on electricity. As the EMP couples into conductive objects such as insufficiently shielded and unshielded pipelines, powerlines, copper computer network cables, telecommunications lines, power cords, microelectronic circuits, cables, power lines, and electrical and electronic circuits will be severely overloaded causing complete shut-down.

Today, nuclear weapons are plentiful and in the hands of many nations that could not acquire them in times past. Nations whose governments have threatened the United States with terrorism and even factions within those nations have access to nuclear weapons. These nations are no longer threatened by the power of the United States or mutual destruction. This presents the real

danger of nuclear weapons being used against the US. The byproduct of the nuclear explosion would be EMP.

THE DISCOVERY AND HISTORY OF HEMP

In the early stages of nuclear testing, nuclear physicists knew that nuclear reactions create EMP and they attempted to measure it during nuclear testing. An early high altitude test called the Hardtack-Yucca shot revealed to physicists that a thousand times more EMP was produced than they had previously anticipated. Scientists were eventually able to understand how nuclear detonations in the upper-stratosphere created the Compton Effect and caused the earth's magnetic field to radiate EMP.

In 1962, the US conducted the Fishbowl Series of nuclear tests in the South Pacific. It was at that time during the 1.44 Megaton Starfish Prime detonation that the unexpected and profound effects of HEMP were first introduced into the public domain. A Thor missile carried the Starfish Prime to an altitude of 680 miles and it was detonated at an altitude of 240 miles on its return to

earth. However, pertinent data wasn't recorded because the instruments to record EMP effect at ground level were maxed out because they had been calibrated for a range that was significantly lower than the level produced.

During that test, it was noted that the effects of nuclear HEMP were felt almost 900 miles away in Hawaii where the EMP effect caused security alarms to trip, damaged a microwave relay link operated by the telephone company, and overloaded about 300 street lamps.

Later, when the US telecommunications satellite, Telstar 1, passed through the energized Van Allen belt that had been irradiated by the Starfish Prime detonation, some of its transistors were damaged. With subsequent passages, the satellite was severely damaged to beyond repair.

When the Soviet K-series nuclear tests were conducted in the atmosphere over Kazakhstan, similar results were recorded. A 350-mile section of telephone lines that was being monitored by Russian scientists was destroyed by EMP.

It is now understood that in 1962 the electrical circuits were far more resistant to EMP effects and the Starfish Prime warhead was not optimized for higher levels of EMP. Today, in the US, with a warhead of similar size but with a thinner casing that would be more transparent to gamma rays and would produce a much higher gamma ray yield, and a symmetrical implosion detonation instead of gun-type detonation, there would be much more destruction to unshielded microelectronics. The US is particularly vulnerable to devastation from EMP because of the shape of the magnetic field lines over the country and because of the high dependence on microelectronics and imports. In fact, it is believed that the entire electrical infrastructure and all unshielded electronics in the continental US would be burned out under such conditions.

SUPER HEMP WEAPONS

Governments around the globe have developed classified weapons programs and studied how to further increase gamma

ray yield and the destruction that HEMP can cause. The threat of HEMP is upon the US and can become a reality at any time.

Nuclear EMP weapons that are optimized for maximum EMP yield are called Super HEMP Weapons. Detonating a nuclear weapon at an altitude that would cause HEMP is not complicated for many nations. Iran has been experimenting with launching ballistic missiles from cargo ships. It is known that a launch inside or just outside of US territorial waters would be sufficient to create disastrous results.

If North Korea placed a small nuclear warhead in their “weather satellite” instead of weather instrumentation or cameras, the warhead could be detonated as the satellite passes over the Northern Continental US.

For a further indication that the US is at high risk for destruction from HEMP, consider that after the fall of the Soviet Union, an inventory of the former Soviet nuclear was taken. The inventory confirmed that 107 nuclear weapons were missing. And is it a coincidence that the number of missing weapons coincides with the same number of primary target points in the US?

Among the missing weapons were several small yield tactical neutron nukes often called “backpack nukes” or “suitcase nukes” because they can so easily be transported in small packs or cases. The whereabouts of the missing weapons are unknown. They could currently be in the US awaiting a launch from a balloon.

At the German border, a Mercedes was stopped and enough highly enriched uranium from the former USSR was found in the trunk to build three super-HEMP nuclear weapons the size of the Starfish Prime.

The scientist who oversees the Pakistani nuclear program, Abdul Qadeer Khan, has stated that he has traveled throughout the Middle East and Asia proliferating the spread of nuclear weapons to nations that would pay for them.

It is not a simple matter of undue worry to think that a nuclear weapon could go off in a populated city such as New York, Washington D.C. or Las Angeles. There is an abundance of nuclear material and more than 100 completed nuclear weapons floating around somewhere. To think that some of the weapons or weapon material could not make it to the US and be used in

the United States is unrealistic. It is much more realistic to accept the fact that our enemies and enemies of our Israeli and Western European allies have the capability of nuclear HEMP and are willing to use it at their appointed time. Our enemies make this clear in their hateful rhetoric and their pursuance of nuclear weapons.

The ideal target altitude for a nuclear weapons explosion would be in the upper-stratosphere beyond about 40 and 400 km above the earth's surface. A burst at a lower altitude would cause some EMP damage for hundreds of miles but not harness the power of HEMP.

Keep in mind that a HEMP does not necessarily have to be a surgical attack. If an attack was launched for the purpose of causing damage to one area, it could be hundreds of miles off course when detonated and still cause tremendous levels of damage.

Some of the methods for launching a weapon into the atmosphere at the right altitude for a HEMP strike may include the following:

- Jet aircraft, which can easily be modified so they are capable of flying at sufficient altitude
- High altitude weather balloons
- Low earth orbit satellites
- Medium-range ballistic missiles launched from a ship that is anywhere from two to 200 miles off the coast

As you can see, there are several possibilities for a nuclear weapon launch and HEMP in the US. The HEMP radiation can couple into conductors within the line-of-sight of a nuclear detonation. When this happens, electrical and electronic circuits from mega transformers in the power grids down to the low-voltage microelectronics in cell phones and computers can burn out and create outages for *years*. Yes, you read that right—*years*. Did you know that it takes power and a three-year lead time to manufacture and transport the largest replacement transformers once they are burned out?

This can affect more than just your lights going off and your computer not working, though that would be bad enough. It can affect your ability to purchase anything, even necessities such as food. (The food that is available would spoil quickly once the

refrigerators stop working.) It can affect essential services such as drinking water, sewer, natural gas, and transportation of every kind. Even the gasoline pumps will not work without power so cars would become useless.

Without power, the cell phones, computers, and the Internet would be useless. The debit card that you use for paying for everything you purchase in order to avoid carrying cash would no longer work when the banking system went down. And speaking of bank systems—your life savings, IRA, and other financial "security" could instantly be inaccessible or simply gone. Can you imagine your life today without the services and essentials listed here?

Chaos would reign as planes plummeted to earth from the sky and cars stopped running in the middle of the street. Communications would stop completely and you could no longer reach your distant family to make sure they have survived, contact your work, or run your business. There would be no way to call an ambulance if someone is injured, becomes deathly ill, or has a heart attack. Traffic accidents happen all around because the street lights fail. There would be no mail service. There would

be almost complete darkness at night. It's a dismal picture, but it would be a reality if a nuclear weapon was launched and caused HEMP.

HOW CAN HEMP CAUSE SEVERE DAMAGE?

Geomagnetic storms, which are a similar energy that occurs naturally, do exist as evidenced by the Carrington Event. While a solar event could create significant destruction over a larger area than a nuclear HEMP, the EMP from a solar event is similar to only *one* of the three components of a nuclear HEMP. The two components that are missing in a solar EMP, E1 and E2) change the kind of damage that is done by the EMP. The three components of HEMP, which are known as E1, E2, and E3, each affects electronics in their own way. In other words, HEMP is a three-part pulse.

The E1 Component

The E1 pulse component is caused by gamma rays interacting with the earth's magnetic field and causing it to radiate EMP energy. This can almost instantly destroy computers and phones (even the ones that are not connected to the grid) by inducing very high voltages in them that is too fast for the surge protectors and lightning protectors that are commonly used by utility companies and individuals. There are currently surge protectors that *can* work fast enough to stop the E1 component effect, but until US citizens understand that HEMP is a real threat and vote to start using that type of protector, they will not be used.

In the meantime, storing electronics with the antennas collapsed and power cords disconnected in sufficiently shielded and insulated cases such as Faraday cages is the best protection unless you have a powerful surge protector that can clamp fast enough to protect against the E1 component.

The E2 Component

The E2 pulse component is caused by scattered gamma rays and creates a slower pulse. When it ionizes molecules in the atmosphere, it creates very high-voltage electrical charges similar to lightening. Obviously, there are protectors that could protect against lightning and similar effects, but the problem is that the E1 component that comes before the E2 component would have already destroyed the circuits of that protection.

Vulnerable electronics must have shielding to 80 dB and insulation, using grounded lightning protection and surge suppression with a sufficient clamping time to avoid the E1 component shut down, in order to be protected from the E2 pulse component.

The E3 Component

The E3 pulse component is caused when the nuclear explosion bends the earth's magnetic field lines from their normal orientation and the lines snap back, radiating energy toward the earth's surface. You can envision this if you think about an electromagnet passing along a conductor generating a charge. The E3 component effect is similar to the effects of geomagnetic storms and solar events such as sunspot activity and coronal mass ejections. It is similar to when a geomagnetic storm hits the earth and great currents are induced in long conductors such as telephone lines, metal pipes, and power lines. The E3 component induces huge currents in the electrical grid and can destroy

anything that is connected to it, even beyond the line-of-sight of the nuclear explosion that caused the HEMP.

With knowledge about the E3 component, you know that protection against E1 and E2 is not necessary to protect against the effects of a geomagnetic storm. In the event of either a geomagnetic event or a nuclear HEMP, the entire power grid, railroad travel, conductive pipelines, power lines, communication, and other metallic conductors could be completely shut down. Ground bursts actually have the most localized effects due to the fact that EMP energy travels line-of-sight. The major difference is that ground bursts do not make use of the Compton Effect to cause the earth's magnetic field to radiate EMP energy.

EQUIPMENT AND COMPONENTS THAT ARE VULNERABLE TO A GEOMAGNETIC STORM OR NUCLEAR HEMP ATTACK

There are many objects that are used daily by millions of Americans that are vulnerable to an EMP:

- Communication—cell towers, cell phones, antennas, radios, servers, computers, and satellites
- Transportation—most cars that were manufactured after the early 1980s. Cars with computers, starter coils, electronic ignitions, electronic fuel injection, and anti-locking brake systems are more vulnerable. Traveling by air will likely come to a halt as navigation systems, radar systems, and air traffic control fail, and planes in flight may lose flight control and endure catastrophic failures. Rail lines may act as conductors of E3 to make traveling by train impossible.
- Electrical power generation—power plants, generators, solar panels, transformers, wind generators, grid or cable-connected batteries, and charge controllers

- Microelectronics—modern consumer electronics that contain silicon chip-based technology
- Anything connected to the phone, power, or data grid or networks can be rendered useless by a geomagnetic storm.

THE IMPORTANCE OF ELECTRONICS IN A HEMP ATTACK

It may seem as though it would only be a mere inconvenience if you were suddenly without electronics. Some may even think they would welcome the quiet and peace afforded by shutting down the phones and computers. But the US would be anything but quiet and peaceful without electronics in the event of a HEMP attack.

It is one thing to temporarily not be able to communicate. It is another to not be able to communicate with anyone who is not within speaking distance of you for weeks, months, or years. Stop and think about the complications the complete lack of communication with the outside world could create. You couldn't

reach loved ones, arrange for medical care or emergencies as needed, or conduct business.

Without electronics, you do not have access to necessary paperwork If all of your business, banking, job, and medical information and records are on your computer, and you could not communicate with the normal organizations and people for getting copies of that information.

Your world would become very small if you had no access to news from outside your immediate area or if you were confined to traveling only as far as you could walk because the electronics in your car did not survive a HEMP attack and failed.

There are some ways that you can protect your electronics. Those strategies will be discussed later in this guide. But it is critical that you realize the need to prepare for a HEMP attack and understand that protecting your electronics is a crucial part of the preparation.

IMPORTANT EMP REVIEW

- It is important to understand the difference between a nuclear HEMP with the E1, E2, and E3 components and a geomagnetic storm. If you do not understand, re-read the information in this chapter and do further research.
- EMP will not directly physically harm you or your pets. The dangers are indirect and can include falling power poles or lines, electrical shock from voltage energizing an unground conductor such as rail lines, or accidents caused by malfunctioning cars, traffic signals, etc.
- The migration or navigation of animals may be very temporarily affected by EMP, but will snap back almost immediately.
- EMP does not break your compass or affect lines of magnetic declination.
- Electronics with very short conductor lengths and are not connected to the grid will probably not be affected by EMP. As an example, a wristwatch will probably continue to work,

but a pacemaker that has wires connected to a battery, which could act as an antenna, may not work.

- Even though it may help to turn them off, EMP can damage electronics even when they are turned off.
- No vehicles are absolutely safe from the damage of EMP, but some cars are less vulnerable. The metal bodies of older cars may shield the electronic components. The newer models with computers, electronic ignitions, fuel injection, and anti-lock brakes are the most vulnerable.
- It is not true that a hydrogen bomb or other more advanced bomb is necessary for a HEMP attack, and that if such a bomb could be found it would need to be modified to fit on a ballistic missile to use as a HEMP weapon. The truth is that even basic small nuclear weapons that are slightly modified can be used as HEMP weapons.
- The US is vulnerable because other nations and terrorist organizations have the capability and materials to loft a nuclear weapon from a commercial aircraft or balloon and create HEMP.

Ideally, the citizens of the US would not have to think about a HEMP attack. However, with what is known about nuclear warfare, you cannot afford idealism. No one knows when a nuclear weapon may be launched and create EMP or HEMP. The only sensible thing you can do is prepare for the worst-case scenario. With what is known about other nations and organizations and the nuclear power capabilities coupled with their hate of the United States, it would be unreasonable and downright foolish not to prepare for HEMP.

2: PREPARATION FOR SURVIVING HEMP IS CRUCIAL

People in the United States are busy managing their day-to-day lives. It can be inconvenient to even take the time to think about the future, let alone take the time to actually prepare for it! This may be especially true when it comes to preparation for surviving a nuclear attack. After all, the mainland has never experienced nuclear warfare so why should we worry about it now?

As previously stated, after a nuclear weapon is launched from the altitude to create HEMP, it will be too late to prepare. Why take that risk? Why not prepare and be ready. What do you have to lose if an attack never happens? But think about what you have to gain if does happen and you are prepared!

PREPARATION CONSIDERATIONS

There are some things you should consider before you actually start preparing for HEMP survival. There is the basic preparation that applies to almost everyone, but the details of your preparation may be different from others based on your geographic location and climate, age, physical ability, family size and needs, financial means, and health. You must decide how much time you can devote to the preparation and how quickly you want to accomplish your

preparation plan. Is preparation a priority? Do you want to start the plan and work through it quickly or just do a little at a time

until you are done? Are you willing to make short-term sacrifices in order for long-term safety and survival?

You don't have to be rich to start planning. You do not have to have everything that is needed before you start planning. You can start with where you are and what you have available. Many things for preparation cost little or no money and just a little time after work or on the weekends.

If you get your entire family on board and have planning meetings so that everyone can pitch in, preparing will be easier and create a common bonding experience. Consider including extended family members and close friends. Many hands can be a huge advantage in the event of HEMP!

GET ORGANIZED

Do Your Research

This guide provides an abundance of information, but you should continue to do your research so you have a clear and bigger

picture of preparation for EMP. Your research may also reveal to you what you need to make/build for yourself and what you need to purchase and where you can purchase it. Here are some words or phrases that might be helpful in your search, but in searching, you will soon see that one Internet search site quickly leads to several more. There is no lack of information on EMP preparation.

- Food to store
- Survival supplies
- Emergency supplies
- How to reinforce your home for emergencies
- Communication devices for emergencies
- Purifying water and storing water for emergencies
- Emergency food preparation
- Stocking the emergency pantry

When you are doing the research you will, undoubtedly, come across many advertisements for supplies that you may immediately need or need in the future. Keep a list in your journal for where to buy these supplies.

To add to your research, subscribe to newsletters and blogs for survivalists. The newsletters will be delivered to your inbox and you can print the ones you want to keep for reference for preparation as well as to have a copy in the event of nuclear HEMP. Type “blogs for surviving EMP” into your browser and you will get several results.

GET YOUR PAPERWORK ORGANIZED

Preparation Notebook

Keeping an “emergency preparation” notebook can be helpful as you make preparation plans and carry out the plans. A plain notebook that you can put sheets of notebook paper in and take out as needed is all that is required to get started. Organize tabs in the notebook so you can quickly find the information as you

need it. Everyone in your family should know where the notebook is kept and how to access it if needed.

The notebook can contain all of your checklists for preparation as well as the "how-to" information for surviving HEMP if the time comes. Print informative articles and newsletters and keep them in your notebook.

The notebook should contain a family plan for where family members can meet in case you become separated during an emergency or happen to be in different places when disaster strikes. Because few people use postal mail as a means of communication any more, you may not have extended family members' home address written down. Get all extended family members' home and business addresses and write them down in case the postal mail is the only way you can communicate with them in the event of a disaster.

Start gathering how-to books for surviving a nuclear attack and EMP. Gather homesteading and do-it-yourself books that teach how to grow your own garden, raise animals for food, hunt and fish, and put away the harvest for the winter months. Collect and

read books on how to sew by hand, cook from scratch, make your own goods from raw materials, and build basic structures. Read medical and alternative medicine books on how to treat injuries and illnesses when there are no medical professionals or hospitals available and you can't get prescriptions filled.

Amish communities and their books can be excellent resources for how to live successfully without electricity and do things the old fashioned way.

Important Documents

Most people keep their important documents on their computer. Remember, in the event of HEMP, you won't be able to access anything from your computer. Scan, print, and make copies of all of your important documents such as the following:

- birth certificates
- marriage license
- social security numbers
- military records

- religious records
- driver's license
- death certificates
- immunization records
- medical records
- family tree/ancestry records
- retirement plan documents
- financial statements
- family history
- mortgage papers
- land deeds
- warranties
- insurance papers
- wills
- legal documents
- bank checking and savings account statements
- college and school records and diplomas
- prescriptions
- car titles

Print your bank statements every month and update your paper financial records monthly. It may seem time-consuming to keep paper records when the online records are so convenient, but in the event of HEMP, paper records are the only records that would be accessible.

Don't forget to put all of your family photos on discs and also get print copies of the most precious of them. If you're not able to access your computer files, you don't want to lose photos that are irreplaceable. Keep an organized and updated address, phone number, and email address book in case you are somehow able to reach family members and friends by postal mail, phone, or email but cannot access the contact information from your own devices.

Keep all of your important documents and photos organized in notebooks and stored to prevent damage to them. (There is more information on safe storage later in this guide.)

TAKE CLASSES

To become a true do-it-yourself person, it can be beneficial to take classes and attend workshops while you still can on a number of topics that may include the following:

- Basic auto mechanics
- Gardening to grow your own food
- Animal husbandry to raise your own livestock and know how to provide quality care for them
- Hunting
- Fishing
- How to use a firearm
- Cooking real food from scratch (instead of purchasing pre-made food)
- Butchering livestock
- Raising chickens and small game for eggs and meat
- Sewing clothes for you and your family
- Making cleaning supplies and such from ingredients
- Foraging for medicinal plants and edible plants
- Basic first aid for injuries

- Basic medical care for illnesses
- Basics for a midwife (homebirth)
- Making candles
- Home education for children
- Basic carpentry skills
- Creating temporary shelters
- Self defense
- Self-sufficiency

PRACTICE MAKES PERFECT

Particularly if you have younger children in the home, you need to talk about HEMP and help everyone understand what it is and how it will affect the lifestyle of humans if there is a nuclear weapon launch. Scaring children into thinking that there is going to be a nuclear attack should not be the focus of the discussions. The discussions should focus on the fact that there *could be* a nuclear attack that creates HEMP and it is best to prepare for such a scenario.

Helping children adapt to the possibilities of a lifestyle that would otherwise be very foreign to them is a great way to help them prepare for HEMP. A child who is well-prepared will not be as scared and will be able to function well post-EMP. Their preparation can help them remain cool-headed and keep them from panicking. This could be the difference between surviving or not!

Create and practice scenarios and drills with your family. The drills should include all of the scenarios you can think of pertaining to HEMP. Have "lights out" weekends where no electricity is used for the entire weekend so children and teens can understand what it would be like to have no electricity at all. During "lights out" times, play board games and other games and toys that do not require electricity.

You may need to help younger children remember code words for trusted people that can help them remain safe during a disaster. It may mean helping them understand how to defend themselves if needed. Children and all family members should know where to meet if a disaster strikes. Make sure young children know their parents' first, middle, and last names, as well as the names of

their siblings, grandparents, aunts, uncles, and family friends that they may need to count on in a disaster.

Take children camping and introduce them to setting up and taking down tents, gathering wood, starting a campfire, preparing food, and cooking it over the campfire.

Teach children what outdoor water is safe for drinking and what water will make them sick. Teach them to forage for edible plants and to recognize plants that are poisonous. They should also know how to seek safe shelter from the elements in the outdoors.

As painful as it is for any parent to think that they will be separated from their children and unable to protect and provide for them, it could happen in a disaster such as HEMP. Preparing children for the worst case scenario may help parents feel more peaceful.

No matter what your financial situation or schedule is, there is no need to postpone preparing for HEMP. Start making your lists and get started on the things that you can start on.

3: EMP SURVIVAL PRIORITIES

You may not necessarily think of yourself as the survivalist type, but in a time of crisis, a survivalist mindset may be the very thing that keeps you and your family alive, fed, sheltered, and well. Developing a survivalist mentality does not mean you are an alarmist or pessimist. It simply means that you care about yourself and your loved ones and you want to do whatever you can to prevent unnecessary hardship in the event of an EMP. Are

you an alarmist because you have insurance on your car in case you get into an accident? No, of course not. You have insurance as a precaution against a financial disaster in the event of an accident. You are not wishing for an accident to happen or trying to make one happen, but you are prepared if it does happen. In preparing for nuclear HEMP, you are simply providing some insurance for a higher chance of survival for you and your family.

It has been established that a major geomagnetic event caused by a coronal mass ejection occurs about once every 150 to 200 years. The last one to occur since mankind has managed the power of electricity was known as The Carrington Event and occurred in 1859. During the Carrington Event solar storm, a major coronal mass ejection traveled toward the Earth in 17.6 hours instead of in the three or four days that it normally takes. From August 28 to September 2, 1859, aurorae were seen all over the world. It was a spectacular display. It built up charges in telegraph lines and destroyed telegraph equipment and batteries and started fires.

It is projected by Lloyd's of London that if a similar event happened today it would produce a current cost of $2.6 trillion and it would take more than a decade to repair the damage as it

would destroy most of the largest electrical transformers in power plants and substations. Yes, a decade of trying to survive HEMP when you are not prepared to do so is a *long time*.

PREPARE NOW WITH WHATEVER YOU HAVE

Many people are under the assumption that you have to have access to a considerable amount of money to start preparing for nuclear HEMP disaster. While it's true that you could spend thousands of dollars purchasing survival equipment and food supplies, and those who do have more money to spend on preparation do seem to fare better during disasters, there are still many things that you can begin doing with very little money while you save to be able to do more. To help save money, you may want to try to barter services and skills with other like-minded people who are also preparing. As an example, if you know how to garden, you might exchange classes on gardening for classes on how to sew in preparation for learning to make

clothes for yourself and your family. It's best to start with what you have now than to put off preparation.

You may not be able to prepare as thoroughly as you want to right away, but everything you can do *now* is a step in the right direction. When you start to prepare, don't become overwhelmed by thinking that you need to prepare for your whole community. Start with enough for you and your immediate family and increase your stock to help others after you feel certain that your stock is complete.

If you're on a budget, prioritize and purchase the most important items that you absolutely need first. Buy the best quality equipment that you can afford, but get all of the essentials before you start purchasing items that would be nice to have but are not necessities.

Food and Water

What should qualify as initial priority items for your preparation? Think about the things that you truly could not live without.

Food that can be easily prepared without electricity or a lot of water (as water will be in high demand) and a supply of clean drinking water is probably at the top of your list.

Medical Equipment, First-Aid Kit, and Prescriptions

If you have a medical condition and are dependent on medical equipment or prescription drugs for staying alive or staying well, that should also be at the top of your list. A comprehensive first-aid kit that is stocked with supplies for splinting broken toes to dealing with life-threatening wounds should be a critical component of your disaster preparation plan.

Shielded Electronics Storage

Protecting your electronics to the best of your ability is important. This means creating a sufficiently shielded storage for the electronics is necessary. You will learn how to do that in the next chapter of this guide.

Non-electric Communication Devices

If you want to make sure your family, who may be in various places when a HEMP strikes, can communicate with one another from a distance, having communication devices that can be operated without electricity may be a priority. (There is information on these devices later in this guide.)

Safe Shelter and Heating Source

You and your family obviously need a safe shelter that can protect you from the elements. Unless you live in an area with extremely mild winters, you need a source of heat that does not

require electricity or the purchase of fuel. Additionally, you will need a source of heat to prepare food unless you are well-prepared with forms of food that require no heating or cooking. Even then, if something happened to the food that you had collected, you could be forced to hunt or fish and need a way to cook the wild game.

Food for Livestock and Chickens and Garden Seeds

If you are counting on livestock and chickens to feed your family, food for the animals should be a priority unless you have certain and sufficient grazing for the animals. Garden seeds should be a priority for anyone depending on a garden for food when the store shelves become instantly bare and for the following years.

Lighting Sources

Since there will not be electricity when a HEMP attack happens, some form of lighting should be a priority. Of course, you'll need

flashlights and batteries, but you can go through a large supply of batteries rather quickly. Creating a stock of long-burning candles and kerosene lamps and oil should also be a priority.

Transportation that Won't Fail

After a HEMP strike, mass transportation will probably cease to exist and, most likely, your current car will fail to start and operate. If transportation is a priority, you will need to manufacture a vehicle or modify a vehicle so that it will not fail.

Firearms or Protection from Looters

You may need firearms to protect your family and your stash as looting will likely be a problem in the event of a disaster and people become desperate. If you are opposed to owning a firearm, figure out other ways to protect yourself and your family.

Personal Hygiene Items and Bath/Shower

Personal hygiene may not seem like a priority for a disaster, but you can begin stocking up on personal hygiene items by purchasing a few items every time you go shopping. A great way to do this is to stop by your local Dollar store and get five items each week. Before you know it, you will have a supply that will last a year or more.

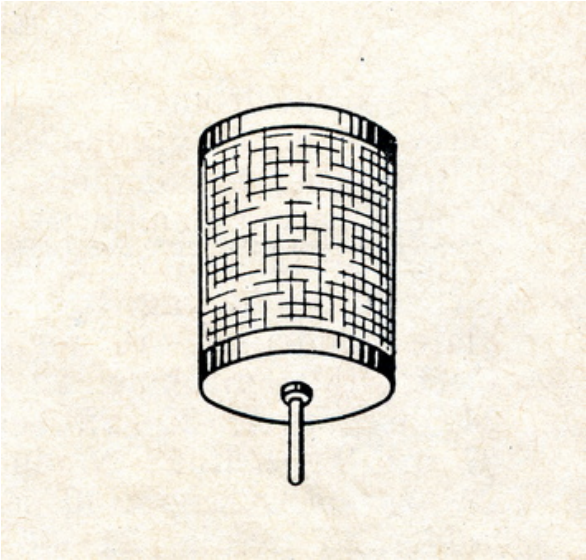
And speaking of personal hygiene, you will need some sort of system that allows for baths/showers.

Basic Tools

Basic tools should be somewhat of a priority. Sometimes when you need a particular tool, nothing else will work for what you need to do. Remember, service businesses that are not prepared for HEMP will be out of business temporarily, if not permanently, so you may need to do your own repairs on your home and car. You will also need tools for your new self-sufficient way of life.

Think of the tools you may need that you don't currently own and start to gather them. Often tools can be found for low prices at yard sales or at end-of-season sales at big box stores. Some of the tools to start gathering may include: scissors, gardening tools, plumbing tools, mechanic tools, medical tools, sewing tools, and butchering tools.

When you break your preparation list down into smaller lists, it is not so difficult to tackle one small list at a time, working on the priority items first.



4: FARADAY CAGES

You have read about how electronics will shut down in the event of a nuclear HEMP. The good news is that you can take action to possibly prevent that from happening if you prepare in advance. Your answer may be to store your electronics in a Faraday cage, which is sometimes referred to as a Faraday shield. Faraday cages were first invented by scientist Michael Faraday in 1836. It is a sealed enclosed form that has an electrically conductive outer layer. The enclosure itself can be conductive or it can be made of

a non-conductive material such as wood or cardboard and then wrapped in a conductive material such as aluminum foil.

Faraday cages can come in various shapes such as square or rectangular boxes, cylinders, spheres or any other enclosed shape. They can also vary in size. Depending on how the Faraday cage will be used, it can be as small as a shoe box or as large as a room.

HOW DOES A FARADAY CAGE WORK?

In a nutshell, the enclosure or cage blocks external static and non-static electric fields by channeling electricity and providing a constant voltage on all sides of the enclosure. There are three main working components to a Faraday cage: the conductive layer that reflects incoming fields, the conductor that absorbs incoming energy, and the cage that creates opposing fields. Together, these components protect electronics from excessive field levels when there is an EMP.

It is worth noting that the physics involved with a solar flare is different than EMP as explained in a previous chapter of this guide. During a solar flare, you can unplug your electronics and they should fare just fine.

It is sufficient to simply unplug electronics from the grid when there is a solar coronal mass. A Faraday cage is not needed for protection because the frequency of the disturbances is at much lower frequencies and they don't couple energy efficiently into smaller electronics except through conducted paths such as wires coming into the device.

HOW TO BUILD A FARADAY CAGE

There are many versions of Faraday cages. The kind that is best depends on what you want to protect inside the container. You can purchase Faraday cages for anywhere from under fifty dollars up to thousands of dollars, but one that can sufficiently protect your electronics can easily and inexpensively be made in just a few hours or less.

Galvanized Steel Trash Can

This style of Faraday cage is popular among preppers because it is simple, easy to make, and inexpensive. It can also contain several smaller items or a few larger items. Keep in mind that if you do not need a container as large as a trash can, you may consider items you may already have at home such as old tins or a tightly sealed metal filing cabinet.

Here are the steps for the trash can Faraday cage:

- Purchase a galvanized steel trash can that has a tight-fitting lid with it. Think about the size you'll need before you make the purchase. A 31-gallon size can contain quite a few electronics.
- Line the complete inside of the trash can (don't forget the bottom of the can and the underside of the lid) with cardboard or Styrofoam, or another non-conductor. You don't want the items you store in the can to touch the metal on the inside of the can.

- Wrap your electronics and items you want to store in the Faraday cage in an insulator such as a zip-lock static bag or aluminum foil. You can purchase the bags at many electronic stores or online but many experts say that foil will probably work just as well. If you purchase static bags, sometimes referred to as Faraday bags come in different levels of shielding protection. It is recommended that bags of 80 dB are used for protection against HEMP, but most bags marketed as Faraday bags offer less protection, so check the level of protection before you buy. For most bags on the market, you may need to use two layers of the bag to get 80 dB of shielding.
- Place your items in the lined trash can, putting the items that can be permanently packed on the bottom of the container and items that you will need to unpack to charge periodically at the top. It's best to remove batteries from electronics before packing them to ensure that the batteries don't leak during storage. It's also best if you put some sort of insulation between

devices so the devices do not touch each other. Cardboard and bubble wrap can be used for the insulation. If you have extra space in the trash can, you can put old towels or rags in the space to further protect your items.

- Put the lid on the trash can and make sure that you have metal to metal contact between the can and lid all the way around the can. There should be no gap between the lid and the can or the trash can won't work as a Faraday cage. In fact, if there is any part of the trash can that is not sealed, the container will not protect your electronics.
- To make sure the lid stays in place, it is best to fasten it with duct tape or conductive tape.

In the event of an EMP, it is best if you can wait two or three days afterward before opening the can in case multiple nuclear weapons are launched and EMPs strike just a few days apart. For that reason, you may want to make two Faraday cages: a larger one to hold larger electronics that you will not need immediately

after an EMP strike and a smaller one to hold devices such as cell phones that may be needed immediately after the EMP.

See how easy it is to make a simple Faraday cage!

EQUIPMENT TO STORE IN A FARADAY CAGE

If you take a look around your house, you can probably see electronic devices and equipment that is always there and you simply take for granted. Now, take a look from a different perspective. When you look at each item, think about how you would feel and what you would do if it suddenly disappeared. That may help you shorten the list of what should go in your Faraday cage.

Next, think about your equipment and devices from the standpoint of surviving an EMP and needing to carry on with your life when most electronics would be lost. What would the most important items be for you? What items would give you a tactical and strategical advantage?

Here is a list of items to consider for your Faraday cage:

- Laptop computer with a flash drive and CD-Rom player and main software on CD, as well as new additional battery, solar adapter
- High capacity thumb drives that contain all important financial, medical, and personal information such as banking, tax records, birth certificates, car titles, passports, marriage license, deeds, etc.
- Smartphones
- Kindle
- iPad
- Multiple GMRS radios and chargers, including cables to plug in for solar charging
- Multiple 2-meter and 440 MHz ham radios with charging cables and solar power adapters
- AM/FM/Shortwave/NOAA weather radio that includes a solar panel charging mechanism
- Solar panels, solar charge controllers, transformers, wiring and battery meters

- Rechargeable batteries, chargers, battery diagnostic devices, charge testers
- Extra fuses
- Extra electronic generator parts
- Electronic parts for vehicles
- Solar battery chargers, portable solar arrays and 12 v DC charge controllers
- Medical devices such as O2 concentrators, CPAP machine, hearing aids, blood testers
- Cordless tools such as drills, saws, etc.
- Gear to monitor surroundings such as radiation meters, radiation dosimeters, and dosimeter chargers

Your list of items to store in a Faraday cage may contain additional items that are unique to your location, medical or physical condition, etc. When you think of a specific item that should be stored in your container, write it down and store it as soon as possible. Do not count on remembering it “later” as later may be too late!

FREQUENTLY ASKED QUESTIONS ABOUT FARADAY CAGES

Because the United States has never experienced HEMP, information concerning a Faraday cage is based on the knowledge gained over many years of scientific study and experiments. However, there are still questions that cannot be answered without the actual experience of HEMP. Here are commonly asked questions and the answers that scientists and preppers have figured out through study and experiments:

Question: Can a Faraday cage have holes?

Answer: You may have seen pictures of Faraday cages with holes or gaps in them when looking at graphics or how-to articles about Faraday cages. However, the reality is that even a small hole made by inserting a screw and removing a screw could keep the Faraday cage from protecting your equipment and devices.

The most vulnerable spots for leakage are in the lid or door of the container so you should reinforce those areas. Using quality conductive tape will help lower the risk of leakage. As a word of

caution, a rubber gasket or layer of paint can compromise the sealing of the Faraday cage for EMP protection. If you repurpose a metal container for a Faraday cage, be sure to remove all rubber gaskets or replace them with conductive gaskets or conductive paint.

You may think that it impossible to build a room-size Faraday cage that needs solar panels for light, but it can be done. Experts recommend using two layers of 20 opening per inch (OPI) conductive wire mesh to allow light to pass through the cage while still providing 80 dB shielding for your possessions.

Question: Can you use existing conductive containers for a Faraday cage?

Answer: Yes, of course. There are many containers that you may already have in your home or garage that make excellent Faraday cages. For an example, you may convert a metal ammunition box or microwave oven to a protective shield for your electronics. Just make sure you follow the correct procedure as stated above for converting metal containers to a Faraday cage.

Question: Does a Faraday cage need to be grounded?

Answer: Grounding the cage can protect it from re-radiating or becoming charged and discharging its charge into you when you touch it to open it. Even so, a Faraday cage will work correctly and protect your items even if suspended in a vacuum without any ground. If you choose not to ground the cage, consider touching it with a ground strap before opening it to discharge any charge that has built up in the cage. This is particularly helpful for large or room-size cages.

Question: Can an entire home or building be shielded from nuclear HEMP?

Answer: Yes, an entire home or building can be shielded from nuclear HEMP. The advantages of being able to shield an entire home or building are numerous. It would be most convenient to have every bit of your equipment and devices protected without having to store them away. If the entire home or building was protected, you would always be prepared if there was a nuclear attack. However, most of the information on how to secure an entire house or building against HEMP is classified information. Even though the public is aware that the technology exists for

such a thing, we can only depend on understanding the physics involved if we want to apply the technology.

It would take several books to go into detail about how to secure an entire building or home from HEMP during a nuclear attack. Here, you will find a simple, abbreviated version of the steps to take:

- All of the outsides of the walls of the building or home must be enveloped by a bonded, grounded conductive skin that provides 80 dB shielding. Take note that if you applied the conductive skin to the inside of the walls, the electrical wiring in the walls would act as an EMP antenna, shunting the EMP into the building or home through the wiring. The skin can be comprised of conductive paint, metal roofing material, or other conductive materials as long as the required shielding is provided.
- The conductive skin must cover all of the windows and solar panels, which are needed to allow light into the building, so those areas must be covered with two layers of 20 OPI (opening per inch) conductive metal

mesh. This accomplishes the conductive covering while also allowing light into the building.

- The home or building must be disconnected from the power grid and phone grid and use non-conductive water and sewer pipes. This means the home or building must utilize alternative energy such as solar energy. This is necessary to prevent huge currents induced in power and phone lines or pipes from being induced into the building and provide a way for the building and home to have electric power for daily use.
- To allow entry and exit, install revolving doors in the home or building or build a mud room or foyer with two sets of doors, of which only one at a time can be opened. This will lessen the risk of the home or building becoming vulnerable.
- Because the shielding would block all signals of any kind, to be able to send and receive communication in the house, you'll need to install some small antennas with specially protected circuits using surge

suppression with less than one nanosecond clamping times.

Question: What would the cost be to modify an entire home or building?

Answer: First, it would be less expensive and easier to implement the HEMP protection into the home or building during the building process rather than modify the structure afterward. In that case, shielding a structure from EMP and adding a shielded rooftop solar power system with a battery bank and generator would be about 30% more than for building a normal home. As an example, you would need to plan about $85,000 extra for a $280,000 home that is shielded. About $30,000 of the $85,000 would go for the installation of the solar system. That may seem like a large sum for shielding, but it would cost more to retroactively shield a home.

But if you're not going to be building a new home or building anytime soon, modifications may be your only option.

In conclusion, Faraday bags and cages are an excellent way to protect your computers, phones, and other communications

devices during HEMP. It's not difficult to build a Faraday cage and it should be a priority for preparing for HEMP.

5: MAKE YOUR OWN ENERGY

In previous chapters, it has become clear that the only electricity that will be available to you after a HEMP strike will be wind, solar, micro-hydro, fossil fuel generator, wood gasifier, hydrogen generator, or another form of device that you are able to create to generate electrical power. Renewable energy devices will be necessary for recharging your batteries to keep all of your battery-powered devices functioning.

MAKE ENERGY USING WIND

If the area you live in consistently gets winds of six to ten miles per hour, wind energy may be the perfect solution for your energy dilemma post-HEMP, even though wind energy systems are not as easily maintainable as solar power systems because they have moving parts. But the great thing is that wind energy systems can generate power at night when the sun is not shining and on cloudy days when there is not much direct sunlight.

A wind turbine should be a minim of 30’ above obstacles within about 300 feet of the turbine to ensure that the wind is not blocked. A sufficient wind power system may cost anywhere from around $500 to $3,000 or more, depending on the type and size you need.

MAKE ENERGY USING SUNLIGHT

Solar energy is a good choice that can provide basic lighting and heating as well as power for communication devices if you live in

an area where the sun shines consistently. Solar power may not be the best source if you live in a climate that is constantly or mostly cloudy, but you can purchase second generation film solar panels that will be more efficient than the first generation silicon panels that require more direct sunlight, and this may allow you to produce just enough energy to keep things going.

The thing to remember is that solar panels will be in high demand *after* the electrical power plants are all down. Anything that is in high demand after a nuclear HEMP will be unavailable and unaffordable for most people. The time to buy solar panels is now!

A complete solar panel system can be purchased for as little as $500. You can start with a basic system and purchase additional solar panels later. Installing a basic system can bring you peace of mind in knowing that you will have an energy source in the event of nuclear HEMP. Even a small system can keep you going when there is no other power source available. You can even purchase a portable array, lightweight charge controller, and lightweight 12v DC battery that you can put inside a Faraday bag inside your ready-to-go backpack.

Solar power equipment can be purchased online. You can purchase solar panels, which are typically used to recharge a deep cycle battery or bank of batteries, and will last anywhere from five to ten years. They are available in 2, 4, 6, or 12 volts of DC power. Once the batteries are charged with the solar panels, you can use the battery power for low-voltage DC lighting, to recharge your DC equipment, and to recharge rechargeable batteries. To run 120v AC equipment off the 12v DC power that your solar array produces, you will need a 12v DC to 120v AC charge converter.

Though they are not particularly affordable for most people, you can purchase and have a whole-house solar system installed in your home to generate all the energy you need to run the house. But, after an EMP, the system would not be useful if you did not disconnect from the power grid and shield your entire house and all the renewable energy equipment to 80 dB level. As you have already read, you know that this would be quite expensive to accomplish.

MAKE ENERGY WITH WATER

Back in the days before electricity as we know it today was available, water wheels were used to power mills with kinetic energy. In more recent times, small water wheels have been adapted for producing electricity and to power generators.

Water wheels are comprised of a large wooden or metal wheel that is usually mounted vertically, though they can be mounted horizontally, on a horizontal axle and has blades or buckets arranged on the outside rim of the wheel to form the driving surface. The vertical wheels can transmit power through the axle or by a ring gear and drives, belts, or gears. Horizontal wheels usually directly drive their load.

Water wheels are a fairly easy project for the do-it-yourselfer. If you own your own property, the wheel would be an excellent investment for HEMP preparation and peace of mind in having your own power generator for any type of disaster. Below are instructions for building a miniature water wheel. Obviously, if you want to build a larger water wheel, you can increase the

dimensions proportionately and use sturdier materials such as wood.

Mini-Water Wheel Instructions

Materials and Supplies:

- Cardboard or foam board in size 15” x 20”
- Wooden skewer
- Box cutter
- Protractor
- Pencil
- Ruler
- Hot glue gun

Instructions

- Cut a 2-inch long piece off one side of the cardboard or foam board. With a pencil measure and mark the 2-inch piece into 10 equal sections. This will create your paddles that will be glued onto both sides of the water wheel.

- Make a 6-inch diameter circle on the cardboard or foam board. Mark the center of the circle, which is where the axle will be placed so that it connects to the two sides of the water wheel.
- Draw a 4-inch x 4-inch "A" shape on the cardboard or foam board. This will be the shape of the stand.
- At the very point of the "A" shape, mark a small "v" shape, which will mark the inlet that the axle is placed in.
- Draw two rectangles that are 2 ½ inches long x ¾ inch wide, which will be the water wheel stand supports.
- Cut out the water wheel stands and stand support figures.
- Lay one of the circular sides of the wheel on the ground. Measure and mark where the paddles will go on the water wheel side so that each paddle is set at a 40-degree angle from the next one. Each paddle should be positioned at a diagonal toward the center of the water wheel.

- Glue the 1 ½ -inch side of each paddle to the side of the water wheel at each marking that you created in the step above. Attach the other side of the water wheel to the paddle that you have just attached to the first side of the wheel.
- Push the wooden skewer through the center marking of the wheels so that it goes through both wheels and is placed to stick out on each side an equal distance.
- Now, glue together the A-shaped water wheel support system by attaching the rectangle support beams to the left side of one of the "A" shapes, directly under the horizontal line across the middle of the shape. Do the same for the second support beam on the right-hand side.
- Place the water wheel on the stand, using the wooden skewer as the axle. Place the axle in the v-shaped grooves at the top of each "A" shape. This allows your water wheel to spin.
- Now it's time to test your mini water wheel! Place it under a very gentle stream of running water to make

sure it spins correctly. You can test how much weight your water wheel can lift by attaching one end of a string to the handle of your mini-bucket and the other end to the axle of the water wheel.

Again, this is a miniature water wheel, but you can just as easily use this model and instructions to create a larger, more powerful water wheel that is more functional.

Self-powered Energy

You may have seen how people are using people-powered equipment and tools to save energy and even get in some good exercise time. As an example, instead of using motor-powered riding lawn mowers, some are adapting an old bicycle into a "riding" mower by attaching the blade case from a non-electric push mower to a bicycle and powering the machine by riding the bicycle.

You can make a human-powered generator with an old bicycle and a battery that will provide basic lighting for your home and

power to charge devices. Don't forget that EMP is an electromagnetic pulse that will induce a current into the wire that it crosses. Whatever is attached to that wire will be subject to that current. Electronic devices contain coiled wire components and when the wave crosses those wire windings, the current is increased and additionally, the high speed creates a voltage spike. When the voltage is high enough and there is enough current, it can overload components in the device and burn it out. Your devices are very vulnerable and keeping them safe during HEMP and charging them afterward should be a priority!

It is an excellent choice to employ self-powered energy into your preparation plans for HEMP. As long as you are healthy enough to power your machines and equipment, the self-powered items are a dependable and low-cost option.

Hydro-Electricity

If you have access to steadily flowing running water with a drop in elevation on your property, you may be able to take advantage of cost-efficient, renewable hydro-electricity. You can create a micro-scale hydro-electric system by making an enclosed water wheel or turbine that is propelled by jets of high-velocity water. The turbine is connected to an electrical generator and the electricity is available for charging batteries, running appliances, powering devices, etc. so that only a small battery bank is required.

The system does have moving parts, so you would need to store spare mechanical parts, generator brushes, and replacement electronic and cabling parts in a Faraday cage to avoid disabling because of HEMP.

Batteries

Batteries can be very helpful post-HEMP, even though they have a shelf-life and are too expensive to use exclusively for a long period. They are instantly available and can be used while trying to regroup in whatever way is necessary.

When purchasing batteries for preparation, look for a shelf life of at least four years. Lithium batteries will provide a much longer shelf life than alkaline batteries. Make sure you purchase various sizes to be used in all the different ways they need to be used.

Of course, rechargeable batteries have lower replacement cost and less negative environment impact. If they are properly maintained, they will last a long time. It is well worth it to invest in a high-quality, super-rapid charger with auto-diagnostic, dead cell detection, and auto discharge features. An investment in this type of charger will keep batteries in good condition and help them last longer.

You should also have two battery chargers that do not require batteries so you can check the charge status of store batteries at any given time.

The do-it-yourselfer can find plenty of good options for producing energy and being prepared with energy for post-HEMP days. The main thing is to follow through with projects. Start now!

6: LIGHTING WHEN THERE IS NO ELECTRICITY

Keep in mind that there is lighting available that does not require batteries or electricity. These light sources may not be as convenient as what Americans are accustomed to using, but they are easily available pre-EMP, easy to store, and inexpensive.

Non-battery lighting may include the following:

- Candles
- Candle lanterns

- Duel-fuel lanterns that can be fueled with unleaded and white gas or Coleman™ fuel
- Kerosene hurricane lamps
- Oil lamps
- Oil lanterns
- Liquid propane gas lanterns

To utilize these types of lighting, you must remember to store plenty of fuel, wick, lantern mantles, a candle tamper, and sharp scissors to trim wicks. Always store more than you think you will actually use!

OIL LAMPS

You may think of the classic Aladdin-type lamp when you hear the words *oil lamp*. That style of lamp has been used for centuries and, depending on the size of the lamp, can definitely provide a bright enough light for reading, working, and functioning at night. There are also other types of lamps that use oil for fuel, including the classic hurricane style lantern that is both

decorative and practical. The most common types of oil lamps are made from glass or brass. Some simple oil lamps are carved from stone.

Oil lamps and the fuel for them, as well as the wicks and accessories, can be purchased at most outdoor stores and many big box stores.

In an emergency, you can make an amazingly simple oil lamp if you have a little vegetable oil, a short length of wire, a strand of cotton or natural fabric, and a flat tin can such as the type that tuna comes in. Simply open the flat tin and pour in a little oil. For a wick, use a strand of cotton or other natural fiber cloth. Bend a piece of wire into a coil to keep the wick straight.

The simple oil lamp supplies are easy to store. An excellent idea for wicks is to buy a cheap cotton mop head at a Dollar Store and cut the mop head strings into “wicks” for your lanterns.

Store your oil lamp kit in waterproof bags along with matches so the wicks and matches do not collect moisture.

CANDLES

Today, candles are used mostly for decorative purposes and for adding scent in the home, but there was a time when candles were the main light source for most American pioneers. People managed to read, sew, and do chores with no other light beside candles, and making candles was a regular chore for the women and older children of the house. There are many ways to make candles from dipped tapers to poured candles. Learning to make your own can save money and help you prepare for darker HEMP days when the warm glow of candles that you have handmade might be comforting.

If you intend to use candles as a main or supplemental form of lighting after the power goes out post-HEMP, it's best to create a stock of long-burning candles for your preparation kit. Below is a simple way to make container candles that are easy to store because if the environmental temperature gets warm, they will still be contained and not melt away. For the recipe below, canning jars or jars leftover from food products are used, but many different kinds of containers can be used. It's best to use

containers with lids when possible, in case the wax melts. Possibilities for containers include wax milk cartons, tins, small flower pots, and tin cans or other containers that you might normally throw away.

Container Candles

This recipe yields about 24-ounces for candle wax. For container candles, you'll need the following supplies:

- Wicks or roll of wick string (pre-waxed cotton is best)
- Tabs
- Five-pound bag of wax flakes
- Lengths of very small wooden rods or pencils that are as long as your containers are wide.
- Jars or other containers (one to hold 24-ounces or a combination of smaller runs to hold total of 24-ounces of wax)

Instructions:

- Measure your container heights and trim the wicks according to container height plus about three inches so you can tie wick around pencil or rod. It's better to get the wick a little too long than to get it to short because you can always trim again after the wick is in place.
- Insert the wicks into the tabs and place them in the bottom of the container. Tie the other end of the wick around a pencil or small rod and place the rod horizontally over the top of the container so the wick is taut and centered.
- Melt the wax flakes in a double boiler. If you don't have a double boiler, fill a large pot with water and put on medium-high heat to bring to a boil. Reduce heat to low. Put wax flakes in a smaller pot or coffee can that will fit inside a larger pot and put it in the water in the larger pot, making sure that no water can get into the wax flakes.
- Carefully stir the wax as it melts.

- Carefully pour the melted wax into the containers up to about three-fourths of an inch from the top of the container.
- Make sure the wick is centered. Let the wax harden completely. Trim wicks to one-fourth inch above the wax surface.
- If you used jars or containers with lids, place lids on containers. Store in cool space where the candles are easily accessible in an emergency.

If you find yourself in the dark and not prepared with candles, did you know that you can make an emergency candle out of a can of shortening? It is said that one "shortening emergency candle" will burn for up to 45 days. You can make several candles ahead of time and put the shortening can lid back on the candle to preserve it during storage.

Here are the instructions for the simple candle:

Supplies

Can opener

1 48-ounce tub of shortening in metal can that will not burn (Crisco brand seems to work best)

1 ten-inch wax-coated candle wick or piece of string (the prepared wick with metal tab on bottom is best and easiest to insert)

1 chopstick or stick about the size of a chopstick

Matches

Instructions

- If the tub of shortening does not have a pull tab, open the can with can opener.
- Use the chopstick or similar stick to put a hole in CENTER of the shortening. Go all the way to the bottom of the can.
- Using the stick to press downward on the metal tab on the bottom of the wick, push the wick down the hole created by the stick to the bottom of the can. Don't worry if the hole enlarges a bit as you press the wick in. The shortening will fill in space as it melts.

- Gently mold the top of the shortening around the wick to make it stand straight over the top of the shortening. If the wick curls over considerably, trim it before you light it.
- Now you can light the wick. At first, only the wick will burn, but as the wick burns down, the shortening will start to burn like a candle.

Instant Make-Do Emergency Candles

In an emergency where everything suddenly goes dark and you are not prepared, remember that crayons that are wax can burn for a short while to provide enough light for you to create a longer term solution. Simply light the end of a candle.

If you happen to have an orange and a little bit of oil available when the lights go out, slice the orange in half horizontally and take out the fruit but leaving the stem intact to be used as the wick. Pour a little oil in the orange rind half and light the stem "wick."

Another kitchen item that can be used for an instant, though very short-term, candle is to stick a small length of cotton string into the center of a stick of butter and light the cotton string.

SOLAR-POWERED LIGHTING SOLUTIONS

There are several self-contained solar lighting solutions for providing some necessary lighting post-HEMP. You can use these lighting solutions in portable ways or more permanent ways.

Solar Yard Lights

For starters, purchase a few sets of solar yard lights to store in your Faraday cage. The solar yard lights are self-contained with a battery that is charged by the sun, so you do not need batteries. Just make sure the yard lights are not terribly old. Some discount stores sell older ones that may not meet what you need.

Solar-Powered Lanterns

Solar-powered lanterns usually have a four-hour usage time for the lamp and a 48-hour time on a built-in LED flashlight. They can recharge in about six hours. The lanterns are safe for indoor use and do not present the same fire hazard concerns as lanterns with a flame. This can be a particularly advantageous feature for lighting for children's rooms. They also have a small integrated charge controller to prevent the danger of overcharging.

Solar Home Systems

Purchasing a solar home system can keep all the items in your home running smoothly consistently without worry. The systems come with USB ports for your mobile devices. Even if you cannot use your mobile device immediately, you want to keep it charged and ready to go for use when everything is reset for using it. Keep in mind that in some areas within the periphery of an EMP-affected area, there may still be some services that will allow the

use of the cell phone, including in some mountain valleys where devices may be partially shielded from a low-level EMP. Also, keep in mind that text messaging works on a more robust system that uses less bandwidth than calling and sometimes text messages will go through for emergencies when a call will not.

In most cases, the solar home system consists of ten or more LED lights with cable length capability to stretch to two rooms and can recharge in about eight hours. The system uses a first generation silicon solar panel that provides a longer usage time of between five and ten hours.

Solar LED Torch with Mobile Phone Charging Capability

Solar LED torches with mobile phone charging capability are nifty units that can be charged by either solar energy or by manually cranking them. For most, one minute of cranking can provide 30 minutes of light. Cranking for about two minutes provides enough charge for you to make a short phone call or send a text message. These units have a long-life LED source and are

maintenance-free, making them an excellent choice for your HEMP preparation kit.

Solar Reading Lights

When the power goes out, what one does for entertainment will change. There will be little or no TV and computer. This means reading paper books may be the best form of entertainment available. That's not a bad thing at all! However, you must have a reading light, and solar reading lights may be your best solution. They are great for individual use for reading and writing and doing task work. They provide up to around five hours on two long-life LEDs and they charge in about eight hours and contain their own solar panel. The individual solar reading lights are safe for children to use and may even be a fun thing for them.

Emergency Back-up Lighting for Indoors and Outdoors

In emergency lighting, the battery will take over as the power source automatically if the electric power is shut off. This type of lighting usually provides up to around four hours of lighting when you need it. They can be wall-mounted and ready to come on in an emergency, but they are then connected to the home's or building's internal wiring so they would only be effective if in a properly shielded building that is not connected to the grid.

Even when the electric lights go out with a HEMP disaster, there is no reason to be left in the dark if you prepare now with alternative lighting and power sources.

7: THINK VINTAGE FOR EMP PREPARATION

VINTAGE ELECTRONICS

To help you prepare for having the items you need and want to be able to use post-HEMP, stop and think about how your great-great-grandparents, great-grandparents, and grandparents (depending on your age) functioned in their time. They did not have the technology that is available today, yet, they had what

they needed. Perhaps you can go back in time and find vintage treasures that will allow you to have what you need in the event of HEMP.

Why vintage electronics? Because they do not have modern circuitry included that most of the devices today have. This means they may withstand the effects of HEMP and still work.

Look for vintage, solid state stereos, turntables, telephones, and televisions to store up for HEMP scenarios. Even though the vintage items will require a power source, they will probably still work after HEMP. Today, most devices and electronics run on extremely efficient, low-voltage microchips and microprocessors that are vulnerable to the high voltage generated by HEMP. In the event of HEMP, it would take many years for manufacturers to get up and running and produce the items that would be burned up. Vintage analog electronics from the pre-digital time were made with simple components that are more dependable in some ways.

VINTAGE TOOLS

As you go about your daily life, dressing, preparing food and eating, cleaning, going from one place to the next, stop and think about how your ancestors did all of these things without electricity. When your great-great grandma baked a cake for Sunday dinner, she did not have the modern convenience of a mixer. She probably mixed it with an old-fashioned egg beater. She did not have a food processor to chop vegetables; she used a knife.

In the old days, as they are called, hand can openers were used instead of electric can openers. People mended clothes and sewed clothes by hand because they could not simply go out and buy clothes anytime they wanted to do so. They did not have a washing machine to wash the clothes. They used washboards or stones to clean the clothes. Most everything was done "by hand" back then and without electricity.

Start to collect vintage items that you can use to do your daily tasks and take care of yourself and your family without having to

have electricity. It is amazing what type of tools, kitchen equipment, and other necessities you can find that do not require electricity. Check at antique stores, on trading sites online, and on the Craigslist listings for antiques. If you enjoy rummage sales and yard sales, pick up that old washboard or egg beater when you see it. It could come in very handy in the event of HEMP.

8: GAS GENERATORS

Gas generators can be a lifesaver in emergency situations. They can provide power for emergency medical equipment, portable AC, and other necessities. Some smaller, portable generators are great for powering light power tools or small appliances. The heavy duty generators can be used for power for an entire house if appliances, computers, and such are used selectively.

Gas generators are workhorses that are built to last many years when properly maintained, but there are some vulnerabilities

that include electronic ignitions, starter coils, electronic fuel injection, and distributors. When a generator has these vulnerabilities, it will be harder to store replacement parts to get the generator running after an EMP. The availability of fuel can be another problem. It is important to note that you cannot bring a generator with a combustion engine into the house to use it.

GENERATORS THAT POWER THE WHOLE HOUSE

Whole house generators are ideal for providing continuous automatic power during all types of emergency situations, backing up preselected circuits for the whole house. Depending on the model, most whole house generators will kick in within seconds of losing power if they are connected to existing natural gas or LP supply or if they have their own diesel fuel supply. When selecting a generator, keep in mind that natural gas is considerably cheaper than diesel or unleaded fuel. This can be a significant factor if the generator is used as the main or almost the only source of power, as the fuel will quickly be consumed.

Some generators are tri-fuel, which can be good considering you don't know what fuels may be available after an EMP. Conversions kits are available to replace the carburetor of an unleaded generator so the generator can run on LPG or NG instead.

Large NG or LPG tanks can be buried on your land so they are not so obvious. In times of chaos from emergencies, it may be best that everyone doesn't realize you have a fuel tank. These large tanks can provide a much safer and cheaper fuel source than liquid gasoline sources.

If you or a family member's life depends on power for oxygen concentrators, dialysis machines or a stock of refrigerated insulin, you will need a backup fuel to ensure a constant power supply, as the generator will only run for as long as there is fuel for it. Turning the generator on and off manually will help conserve fuel and so will operating it at a lower RPM.

Keep in mind that if your generator is wired into your home electrical system, the vulnerable components of the generator would need to be shielded to survive an EMP.

THERMO/ELECTRIC POWER GENERATORS (TEGS)

Thermo/Electric power generators also known as TEGs utilize the Seebeck effect, which is the opposite of the Peltier effect, to general electrical energy. The Seebeck effect is the conversion of temperature differences directly into electricity. The Peltier effect is the presence of heating or cooling at an electrified junction of two different conductors.

The requirement for this type of generator is that each face of the device must be exposed to different temperatures so you have a hot side and a cold side. The greater the temperature difference in the faces, the more power is generated. The TEG is capable of temperatures up to 320 degrees Celsius.

When you get ready to purchase your generator for your HEMP preparation, determine exactly what you will use the generator to power. This will help you decide what size to buy and what type you want to buy in regard to fuel type and so forth.

If purchasing a generator is out of your budget, consider asking trustworthy neighbors if they might like to contribute funds

toward a larger community generator that everyone could benefit from in the event of a disaster. If you do this, draft an agreement that explains everyone's contribution and everyone's use of the generator so there are no misunderstandings at a later date. Of course, this type of arrangement should only be considered with people that you know well and trust.

9: HEATING

If you live anywhere except in a very mild climate where even the winters are not cold, you will need a good way to keep yourself and your family warm after an EMP. Fortunately, you have several options for efficient heating when there is no electricity or limited power for heating.

As is the same with all heating units of any kind, make sure you understand the precautions with each type of heating discussed

in this unit and educate children on the safety of heaters that they might not be familiar with.

PROPANE HEATERS

Propane heaters can provide a fairly safe and economical source of heat for your home. They come with various features and in different sizes to meet your specific needs. Small propane heaters can heat up to around 400 square feet of space for anywhere from 90 minutes to six hours on a single one-pound propane cylinder set on low to medium. Many smaller propane heaters accommodate two, one-pound propane bottles and can heat the same 400 square feet for three to 12 hours.

Of course, larger propane tanks can be hooked up directly to the heater with the appropriate distribution hoses, adapters, and a fuel filter. The larger tanks are more convenient than the small propane bottles that have to be changed frequently, but the large tanks are not as portable in the event that you need to change locations. Also, the tanks require that a propane service fills the

tank, and you do not know what services will be available post-HEMP. In any case, having a large propane tank filled can be quite expensive and propane will be at a premium price after nuclear HEMP hits and everyone needs an alternative heating source.

If you decide to use a propane heater as your alternative source of heat and to convert your cook stove and other appliances to propane, it would be best to purchase two 420- gallon or 500-gallon tanks that would heat your home and allow for cooking conservatively for a longer period.

WOODSTOVE AND FIREWOOD

Depending on what part of the United States you live in, a wood stove may be a good source of non-electric heat for your home. The key to using a woodstove is that wood is plentiful for you to stock up on during your preparation time. You may be able to purchase cords of wood that are already cut into round logs of a length that will fit into the woodstove once split, or even split

logs. In some states such as Oregon, you can purchase permits to cut down trees on national forest lands for a certain amount of wood. Keep in mind that you can't burn "green" firewood. Firewood needs to dry and season for a year, if possible, before burning it. This means you would need to get the firewood as soon as possible.

Woodstoves are advantageous for their capability to heat an entire house and also, depending on the age and model of the stove, provide a way to heat water and warm foods.

Wood stoves are easy to maintain and can last for years if properly maintained. You must have a proper chimney to allow smoke to escape the house. Drilling a hole in the roof and installing the appropriately insulated piping is the most common method. There are housing code rules for how a wood stove can be installed and the type of piping used in the installation. Make sure any used or older woodstove and piping that you consider meets the housing codes for your county. Also, be aware of the EPA regulations regarding wood stoves.

Woodstoves are fairly simple to use, but you need to know what you are doing. Make sure you understand how a woodstove works and how to maintain and use one before you have to use it. Also, learn in advance how to cut, split, and store firewood for optimum long-burning.

Depending on the area in which you live, you may have several options for firewood. Not all firewood is created equal. Some types burn longer and more efficiently than others. Research what types of wood is available in your area. Some of the most high-rated fire woods include the following:

- Honey Locust
- Bur Oak
- Mulberry
- Maple
- Red Oak
- Orange Osage
- White Oak
- Black Locust
- Black Walnut
- Ash

- Coffee tree
- Sycamore
- Juniper
- Ponderosa Pine

WOOD BURNING FURNACE

Wood furnaces are similar to wood stoves in that they use wood for fuel, but they large units that are designed for using outdoors. With wood furnaces, the heat is transported to the inside of the house using ducts. In cold climates, the ducts are buried underground to increase the efficiency of the furnace.

The advantage to wood burning furnaces is that they are large enough that you only need to fill them with wood once a day. Wood stoves usually need to be stocked several times a day and throughout the night to keep a house consistently comfortably warm. Another advantage is that wood furnaces often come with a tubing feature that is used for heating water.

Wood furnaces are large and take some time to set up so it is best not to wait until after an emergency to depend on them for heating your house. If you set them up ahead of time, they are instantly ready to use when disaster strikes.

FUEL

Commodities such as fuel will be scarce post-HEMP. Any type of fuel will be hard to get and very expensive. It is best to determine the types of fuel you may need ahead of time and store as much as you can before there is a HEMP strike. You can never have too much fuel on hand!

Some types of fuel to consider stocking, depending on your needs, may include the following:

- Charcoal, which can be used for heating and for cooking food on an outdoor grill
- Gasoline and gasoline/oil mixture, which can be used to fuel vehicles, equipment, and small tools such as a chainsaw

- Diesel, which can fuel many larger generators, tractors, and some autos as well as some diesel versions stoves, refrigerators, heaters, hot water heaters, and other appliances
- Kerosene, which is widely used as a home heating fuel for portable heaters, stoves, lamps
- Propane, which can be used for barbecue grills, portable stoves, camping stoves, some lanterns
- Biofuels, which you can often convert various vehicles, equipment, appliances, and tools to operate on

Always make sure you store any fuel correctly to ensure it will be usable when you need it and to ensure that it will not create a fire or safety hazard. This is particularly important if you have children in your home.

10: GROWING YOUR FOOD

If there was a nuclear attack today, the power was off indefinitely, and the local grocery store shelves were empty, how long could you and your family live off the food that you currently have in your house? (Remember, the food in the refrigerator and freezer will quickly ruin and become inedible without refrigeration so you can't count on it for very long.)

Today, many people depend on being able to go to restaurants, stop by fast food drive-through, or go to the grocery store daily or

at least a few times per week to meet their need for food. In the event of HEMP, this will be a habit of the past. Grocery stores and restaurants may not have electricity to operate their store or maintain the refrigeration for keeping food frozen or cold, and even if they could, it is highly likely that all grocery deliveries would be stopped.

There are several ways to take control of your food supply to ensure that you and your family do not go hungry post-EMP.

GROW YOUR OWN FOOD WITH A TRADITIONAL GARDEN

In recent years, with the advent of people demanding clean food instead of foods that contain chemicals, hormones, and pesticides, there has been a resurgence in the family and community garden to put food on the table. You do not have to own acreage to grow your own food. Many people are successfully growing enough vegetables to keep their family supplied in small backyards, in containers on patios, on rooftops, or even in their home. If you have no space at all for even a container garden,

consider leasing a garden plot from a local farmer or participating in a community garden.

There are many advantages to gardening. If you start your garden from seed, growing your own is less expensive, which means you can spend less on food and more on preparation supplies that you must purchase. Growing your own food means you can grow food for now and for canning or dehydrating for your emergency stock.

In some climates, you can grow food almost the entire year. In other climates, you may be limited to planting and growing the traditional outdoor, in-ground garden only during the summer. With the help of a greenhouse, you can definitely extend your growing season, even if you live in a colder climate.

Your first step to the garden is to find out what your climate zone is and what you can easily grow in your zone. If you live in the northern states, you may not be able to grow the big beefsteak tomatoes that require a long, hot growing season, but you may be able to grow cherry tomatoes or varieties that can tolerate shorter growing seasons. Choose vegetables, berry bushes, fruit trees, and herbs that are compatible with your climate so your garden

does not fail. To get the yield you need for feeding your family, choose plants that will grow well together and complement each other rather than fight for space in your garden.

Also, consider the amount of water required for what you want to grow. No one really knows what will happen with the water supply if there is a nuclear attack, but it's best to be prepared with the fact that the water supplies could be shut down at least temporarily. It is best if you do not have to count on the city water supply to water your garden. You can collect rainwater in barrels and store it for watering your garden. (You should know that collecting rainwater in barrels is prohibited in some circumstances in some cities, so check the regulations!)

Your research should include the best spot to plant your garden, what to use for natural fertilizer, how to harvest what you want to grow, and how to preserve your harvest. If you know any avid gardeners in your area, they may be an excellent resource for information. Your local county extension office should be able to provide solid information as well.

There are many excellent books available at your local public library that can help you with each step of gardening, but the basic steps required for gardening include the following:

- Conduct research on the zone and climate you are in and what you can grow in your area.
- Do research on space needed, watering requirements, and season length for each plant.
- Make a list of what you want to grow.
- Draw garden blueprint
- Send off for seed/plant catalogs or look at them online to order seeds and plants.
- Select the best spot for your garden or raised beds where the plants will get required number of hours of sunlight.
- Set up a system to collect rainwater for watering the garden.
- Test soil and prepare the soil with the correct soil amendments so your soil retains water and provides the right nutrients for the plants.
- Keep garden fertilized with natural fertilizer.

- Keep garden weeded and watered.
- Harvest the garden.
- Put the garden to bed so it will be easy to start the garden the next season.

When there is a nuclear attack, many of the conveniences that Americans take for granted today, such as running out to the local drug store and buying cough medicine will disappear. For that reason, it could be extremely advantageous to grow a medicinal herb garden and educate yourself on how to harvest and prepare the herbs for tinctures, salves, syrups, and poultices. Herbal remedies can be used to alleviate pain, treat injuries, and for many common illnesses and health issues.

INDOOR GARDENING

Outdoor gardening space can be a problem for many apartment dwellers and those who live in the city, but that doesn't mean they cannot grow some of their own food if they have some space indoors for plant containers. An indoor garden doesn't demand

the large dedicated space that a traditional outdoor row garden requires, but still yields a bountiful harvest. A garden can be grown in the small space of a window sill or on a single shelving unit.

One thing to remember is that if you have a very small space, it may be best to choose plants that are compact, rather than ones that sprawl out and want a large living area all to themselves. For an example, if you want to grow tomatoes in your indoor garden, choose an indeterminate plant that grows laterally and produces smaller tomatoes all season, instead of one that branches out and grows larger tomatoes for a limited harvest. Many plants also come in dwarf versions that are adorably decorative and well-behaved for growing indoors.

Another good option for maximizing your space is to grow plants that do well in hanging pots or baskets. Smaller, lighter plants are the best options for hanging baskets. Plants that do well in hanging baskets include strawberries, peas, spinach, a variety of lettuces, and many herbs. That's the very short list. There are dozens of other vegetables, fruits, and herbs that thrive in hanging baskets.

Plants can survive in just about anything that will hold the correct depth of soil or grow medium and allow for proper water retention and drainage. You've probably witnessed this as you've seen flowers, ornamental plants, herbs, and vegetables planted in everything from a child's rain boot to vintage tea kettles. Whether your choice of containers is whimsical, elegant, rustic, practical, or artistic, repurposing objects as plant containers can be fun and a good way to express yourself through your indoor garden. However, you must not forget that the container you choose must also serve the plant that grows in it, and that plant has certain needs that must be met.

To start your plants from seeds, you'll need flat shallow trays or small individual pots so the seedlings can be easily removed and transplanted to the right size containers at the right time. For convenience, it's hard to beat the plastic trays that have anywhere from six to 24 individual planting "pots" in them. The trays usually come with a drain tray underneath and a handy transparent lid to keep the seeds cozy and hold in moisture. The same type of tray that is made from peat can also be purchased. The neat thing about the peat trays and small peat pots is that

they are biodegradable. The plant, along with the peat pot, can be planted directly into the soil of a larger pot when it's time to transplant. The downside is that the peat pots are not reusable.

Newspapers, BPA-free milk cartons and jugs, egg cartons, yogurt containers, and other food containers also make good pots for sowing seeds. Just be aware that when it's time to transplant, you must be able to get the fragile seedling out of the container without harming the roots, leaves or stem. There are many cute novelty ways to plant seeds—in clean egg shells, half an orange rind, shallow jelly jars, or muffin tins—depending on how creative you want to be and whether you want to take the time for these special planters or stick with the tried and true flats.

If you want your transplants to flourish and yield a good harvest, and of course you do, the container size does matter. When choosing containers, it's important to know the root depth and habit of the plant. Some roots grow straight down and deep, while other roots remain closer to the service of the soil, but spread out. Lettuce can grow in a very shallow container, but needs a little room to grow leafy. Zucchini needs a container that accommodates its deep roots as well as wide enough for the big

leaves. As a general rule, most vegetables and herbs need a container that is, at least, six inches deep. The width or diameter of the container depends on the plant and how many plants you intend to plant in one container. Some plants, such as herbs, are more adaptable to sharing their container with other plants.

As a general guide, if you're using traditional planting pots, a ten-inch pot is sufficient for one lettuce plant or most small herbs. A fourteen-inch pot can hold three or four non-heading lettuce plants, one cabbage or collard plant, three or four spinach plants, most any single herb plant or two or three or four smaller plants. An eighteen-inch pot will give a home to one determinate tomato plant, one cabbage, one broccoli, one small eggplant, one cauliflower. One large pepper plant, one artichoke plant, one summer squash plant, or a combination of four to six smaller vegetable or herb plants can be grown in a 24-inch pot.

Good drainage is essential for your plants' survival and health, so it's not wise to use containers that do not have drainage holes unless you want to take the extra time and step to create drainage in the pot by putting a layer of gravel or rock in the bottom of the pot before planting. In many instances, depending on the

material the container is made from, you can drill drainage holes into the bottom of repurposed containers.

STRAW BALE GARDENING

If lack of good soil is preventing you from gardening, consider straw bale gardening. Straw bale gardening is a form of economical gardening where a bale of straw is used as both the container and the soil for a plant. Straw bale gardening makes the garden less permanent as the straw eventually decays to be used for organic soil the next year. You can usually purchase a straw bale for under ten dollars from local farmers or at feed stores. You can plan on putting three or four plants or more in each straw bale. Some taller plants such as tomatoes will need to be staked in the straw bales.

To start your straw bale garden, follow these steps:

- Layout your straw bales where they will get plenty of sunlight and be in a place where you can water them. Once they become wet, they can be moved, but they are

very heavy so plan on leaving them wherever you place them.

- To condition the bales, you'll want to heat them to 100 degrees. There are various methods for doing this, but the simplest is to simply keep them wet for about four weeks prior to placing plants in them. A quicker, but more involved method is to water the bales thoroughly and keep them damp for days 1-3. On days 4-6 sprinkle the straw bale with ½ cup high-nitrogen fertilizer such as ammonium nitrate (34-0-0) each day and water the bales afterward. You can also use blood meal on days 4-6 instead of the ammonium nitrate. On days 7-9, use only ¼ cup of the fertilizer per bale per day and continue to water after each application. On day 10, water the bale to keep it damp, but do not use any fertilizer. On day 11, see if the bale has cooled down by sticking your hand inside the bale and seeing if the straw feels cooler than your body heat. If so, your bale is conditioned and ready to plant as long as all danger of frost has passed in your area.

- If you are starting with seeds, put a two-inch layer of seed starting mix on top of the bale and water it well and plant the seeds as directed on the seed package. If starting with a plant, make a crack in the bale for each plant. Add a little potting soil around each plant. Place the plant down to its first leaf and close the crack in the straw by gently pressing it together. Fertilize the plants and water.
- Keep the bales damp. In hot weather, you may need to gently wet the bales two or three times during the day. The bales will begin to compost and need less water as time goes on.

HYDROPONICS/AQUAPONICS

Aquaponics is basically the combination of aquaculture and hydroponics. Both of these forms of gardening have their drawbacks but also some advantages so together they form a great system. Hydroponics requires a system that can be expensive, depending on the system you choose to set up, and

expensive nutrients for feeding the plants. The system requires periodic flushing. Recirculating aquaculture needs to have excess nutrients removed from the system, which means that a percentage of the water is removed on a daily basis. This nutrient-rich water needs to be disposed of and replaced with clean water. This recirculating system make aquaculture and hydroponic negatives turn into a positive!

Aquaponics can be very simple or somewhat complex, depending on how much effort and money you want to put into it. You can make your containers out of barrels cut in half. You will need to install a small drip system to water the plants. PVC pipe that is placed horizontally or vertically can be used. Research shows that an aquaponics system uses about one-tenth of the water used to grow vegetables in the ground.

You will also need an alternative energy source to power the system that has a pump that oxygenates the water as electricity will not be available post-EMP. You may be able to use a windmill, small solar panel, or water mill to solve this problem. Small systems can be run easily by simply moving a bucket of water from the fish tank to the grow bed several times per day so

that the grow bed floods. Sometimes a hand pump is used for this. Using an engine-based pump is also an option that is energy crisis-proof.

If you are planning on counting on food from a garden in the event of HEMP, get your garden started as soon as possible so it is available as needed and you have plenty of time for trial and error if you're not accustomed to gardening. Another step to take in preparing for your garden, especially if you live in a cold climate, is to build or purchase a greenhouse that will allow you to start plants much earlier in the season and extend the end of the growing season. If you are dependent on your garden for food, the length of the growing season will make a big difference.

BEEKEEPING

Keeping a small hive and bees on your property is an excellent way to make sure you have organic honey on hand for sweetener and nutrition. Pure raw honey alone or as an ingredient with medicinal herbs is a powerful anti-bacterial and can be used in healing salves and remedies. It is also beneficial for adding moisture to skin and softening the skin. Having honey bees on your property will also help your garden thrive. It's a win-win situation for the garden and the bees!

Make sure no one in your immediate family, friends, or extended family are allergic to bee stings before you bring bees to your property. If so, determine how to overcome this obstacle. It's also a good idea to check with close neighbors and ask if they or their children are allergic. Happy bees are not usually intent on stinging people, but it happens because bees are bees and bees sting! Check with your city or county officials to ensure that you are allowed to have bee colonies where you live. It is usually no problem.

The equipment you'll need for beekeeping includes the hive stands, hive boxes, hive tool, bee brush, bee suit and gloves, and a smoker. You can order these supplies from online beekeeping supply stores if you do not have one in your area.

Choose a good spot in your yard or on your property to put the beehives. The hives need to be about 18 inches up off the ground. You can easily construct hive stands from cement blocks and 2x4s.

Bees can create nests in natural hollows in trees and the spaces between joists in houses and store their honey at the top of the

nest and the pollen, which is their main brood food, below the honey near the brood area where the queen lays her eggs and young bees are raised. You will follow the same model in choosing or building your bee hives: honey on top, pollen surrounding the brood nest, and brood at the bottom.

You can get your bees from a natural feral swarm yourself or hire a local beekeeper to get the bees for you. You can also trap your own bees or order a package of bees from a bee breeder.

Bees do most of the real work, but you'll have to be available to manage the bees, check hives, and harvest the honey. In some parts of the US where the weather stays warm well into the fall, the bees' foraging season will be long; in other parts of the country, the season will end earlier.

A beekeeping setup is best started well before you are dependent on the honey.

FORAGING

Foraging isn't growing your food. It's more *searching* for food that is growing naturally in the wild. It is amazing that so much food grows in the forests and other wildlands without any help from mankind. You can find wild berry bushes, herbs, nut trees, and even nutritional plants that are often considered as "weeds" such as lambs ear. Even pine needles from pine trees can be used for their nutritional value. The best way to know what to look for and where to find it is to invest in a comprehensive field guide for wildcrafting edible plants.

You can also forage in abandoned orchards, with permission, of course. And often, you can find that people have fruit trees or nut trees in their yard but do not want to go through the trouble of harvesting the fruit. Sometimes they are happy to have someone else harvest the fruit in exchange for the harvester keeping most of the fruit for themselves. The fruit can be canned for later use or traded/bartered for survival supplies or other food.

Gleaning farmers' potato fields and other crops after the machines have harvested the fields and left behind produce is

another good way to gather food and preserve it for days when food is scarce.

CONNECT WITH LOCAL FARMERS AND RANCHERS

If you are not able to forage or grow much of your own food, try to connect with local farmers from whom you may be able to count on for your food supply in the event of a national disaster. If you do this, let the farmer know that you are willing to pay a quality price for their produce, poultry, and beef now and you are counting on them to keep you on their preferred customer list when disaster strikes.

BACKYARD CHICKENS AND OTHER FOOD

If you have any acreage at all, consider raising chickens, fowl, and livestock to ensure food, particularly protein, for your family and others. If you do not have acreage, you may be able to, at least,

raise backyard chickens as the city ordinances have recently changed in many cities to allow backyard chickens.

Raising backyard chickens and small animals such as rabbits or goats for food is not difficult if you do your research and learn all that is required to select healthy animals, feed and water them properly, provide adequate space and shelter, and provide care for them.

An inexpensive way to start your chicken flock that will provide fresh eggs and meat is to purchase healthy baby chicks now and build a modest hen house and chicken run while the chicks are growing. The bare requirements for chickens is a place for them to be safe from predators and get in from the elements, a place to roost (roosting rods or small tree branches in the hen house), nest boxes to lay eggs and sit on the eggs they want to hatch, and a place to get outdoors into the sunshine to exercise and scratch and forage for bugs. Of course, they need proper food that meets their nutritional requirements.

Chicks can usually be purchased from farmers or at a feed store in agricultural areas or purchased online. Keep in mind that

however many chicks you order, you will probably lose at least a few during shipping.

By the time the chicks are pullets at about six months old, each will start laying an egg about every 24 hours. If you're depending on chickens for eggs, keep in mind that chickens stop laying in the winter months when the days grow short. Chickens require a certain number of hours of sunlight each day to produce eggs. Some chicken farmers "trick" the chicken into laying through the winter by putting light bulbs in the hen house.

Roosters are not required for hens to lay eggs. Although many cities have an ordinance against keeping roosters, if you want fertile eggs to produce more chicks, you must have a rooster or two in with the hens.

To keep chickens, you must make sure you store enough feed for them for times when commercial feed may not be available. It's important that the stored chicken feed is kept dry and free of mold or bacteria that can quickly wipe out your flock.

Other forms of "food" that you can raise on your small property or sometimes in your backyard may include goats for milk and

meat, a fish pond, rabbits for meat, turkeys for meat, quail for meat and eggs, and ducks for meat and eggs.

WILD PLANT FORAGING AND EDIBLE LANDSCAPING

It could be well worth your time to purchase a field guide for your area if you live near a natural area where wild medicinal or edible plants grow. Field guides will help you identify plants and provide information on whether they are edible and how to prepare them for eating or prepare them for medicinal purposes. Keep in mind that you might be able to forage more food than you would expect in your own city neighborhood. As an example, the common dandelion is a highly nutritious edible “weed” that is often despised by those trying to grow lawns.

After HEMP strikes, there will be no water for keeping manicured lawns. Why not start planting edibles that do not require massive amounts of watering in your yard now?

11: FISHING AND HUNTING

Even if you have never had a desire to hunt or fish for sport, try to gain the motivation to learn how to fish and hunt. After a nuclear attack, hunting and fishing may be the only way you are able to feed yourself and your family on a long-term basis.

If you are opposed to owning guns for safety or other reasons, learn to hunt with a bow and practice with a target so you can depend on your skills to provide meat for your family. There are

many excellent videos on YouTube and ones that can be purchased at outdoor sports stores to teach you to hunt and fish and to help you determine what equipment and supplies are needed.

Of course, if you live in an area where wild game and/or fish are not available, hunting or fishing won't be an option for providing food. If fish and wild game are available, map out the areas where you can go fishing and hunting. When hunting and fishing become a necessity for survival, everyone will be heading to the lakes, rivers, ponds, and hunting areas. Make sure you have mapped out secluded areas that others may not know about. Also, make sure that you have a vehicle that can make it to the area and plenty of fuel for the gasoline. It would be good to make practice runs to the area and check out the hunting or fishing in advance. Remember that even if fishing or hunting is good in an area now, that does not mean it will be at a later time. For that reason, check out several areas.

Obtain the required fishing and hunting licenses in advance and purchase fishing rods and reels, tackle box, lures, weights, fishing line, hunting rifles, cleaning kit for guns, ammunition, bow and

dozens of arrows, carry-out bags for killed animals, knives for cleaning, and other supplies in advance. Do not forget about packing a tent and camping supplies for when you are hunting or fishing. With gasoline for traveling to a hunting or fishing spot at a premium, you'll want to get as much "food" as you can on each trip and that will mean hunting or fishing for a few days if you can properly preserve the food. There are various ways to preserve fish and game meat, including canning, dehydrating for jerky, and salting.

Hunting and fishing are learned skills that require you to study and practice. Do not wait until you are dependent on hunting skills for food to practice. Get in as much practice as you can while you have time to practice. If you have someone to guide you and give you tips, that's all the better.

Study books and videos on how to correctly clean and dress game and fish and how to preserve it and cook it properly. Study books and video on archery safety and gun safety and make sure your hunting and fishing partners have also studied these topics.

If you live in an area where you can hunt for larger game, you can get meat to feed your family for several weeks, but you must be able to properly process the meat so it does not spoil. You must also consider that hunting requires specific equipment, firearms, and ammunition, and transportation and there is no guarantee that you will come out with any food. You are making an investment and taking a risk. Therefore, you must weigh out whether the time and resources required are worth what you may gain. In a survival situation, this dilemma must always be weighed out.

Fishing is considerably more simple than hunting if you have rivers and lakes in your area or can get to them without traveling a long distance. Know where the fish hang out! If you know the type of fish in your area lakes and rivers and know what they eat, this can narrow down your search for a good fishing spot. They live where they can find what they prefer to eat. When it's hot and the rivers and lakes are not full, fish prefer deeper, shaded water. When the weather is cooler, they are more likely to be in shallower water where the water is warmed by the sun. Keep in

mind that the best time to fish is just before dawn or just after dusk. Fishing is also good when it is rainy.

A popular method for fishing, known as angling, can be done with simple equipment such as a hook, line, rod, float, bait, and a small weight to weight the hook.

If fishing is a part of your survival food preparation, consider starting your own worm bin to produce bait. This can easily be done in a couple of five-gallon buckets with organic soil.

12: PRESERVING AND STORING FOOD

Preservation and storage of food are essential for having the food you need to survive the aftermath of a nuclear HEMP. Having the food that you need and being able to safely and properly heat and serve it requires the utmost care in the preservation of the food. What could be more dismal than preparing a stock of food for survival only to learn that the food is ruined because it was not preserved correctly?

FOOD PRESERVATION METHODS

There are various ways that food can be preserved. In a nutshell, food must be heated to a temperature that kills all bacteria or must be dried out so that bacteria do not have enough moisture to multiply and thrive in the food. Canning, dehydrating, and salting are methods that utilize these preservation principles and will quickly fill your pantry with a good supply of food that can sustain you and your family through an emergency and beyond.

Root Cellaring

Not many people have root cellars these days, but it is not difficult to make one. You can find plans for making a root cellar on homesteading sites and in homesteading magazines. Root crops such as potatoes and turnips are good candidates for root cellaring as are pumpkins and other larger squash. But there are many other foods, including grains and nuts, whose life can be extended by storing in a cool root cellar.

In root cellaring, it is important to control the humidity so that the foods do not absorb moisture and start decaying. This is one of the reasons that some foods do well with being wrapped individually in newspaper or other paper when cellared. When storing foods in the cellar, the way you store them is a significant consideration, so make sure you know how to properly store the food.

Below is a chart that shows some of the best foods for root cellaring and how long the foods can be stored in a root cellar.

Produce	Storage Container	Storage Life	Notes
Apples	Portable bin, perforated plastic bags	4 to 6 months	Wrap individually in paper and store away from vegetables
Green Beans	Salted in ceramic crock	4 to 6 months	
Beets	Bin or wooden box with lid	4 to 6 months	Sort and store in groups by size

Carrots	Bin or wooden box with lid	4 to 6 months	Sort and store in groups by size
Garlic	Bin, baskets or hanging from ceiling	2 to 3 months for hard-neck varieties, 4 to 5 months for soft-neck	Cure before storing
Gingerroot	Wooden box with lid or baskets	Up to 6 months	
Horseradish	Wooden box with lid	4 to 6 months	
Onions	Bin or hanging from ceiling	4 to 6 months	Cure before storing
Peppers (Hot)	Hanging from ceiling	4 to 6 months	Tie together and hang in warm place until dry, then transfer to

			cool storage
Potatoes	Bin, wooden box with lid or paper bag	4 to 6 months	Store in complete darkness
Pumpkins	Individually on shelves or hanging in mesh bags	5 to 6 months	Rub vegetable oil on outside to extend storage life
Radishes (Winter)	Wooden box with lid	5 to 8 weeks	Will shrivel unless packed in damp sand, sawdust or peat moss
Squash (Acorn)	Bin or individually on shelves	2 to 4 months	Do not cure before storing; rub vegetable oil on outside to extend storage life
Squash (Winter)	Individually on shelves or hanging in	4 to 6 months	Cure before storing; leave space between

	mesh bags		each squash; rub vegetable oil on outside to extend storage life
Sweet Potatoes	Individually wrapped in paper on shelves or in shallow crates	2 to 3 months	Cure before storing; avoid handling before use
Zucchini	Bins or individually on shelves	1 to 2 weeks for small zucchini; up to 3 months for large	

The chart information is adapted from *The Complete Root Cellar* by Steve Maxwell and Jennifer MacKenzie.

Canning

Canning is a preferred method for preserving food because, once the food is canned, it has a long shelf life. Canning is also a good method for everything from vegetables to fruit, seafood, and meat. Canning is a method used to preserve homemade jams, salsas, relishes, pasta sauces, and condiments such as catsup.

Canning requires that the foods be heated at certain temperatures for a specific amount of time to kill bacteria that would otherwise cause the food to spoil and then putting the food in sterilized canning jars (often called by their brand names of Mason jars or Ball jars). The seals and lids are then placed on the jars and they are then processed in a hot water bath where the lids are sealed.

Supplies for canning include the following:

- Canning jars in quart, pint, and half-pint sizes
- Coordinating seal lids and rings
- Canning tongs used to remove jars from boiling water
- Knives for prepping the vegetables and meat

- Pots for cooking the food
- Large canning pot (known as a "canner") for processing the jars in a hot water bath
- Funnel for easily transferring liquid foods to jars
- Jar labels so you can write food and date canned on the jar

Canning is one of the best ways to ensure that you and your family have quality protein. Chickens and rabbits are easily raised for meat and can be canned. You can boil, steam or bake the meat until it is just about done. Pour hot chicken broth and about one teaspoon of salt into each sterilized canning jar and fill the jars with the meat, leaving about 1 ¼ inch of space at the top of the jar. Then process the jars per instructions for canning meat.

You can also preserve bear, beef, lamb, pork, sausage, veal, and venison by canning it. Cook the meat until done by roasting, stewing, or browning it in a small amount of fat. Add one teaspoon salt per quart jar. Fill the jars with cooked meat that has been deboned and cut into smaller pieces. Add boiling broth to the jar, leaving one-inch of space.

Fish that can be canned includes blue, mackerel, salmon, trout, and other fatty fish except tuna. To can the fish, remove the head, tail, fins, and scales. This requires a sharp knife, so make sure to pack one with your emergency food supplies.

Wash and remove all blood from the fish. Split it lengthwise and clean it. Cut the cleaned fish into pieces of about three inches in length. Fill sterilized pint jars with the skin side of the fish against the glass jar, leaving one-inch of space at the top of the jar. Add one teaspoon of salt to each pint jar. Do not add liquids.

In your preparation and survival notebook, keep charts for how long packed vegetables and meat should be processed. These charts can be invaluable for making sure your family has a steady stock of preserved food that is safe for eating. The temperature and processing time for canned fruit and vegetables can vary according to how the jars are packed and the canning method used.

You can find excellent information on how to can foods at your local county extension office or on their website.

Dehydrating

Dehydrating is a simple process of removing all the moisture from food so that it cannot spoil. Dehydrating can be done with electric dehydrators, in an oven, or in a warm place such as the surface of a radiator or woodstove. Food can also be dehydrated by being placed on racks or screens that are placed out in the sun for a specific length of time. Fruit, vegetables, and meat that is cut into thinner pieces can be dehydrated. You may be familiar with a common and popular dehydrated meat—jerky.

You can also make a solar "oven" to dehydrate and cook food. Obviously, the solar oven depends on the sun for heat and does not require electricity unless you install an electric fan in the unit. There are many types of solar ovens from very simple to more complex. There are a number of YouTube videos and instructions online for making a solar oven. Given that you do not know exactly what your situation may be when nuclear HEMP occurs, simple solar ovens that are portable and require no electricity and can come in very handy. Adding one to your preparation equipment is smart!

Pickling

Due to the simplicity of the method, pickling is making a come-back for providing highly nutritional food. To pickle food, it is soaked in a solution that contains salt, acid, or alcohol for a certain amount of time and sometimes processed by another preserving method. Many pickled foods have to be refrigerated after they are opened. The correct process is important with pickling so make sure you have instructions from a good source such as your local county extension office. You can pickle a variety of foods including vegetables, fruits, meats, eggs, seafood, and legumes.

Dry Salting

Dry salting is another simple method for preserving food. It became popular in the early Twentieth Century as opposed to canning with glass jars or tin cans in order to conserve those materials during the war. Dry salting provides you with preserved, light-weight meat that can be easy to pack in a backpack or store without refrigeration.

Dry salting is used to preserve fish, meat, and vegetables. A low salt concentration of 2 ½% to 5% of the salt weight per weight of the food to promote fermentation. A high salt concentration of 20% to 25% salt prevents microbial growth and the food is preserved.

Curing

Fresh fish and meat can be preserved by curing them. Curing uses salt, acid, and/or nitrates for preservation. As with all

preservation methods, sanitation is an important issue to avoid bacterial growth and the spoiling of the meat or fish.

If you plan to cure fresh fish and game for survival, make sure you store the correct ingredients for the process. Salt that is food grade and does not contain any additives such as iodine should be used for curing. You can purchase commercially prepared cure mixes or make your own. The cured mixture should contain 3.5 ounces of nitrate per 100 pounds of meat for dry-cured meat or fish that will not be cooked, smoked, or refrigerated. Prague Powder is a common cure mixture. Keep in mind that nitrites are toxic if used in high quantities. Measure carefully if you are making your own curing mixes.

When curing meats, make sure you follow a recipe that originated from a trustworthy source.

Make-Do Clay Pot Refrigerator

Keeping food cold also preserves it, but during the aftermath of a nuclear attack, your electric refrigerator will not work. You can

make mini refrigerators that can help out with keeping foods cold. Simply purchase a large clay pot and a smaller clay pot. Put the smaller pot inside the larger pot and add sand and water in the space between the pots. Put food into the smaller pot and cover the top. Continue to add sand and water as it dissipates.

Propane Refrigerator

Previously in this guide, propane appliances have been mentioned as good alternatives for electric appliances. If a propane refrigerator is an option for you, just make sure that you have an enormous propane tank filled or store several smaller tanks for use as the refrigerator will use a lot of propane.

Primitive River Refrigerator

If you are fortunate enough to have a reliable place and method for killing and butchering game as well as a source for fast-flowing water, such as a swift river, you can use an ancient

method of preserving the game. Put the recently butchered meat in a dense wicker basket, burlap bag like the ones coffee beans come in, or anything else that will let water flow through but keep fish and animals out of the container and away from the meat. Go to the middle of the flowing river and find a cool spot; perhaps one that is shaded by rocks or an overhanging tree. Weigh down the bag of meat with a few heavy rocks to secure it from being swept away from the river. As long as the river is cool enough, the meat should be fine uncooked for up to 24 hours. Even though it is short-term "refrigeration," this method will provide another day of protein for you and your family. When you are in survival mode, each day of being able to eat is a good day!

STORING FOOD

You must take great care in how you store your emergency stock of food. Food that is not stored properly can develop mold and bacteria that can cause the food to inedible. The last thing you want is to think you have a good stock of food to sustain you and

your family through a HEMP emergency only to find that you have little or no edible food.

Take the time to read and watch videos on food storage before you store food. Make sure you rotate food as needed to ensure that you always have the freshest food possible available.

Select foods that store well and do not take up a lot of room. Foods that you store for the initial emergency time after HEMP should be foods that you do not have to cook or ones that cook quickly and with little water required. When selecting foods, make sure you meet the nutritional needs of all family members. Babies, elderly, and those with health problems have different dietary needs than a healthy adult.

Use different preservation methods that will get you through various scenarios. For an example, in addition to canning foods in bulky jars for longer term use at your home site, also dehydrate some foods that will be light-weight and can easily be stored in backpacks if you have to travel or move from your home base temporarily or permanently. Make sure you always have at least a five-day supply of instant food available. An example would be

tuna that you can open and eat out of the can and dehydrated vegetables to go with it. Another example would be dehydrated prepackaged foods, though these types of packaged foods are expensive.

A shed that is located under a shade tree for cooling or an underground storage for food is excellent. Most foods can be stored well at a temperature of 40 degrees to 60 degrees F. Foods stored in direct sunlight or heat will not last as long and will lose nutritional value faster. Do not store foods in the same area as gasoline, paints, oil, and solvents or the food will absorb the fumes from the chemicals.

If rodents or insects are an issue in your location, make sure you store food in metal containers that cannot be damaged or accessed by rodents and insects. Rodents can chew through cardboard and plastic.

Organize your food supply so it is easy to rotate it regularly. You do not want to have a ten-year-old stock of food when a nuclear attack hits. Label and date all of your food storage containers so you know what food is in what container and how fresh it is. Most

canned foods and prepared mixes can last up to around two years or more. Since it could be anywhere from two years to ten or more years before things get back to "normal" after a nuclear attack, it is critical to have a well-labeled stash of fresh food when the attack happens. Follow these guidelines for how long you can store common emergency foods without refrigeration.

For One Month:

- Powdered milk that is unopened
- Potatoes
- Dried fruit
- Crisp crackers

For One Year:

- Ready-to-eat cereals in sealed containers
- Canned fruits
- Peanut butter
- Canned fruit juices
- Canned vegetables
- Uncooked instant cereals such as cream of wheat
- Canned soups

- Jelly
- Canned nuts
- Hard candy
- Home canned foods with quality and taste intact

For two to five years:

- Canned tuna
- Canned chicken
- Canned sardines
- Prepared powdered mixes stored in sealed pouches
- Some home canned foods but taste quality of food may fluctuate

For more than two years and probably indefinitely if stored correctly:

- White rice
- Wheat
- Dried corn
- Dried beans
- Soybeans
- Tea

- Instant coffee
- Vegetable oils
- Dry pasta

No matter how you have your food stock organized, make sure you have immediate emergency necessary supplies *with* the food stock even if you already have those same supplies in the house or in another area. Have the following with your food stock:

- Pots and pans for cooking over heat
- Cooking utensils
- Sharp knives
- Manual can opener
- Hot pads for handling hot pans
- Eating utensils—knives, forks, spoons
- Paper plates, cups, bowl, and paper towels
- Heavy-duty aluminum foil in large roll
- Mini charcoal or propane grill or camp stove and appropriate fuel
- Rocket type stove for quickly heating water and single servings

- Dutch oven that can be used over a campfire if all else fails

When you prepare your food stash and necessary supplies for preparing the food, make sure you are not the only one who knows your food system. If something happened to you and you were not able to implement the plan, a few other trusted individuals should know where the food is stored and have a written plan of how to ration the food, prepare it, and preserve it to last the number of days it was prepared for. Do not take it for granted that everyone else knows what you know!

13: COOKING METHODS

If you have an electric cooking stove, it will not work after a HEMP hit. It's important that you prepare to cook your meals another way. Fortunately, there are a few dependable ways to cook food without an electric cook stove:

PORTABLE STOVES

There are various types of portable stoves including the camping style two-burner stove that runs on canned fuel or propane. These portable stoves are made from metal and are simple to use. They wear well for many years. They can be purchased at sporting goods and outdoor stores and are relatively inexpensive for the many years of service they offer when they are properly taken care of. If you are going to depend on this type of camp stove for cooking, be sure to stock up on plenty of fuel canisters or propane bottles and store both appropriately. To save money on propane, you can also buy an adapter for some portable stoves that allows you to hook the stove up to a 20-lb. propane tank.

GRILLS

Grills are an excellent way to cook when there is no traditional cook stove. Who doesn't enjoy meat and vegetables cooked on a grill!

Grills come in various sizes from very portable, such as the simple hibachi grill, to large enough to accommodate meals for a large family. During a disaster or post-HEMP, you can depend on a propane grill or charcoal grill for cooking as long as you stock up on the type of fuel your grill uses and properly store the fuel.

If you do not have experience cooking on the grill, it's best to practice now rather than experiment with limited food supplies later when cooking on the grill becomes a necessity. In your practice, develop and perfect some favorite easy recipes that you can cook quickly and correctly. Grilling is not difficult, but it does take practice.

For some, starting the charcoals on fire is the most difficult part of grilling. A fire-starter chimney can help you with this task. This is something that you should do a few times so you learn the details.

Emergency Mini Grill

You can create a make-do emergency mini grill by using a big aluminum pan (the throw-away turkey pans you find at big box stores around Thanksgiving). Place the pan on concrete or a table that will not burn, load the bottom of the pan with a single layer of charcoal. Poke small holes along the outer edges of the pan. Place a metal grid over the top of the pan. Some wire cooling racks that are used for baked goods make a good metal grid for the do-it-yourself grill.

Light the charcoal and let them burn down a bit. Place your food on the grill.

Make sure you have the supplies needed to grill food. You will need long-handled tongs and spatula to put food on the grill and take it off without burning yourself.

OPEN FIRE

Cooking over an open fire is one of the things that most people love about camping. Everything seems to taste better when cooked over an open fire. But cooking good food over an open fire is not easy if you're not accustomed to doing it. Like grilling, it requires practice, but with a little practice you can prepare decent, nourishing meals for your family.

You have options for how you use an open fire heat source for cooking your food. You can create a tripod out of metal or wooden poles that hold a Dutch oven over the fire. This is an excellent way to cook one-pot meals such as stews and meat casseroles. There are many great Dutch oven recipe books. Purchase one to have handy if you intend on using an open fire for cooking. (And you should, as there may be times post-EMP when that is your only option for cooking!)

You can also dig a pit and build an open fire, and place two large rocks on opposite sides of the fire. Place a grill grid over the fire with the edges landing on the rocks so that the grill grid is fairly level. You can use oven proof pans and pots or cast iron skillets

and pots placed on the grill or put meat and vegetables directly on the grill grid. You can also create a spit for the meat and hang it above the fire to roast.

WOOD-FIRED OVENS

Having an oven to use when your traditional stove is not operable may be the biggest challenge for cooking in survival situations. But it is not an impossible challenge! If you already have a wood-fired oven as part of an outdoor kitchen, you're very fortunate. If not, you can easily build one out of brick and cement. There are many excellent plans for outdoor wood-fired ovens online that will allow you to continue to bake nourishing bread, muffins, casseroles, and vegetables for your family during difficult times.

SOLAR OVENS

Solar ovens may be a bit more limited than wood-fired ovens but they can get the job done! It only takes a few basic items to

quickly build a solar oven such as a cardboard or wood box, black construction paper, a sheet of glass, and aluminum foil. There are many versions of homemade solar ovens. Check online for plans. Make a solar oven now, before you need it, but also print out the plans so you can make others if you need to during a HEMP disaster.

ROCKET STOVE

Rocket stoves are popular with hikers and campers because they are light-weight, small, and simple. Rocket stoves are a good choice for a heat source for the bug out bag for a single person. The rocket stove uses small-diameter wood fuel that is burned in a single high temperature to quickly boil water or heat up food. A rocket stove is not intended for cooking a large portion or multiple items at the same time.

14: WATER

Water is an absolute necessity for the human body, no matter the circumstances in which the body lives. If you do not live very near a natural, clean water source, getting water for you, your family, pets, and livestock may be one of your biggest challenges in the event of a nuclear EMP. While it is possible, in some cases, to produce small amounts of water, the stress of having to do so for survival can be overbearing. It can be extremely stressful to be in a situation where you have little or no water and understand that the human body can only survive three to five days without water in most cases, though, some have been known to survive twelve

days or longer. When you are trying to survive and help others survive, you will need every ounce of energy that you can muster to stay safe and take care of yourself and your loved ones. Particularly, if a nuclear attack happens in the heat of summer, the body can dehydrate quickly. Babies, young children, and the elderly are the most susceptible to quick dehydration, and these are also the ones that cannot take care of themselves. The best thing you can do is take care of the challenge of having plenty of clean drinking water in advance.

TAKE IMMEDIATE ACTION

When you realize that your urban area has just experienced a HEMP emergency, take immediate action to secure as much water as you possibly can. Be prepared to take the following actions and make sure your family members know that the following actions should be taken:

- Shut down the water main so that contaminated water cannot enter your hot water heater. The water in the

hot water heater is a good source for several gallons of emergency water.

- The average bathtub holds approximately 50 gallons of water. Immediately fill your bathtubs and sinks with water from the tap.
- If you have bags of clean ice cubes in the freezer that can be used for water, leave it in the freezer to use as water after it melts.
- If you have canned goods packed in water, save those for use if you get desperate for water.
- If your refrigerator is stocked with fresh vegetables that contain water, do not throw them out. Save them for their water content to the extent that is reasonable before they will rot. (Keep in mind that some vegetables such as celery can re-grow itself from the "root" to help keep you in vegetables in an emergency.)

STORING WATER FOR A SHORT-TERM EMERGENCY

When a HEMP emergency occurs, you may or may not have water available, but the chances are that your city water supply will be interrupted at least temporarily. It's extremely important that you store plenty of clean, drinkable water, as well as water for sponge baths, cleaning, and watering pets, chickens, livestock, etc. as needed for several days after a HEMP attack. You should store at least one gallon of water per day for each person and each pet. If you live in a hot climate, you may want to store double that amount of water. Store a 14-day supply of water for immediate short-term emergency use. You do not want to have to access your permanent water supply any sooner than necessary.

You and every member of your family should also have personal emergency water bottles in their backpacks to go in the event that you are displaced from your water storage water. If rationed correctly, in an emergency, even two or three 16-ounce bottles of water can sustain a person for a couple of days.

Some people stock up on caffeinated sodas and sugary juices for emergency drinks. While having some caffeine drinks on hand to keep you awake when needed is not a bad idea, do not count on caffeinated drinks such as soda to provide hydration for the body. High-sugar, caffeinated types of drinks can actually dehydrate you. Clean, pure water is what your body really needs to keep functioning properly.

The simplest way to store short-term emergency water is to buy gallons of water that are already properly sealed. The only issue is that the plastic jugs that the water comes in can be easily punctured so you must safeguard against that. The gallons should be rotated about every six months if possible. Store the water in a cool space out of direct sunlight.

If you store your water in storage containers, make sure they are clean and sanitized before you fill them. Containers can be sanitized with using one teaspoon of unscented liquid chlorine bleach for each one quart of water (four teaspoons to a gallon of water). Containers can be purchased at outdoor and camping stores. Don't use containers that can be easily punctured or that do not seal tightly. Most camping-type containers include spigots

to release the water from the container. You must have an easy way to access the water, but be cautious of spigots because they often leak. This presents a case for spending more on the water containers and getting quality containers rather than cheap ones that may puncture easier and leak at the spigot.

Steel drums with a food-grade protective coating are popular for storing water because they are safe and can store a large amount of water in one place. The key is to make sure you have tight-fitting lids so debris, insects, and rodents cannot get into the water and contaminate it.

Food-grade stainless steel containers are an excellent way to store water. It is easily sterilized, doesn't break like glass, and is opaque so you don't have to worry as much about exposing it to light. The two downsides are that if your water has been chlorinated, the chlorine can react with the stainless steel over time, and stainless steel containers can be expensive. Still, they may be well worth the investment if you can afford it.

Do not use containers that have contained toxic chemicals that can leach into your water supply. Make sure you are certain of

this before filling the containers. It's important to note that boiling water that contains chemicals and toxins will not be safe to drink after boiling.

Label your container with a drinking water label so there will be no confusion about the drinkable and undrinkable water you have stored. In addition to marking the container with a permanent marker, use a second method of tagging or labeling also in case the writing is somehow erased.

Tight-fitting lids or sealed containers are a must for keeping out insects and rodents that can instantly contaminant the entire container of water. Rodents and insects carry diseases. Also, remember to add four teaspoons of non-scented chlorine bleach to the water container to prevent bacterial and algae growth.

Store the drinking water containers in a cool place, out of the direct sunlight. Make sure everyone in your family understand where the immediate emergency water is located.

IF YOU DON'T HAVE VERIFIABLY SAFE DRINKING WATER

For various reasons, including that you may be forced to leave your home and prepped water supply during an emergency, you may end up having to find whatever water you can just to keep from becoming dehydrated. In that case, there are some ways that you can make whatever water you find drinkable.

Boiling

Boiling water is the safest way to kill disease-causing organisms such as bacteria, parasites, and viruses that could be lurking in the questionable water.

To boil cloudy water correctly, follow these instructions:

- Filter the water through a coffee filter, paper towel, or clean cloth. If you do not have anything to filter the water with, let it settle so any debris in it goes to the bottom.

- Bring the filtered or settled water to a rolling boil for one minute. If you are at an elevation of more than 6,500 feet, boil the water for three minutes.
- Let the water cool. Store in clean sanitized containers with tight-fitting lids.

Boiled water will taste flat, not like the water you are accustomed to drinking. To make it taste better, add about one-fourth teaspoon salt per gallon of boiled water.

Citrus

You can add lemon or lime juice to water to kill some parasites. Even though this does not kill everything, it can be helpful to use as a supplemental method for cleaning water or in a pinch when you have no filtering system but happen to have citrus available.

Unscented Chlorinated Bleach or Bleach Tablets

Household bleach comes in various strengths, meaning they contain different amounts of sodium hypochlorite. Buy several gallons of household bleach to store with your emergency supplies. Store a small, leak-proof bottle of bleach with your immediate emergency bags also.

Check the sodium hypochlorite level for the type you buy and memorize it and write it on the bleach containers. You will need to know this information for disinfecting water that could be unsafe for drinking without being disinfected. Unscented household liquid chlorine bleach is typically 8.25% sodium hypochlorite. When using unscented household liquid chlorine bleach to disinfect water, use the following amounts depending on the type of measuring tool you have available:

- For 1 quart of water, use 2 drops (not dropper full) of bleach from a dropper, or simply put 2 drops of bleach (no more) into the quart of water

- For 1 gallon of water, use 6 drops of bleach or ½ ml of bleach
- For 5 gallons of water, use 30 drops of bleach or 2 ml of bleach or 1/3 teaspoon of bleach

If the water is very murky, cloudy, or dirty, you can safely add twice as much bleach as listed above, but no more.

Water Filters

Water filters, such as the ones purchased at outdoor stores for camping and hiking, can come in handy in an emergency and should be in every emergency backpack along with chlorine dioxide water-purifying tablets and iodine. Not all portable water filters are created equal so it is important to know what you are purchasing. Your life may be dependent on the filter you purchase! Many filters just remove some additives only such as chlorine. Look for portable filters that can filter down to 0.1 microns or 0.2 microns. These filters will not filter all viruses but they will filter most pathogens, and in most cases will filter

Giardia and Cryptosporidium. Be aware that the wording on the filter label that you purchase should be read carefully before buying. To remove Cryptosporidium, the label should say the filter has an *absolute* pore size of 1 micron or smaller.

You can make a simple charcoal water filter that is far superior to no filtering at all. For the water filter, you will need the following supplies, which should be in your preparation kit:

- 2-liter plastic bottle
- Charcoal
- Sand
- Sharp knife or scissors sharp enough to cut the plastic bottle
- Piece of open-weave fabric or cheesecloth to cover spout of bottle

Instructions:

- Cut off the bottom end of the 2-liter bottle so the bottom of the bottle is open.

- Tie a piece of cheesecloth or other open-weave fabric around the spout of the bottle so that the charcoal doesn't fall out, but the water can pass through.
- Crush the charcoal so that it is in small pieces and put it into the bottle to create a matrix for the water. You can add another piece of cloth, sand, or grass on top of the charcoal for even more filtration.
- Place the charcoal-filled bottle on top of a container that the water will drain into.
- Pour the untreated water over the charcoal and let it drip through the charcoal and through the spout into the container.

LONG-TERM WATER SUPPLY

As much as you want to think that you only need to prepare for a few emergency days after a HEMP, that is not realistic. Always keep in mind that it will take most of the United States several months to several years to stabilize after the attack. Until then,

the conveniences of such necessities as running tap water may not materialize. While you must be prepared to provide yourself with drinking water immediately, you will also definitely need a sustainable, long-term plan for a water supply. There are various ways that you may be able to achieve this goal.

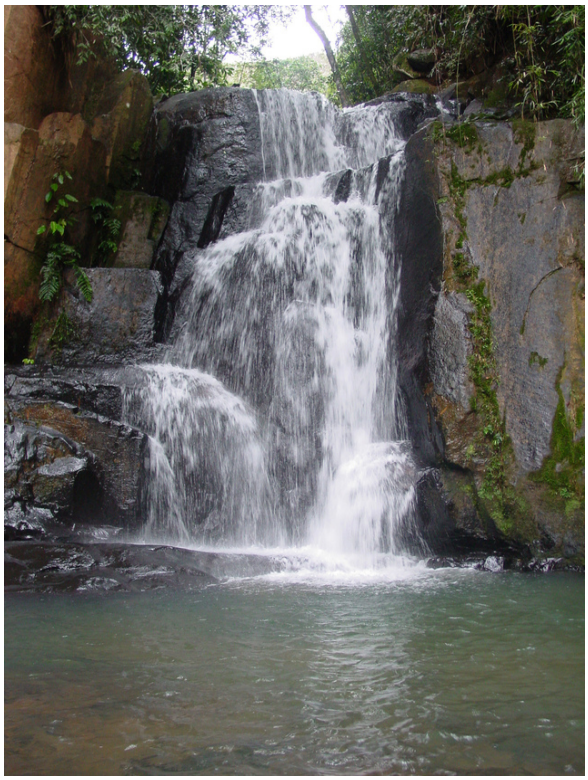
Find Water Sources

Depending on your geographical location, you may already have excellent natural sources of water. If you live in an agricultural area, you may have a well and be able to modify the well so that it does not use an electric pump. Or perhaps you have a nearby neighbor with a deep well who may be willing to sell you certain rights to use the water for a specific monthly fee. In this case, it would be wise to have legal papers drawn up rather than just rely on the neighbor's word. When in survival mode is not the time to argue over a verbal agreement. It's always best to have a legal contractual agreement. Even with such a contract, it is best not to

rely solely on such an agreement, but to have a backup plan for something as critical as water for survival.

If you live in a mountainous region, you may live near a flowing river or stream that runs down from mountain snow melt-off. Consider yourself very fortunate! Not only is this an excellent water source, but it may also mean you have access to fishing and hunting the animals that come to the water source.

When searching for a good water source, look for moving water rather than stagnant water. Moving water is cleaner to start with, but you still need to boil or disinfect it. Do not assume that water is clean just because it comes from a natural source. Dead animals and human wastes are often found in natural sources of water.



Obviously, look for a source that is as close to you as possible so you can get to it without a running vehicle if you have to. A source within biking distance would be great if you are able to hike or ride a bike. You must also remember that water is heavy and you would need a way to transport the water back to your base station.

According to the USGS Water Science School (http://water.usgs.gov/edu/gwhowtofind.html), there are clues that you can pay attention to that might lead you to natural water sources. The site suggests that large quantities of shallow

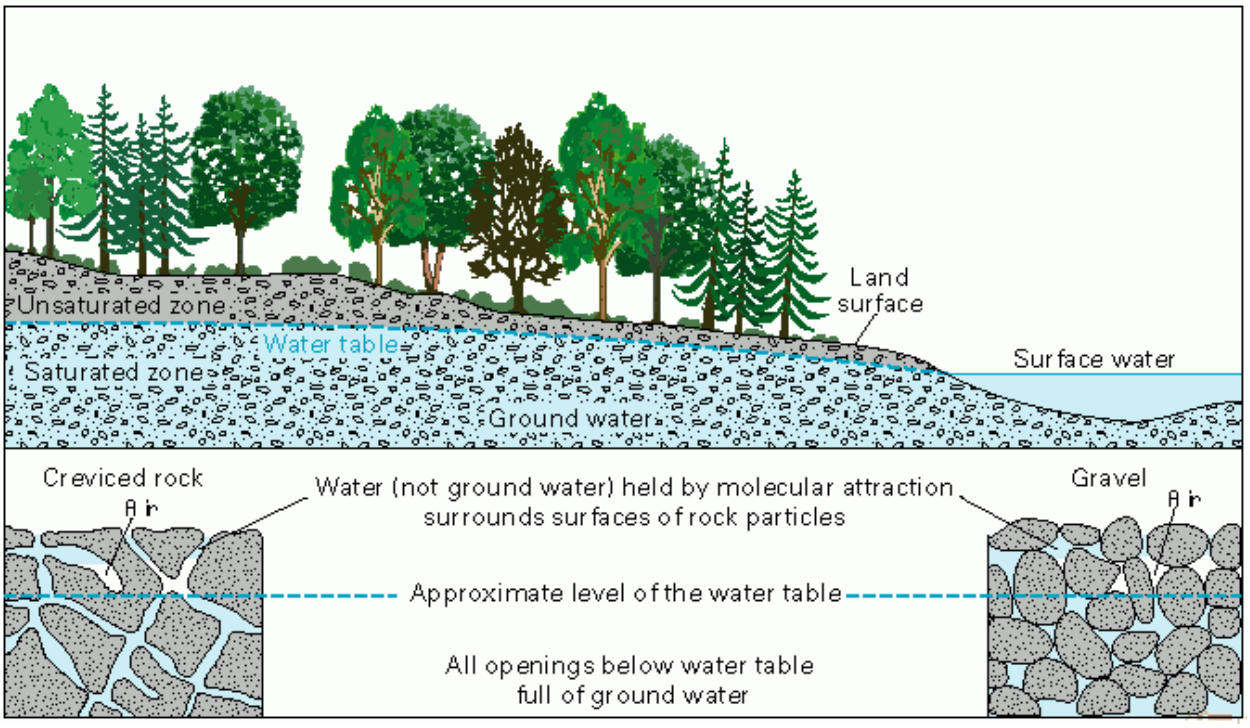
groundwater are more likely to be found under valleys than under hills.

You can also find clues in the plants that exist. In dry areas such as the Southwest, if you see groups of cottonwoods or willows, which are water-loving plants, it may indicate that there is groundwater at shallow to moderate depths. If there is an abundance of wildlife in an area, it may signal that there is swamp or pond water in the area. Animals can instinctively locate water sources and congregate near the water.

When looking for a water source, also look for damp earth that can signal nearby springs or lakes. In some urban neighborhoods, there are canals that run from watersheds from rivers. The canal water is usually used for irrigation and may flow by gravity or have pumps at certain junctions to keep the water flowing to where it is needed.

Groundwater is subsurface water that saturates pores or cracks in soils and rocks and is replenished by the trickle of rain or snow that falls. Educating yourself on the water table can be beneficial when you are searching for a water source. The water table

illustration below is provided by the U.S. Department of the Interior/ U.S. Geological Survey at URL: http://water.usgs.gov/edu/gwhowtofind.html .



Produce and Harvest Water

There are some ways that you can produce your own water, particularly if there happens to be frequent rain in your area.

Contain Rainwater with a Plastic Tarp

You can create a simple system to harvest rainwater. Here are the instructions:

- Dig a hole that is wider at the top and narrower toward the bottom.
- Put a gallon container with a wide "mouth" at the bottom of the hole.
- Put a clean, plastic tarp over the hole, letting the middle of the tarp sag so that it hovers just over the top of the container. Place heavy rocks or mud (if no rocks are available) on the tarp edges that are on the ground to hold it in place and keep the whole tarp from sliding down into the hole.
- Mark an "x" on the spot of the tarp where you can put a small hole for the water to drain into the container.
- If desired, you can use a length of tubing, such as medical tubing, as a straw for drinking straight from the container so you do not have to disturb the system during the rain time.

Condensation

Another way to collect water is with a condensation method. All you need for this method is a plastic bag, a rock, and something to contain the collected water in. In the early morning, put the rock inside the plastic bag so it will weigh the bag down at a bottom point. (Make sure the rock is not too big or it may tear the bag and all the water collected will be lost.) Tie the bag around a *leafy* tree branch or shrub. As the day goes on, the tree or shrub will transpire and produce moisture that collects in the lowest point of the bag where the rock is. When you are ready to collect the water for drinking, you can carefully drain the water into a container. Do not tear a whole in the plastic bag if you want to use it to collect more water.

This method will not produce a large amount of water, but it can produce enough to keep you alive. Obviously, if you have several plastic bags to use at the same time, and are diligent to use the bags daily, you can collect more water.

Water Catchment System

To help with your water supply for water for watering the garden, doing laundry, and cleaning, you can set up a water catchment system to collect rainwater as it falls off the roof of your house. The simplest form of water catchment is to set up rainwater barrels, which is very practical, particularly if you live in an area that receives an average of 24 inches of rainfall per year.

You can purchase ready-made rain barrels or create your own. The ready-made ones come in sizes ranging from 50 to 65 gallons and have tight-fitting lids and screens for the top of the barrel. You can make rainwater barrels from any food-grade plastic, metal, or wood barrel, screening of some sort, and a dispensing set-up such as a hose.

To keep from attracting swarms of mosquitoes at the rainwater barrel, you can add mosquito dunks, which release *Bacillus thuringiensis var. israelensis* that is toxic to mosquito larvae. Of course, this applies to non-drinkable water and the barrel should be clearly labeled as such. Another tip for killing larvae is to add a

tablespoon of vegetable oil to the rainwater barrel. The oil goes to the top of the water barrel and creates an oily surface that kills the larvae by cutting off their oxygen.

A rainwater catchment system consists of three parts: collection area, transportation system, and the storage.

Here are instructions for creating a simple, yet effective, rainwater catchment system:

- Find a location where you collect the rainwater before it soaks into the ground, such as catching the water when it runs off the roof of the house. A general guideline is that a 25 foot by 40-foot roof will yield about 600 gallons of water when it rains about an inch, which means moderately hard rain for about an hour. How much of this water you are able to collect will depend on your downspouts and the number of collection barrels you have.
- Put down gravel to cover the area that you want to put your rainwater barrels in. Then put down a couple of stacked pallets or cinder blocks and level them to put

your rainwater barrels on, up off the ground. (The higher the barrels are off the ground, the better the water pressure will be.) This will keep your storage area from becoming a muddy mess.

- Place your rainwater barrels on the pallets or cinder blocks. You can bind your barrels together with a chain if you prefer to keep them more secure.
- If you already have gutters and downspouts along the edges of the roof, use them as the transportation system for your rainwater collection. If you do not already have them, you can make them from aluminum or plastic or buy them at the hardware store. The gutters and downspouts should be six inches wide, and the downspouts should be four inches in diameter.
- Put a screen filter over the downspout to filter out leaves and debris so it doesn't clog the downspout.

This is another plan that should be implemented and taken advantage of sooner rather than later.

15: SANITATION AND WASTE DISPOSAL

When your world is no longer as before, you will realize issues that you have always just taken for granted. One such issue is how to dispose of garbage and sewage. As ugly of a thought as it is, the matter demands preparation for when there are no city or county services available for disposal. How will you handle the matter?

DO-IT-YOURSELF COMPOST BIN

You can dispose of much of the household garbage that normally goes into the trash that your garbage service picks up weekly by creating a compost bin. The idea behind a compost bin is to let the garbage decay. A plus side is that the decayed garbage will also create clean, organic soil that you can use to grow food. Composting is a win-win situation for sustainable, self-sufficient living.

There are many ways to build nice compost systems and you can buy compost bins that are self-turning and have lids for aeration. For an easy, inexpensive compost bin, use a large plastic container such as a barrel or trash can that has a tight-fitting lid to keep animals from foraging in the compost. Drill holes in the bottom third of the container so the compost gets plenty of air circulation.

To start your compost bin so that the garbage will decay quickly but not become smelly, layer a bit of brown carbon material with a bit of green nitrogen material. Brown materials include dried

leaves, sawdust, chopped up twigs, dried grass, woody stalks of dried plants, shredded newspaper, and straw. Green materials include kitchen scraps such as vegetables, coffee grounds, eggshells, fruit, and tea bags. It also includes green grass clippings and composted manure from chickens, rabbits, sheep, and cows.

It is best to put a layer of brown material into the bin to start. Straw works best for the bottom layer. It's also best to save up enough green material to form a solid layer on top of the brown layer, and continue to repeat that process rather than randomly throw garbage into the bin. When the correct layering is done, the material all heats up and decays quickly and at the same level rather than molding.

It's important to chop up material before putting it in the bin. As an example, it won't take long for small pieces of apple to decay, but it can take some time for a whole apple to decay. Also, do not put bones, meat, or fatty products in the compost bin. These things should be disposed of in a different way—preferably burned if burning garbage is allowed.

Once the garbage starts decaying, use a pitchfork or similar tool to turn over the decaying material about two to three times per week. This allows all the material to get air that is needed for further decaying. If you see that the material is becoming slimy or moldy, add more brown material. If you see the material is breaking down very slowly, add more green material.

Keep the lid on the compost bin so it does not attract animals and does not get too wet from too much rain.

If you continue to properly layer the greens and browns in your compost bin, you will have rich, organic soil to use in planters for growing your own food in no time. Better yet, you'll have no garbage problem on your property!

BURNING

Material that cannot be composted can be burned if there is not a city or county ordinance that prohibits burning. You can burn garbage in a burn barrel or dig a pit and burn the garbage in the pit. Burning is a sanitary practice that kills pathogens that can

infect humans. Burning also produces wood ash that can be used for making soap and gardening.

HUMAN WASTE DISPOSAL

Once you are affected by HEMP, it will probably be too late to take on building a complete sewage removal system, but you will need a way to dispose of human waste. You can build a cesspool to handle this issue.

A cesspool is a pit, storage tank, or a covered dry well that allows the land to absorb the sewage water. It's important to understand that a cesspool is not a closed system and it can be overloaded by rain run-off or flooding. The cesspool cannot be too deep or it can infect the groundwater. The tank can also be damaged by big tree roots that grow into them. So the placement of the tank is very important. The water wells should be uphill and as far from the cesspool as possible but no closer than, at least, 100 feet.

A simple latrine can be formed by digging a very deep hole in the ground or a trench system. An outhouse is a simple latrine where

there is a very small shed built around the hole as well as a platform with a raised toilet seat on it that allows one to sit on the "toilet" rather than squat over the hole. This type of shed provides some privacy and keeps animals out.

The outhouse should be built away from all rivers, streams, and other water supplies. It should be built downhill from water sources but above the flood plain.

There are some precautions to take when it comes to using an outhouse:

- Do not drop matches into the pit because methane gas from the waste breakdown can cause a fire or explosion.
- Always supervise children when they use the outhouse. It is very easy for children to fall into the pit.
- Do not pour bleach or chlorine products into the pit as the chlorine will react with the ammonia in urine and produce a gas that is deadly if inhaled.

- Even if you drop something of high value into the pit, do not go into the pit to retrieve it. Aside from the risk of suffocation, there is the risk of deadly infection.

Needless to say, sanitation and disposal of human waste will be quite different in times of survival than what you have always known in the U.S. It may be comforting to know that in many third-world countries this type of sanitation is common and people manage with it. Nonetheless, talk to your children about it in advance and get acquainted with the idea before the times of necessity are upon you.

16: FIRST AID AND MEDICAL

There is never a good time for a medical emergency or injury to take place, but these things will be more problematic when they happen during post-EMP days because it is doubtful that instant medical care will be available. This means you must be prepared to handle medical emergencies, injuries, and illnesses yourself!

PRESCRIPTION DRUGS

If you take prescription drugs that you literally cannot live without, talk to your doctor and explain that you are preparing an emergency kit and you would like to have an extra 60 to a 90-day supply of your medications on hand. Depending on what your prescriptions are and what the doctor's philosophy is, you may be granted this request. If you have had the same doctor for many years and they know your character, etc., it may be easier to obtain extra medication for your medical kit. (Note that there are some prescription drugs that your doctor cannot legally or ethically prescribe as extra stock.) If you ask for an extra 90-day supply the doctor may be more willing to give a prescription for an extra 30-day supply so start high and try to negotiate. Do not forget to rotate your prescription stock each month so the reserve medication is always fresh.

As always, the prescription bottles should be marked clearly with your name, medication name, and dosage so that anyone can administer your medication in an emergency. The medication

should be kept in your personal backpack and in a waterproof bag or container.

Sometimes, the American Red Cross can be beneficial in helping you with medication in emergency situations, but considering the chaos that will take place during post-EMP days, it is best not to have to count on the American Red Cross if you can prepare ahead of time.

When considering your medication, prepare ahead for medicine that has to be refrigerated. A simple pot-in-a-pot refrigerator will keep the meds cold enough without depending on the use of electricity.

If your medication is not life-sustaining, you may consider checking into alternative medicines that would be easily accessed and stored for post-EMP use. Always consult with your doctor and a naturopathic doctor on this issue and make sure you fully understand the use of the alternative medicine for effectiveness for your medical condition. When used correctly, herbal and natural remedies can be just as effective as some prescription medications.

FIRST-AID

Groups such as your local YMCA or the American Red Cross Disaster Relief may offer first-aid training classes for a nominal fee. These classes could be life-saving or, at least, extremely beneficial preparation for post-EMP days when immediate medical care is not available. In these classes, you will learn everything from doing the Heimlich maneuver on someone who is choking, to saving someone who is drowning, to what to do if someone is having a heart attack. You will also learn how to treat severe injuries, wounds, and burns.

Create a first-aid kit that contains everything you may need for emergencies and a small kit for each backpack. According to the American Red Cross website, your large kit for the home base should contain the following for a family of four people:

- 2 absorbent compress dressings (5 x 9 inches)
- 25 adhesive bandages of assorted sizes
- 1 adhesive cloth tape (10 yards x 1 inch)
- 5 antibiotic ointment packets

- 5 antiseptic wipe packets
- 2 packets of aspirin (81 mg each)
- 1 space blanket
- 1 breathing barrier (with one-way valve)
- 1 instant cold compress
- 2 pair non-latex gloves (size large)
- 2 hydrocortisone ointment packets (approximately 1 gram each)
- Scissors
- 1 roller bandage (3 inches wide)
- 1 roller bandage (4 inches wide)
- 5 sterile gauze pads (3 x 3 inches)
- 5 sterile gauze pads (4 x 4 inches)
- 1 non-mercury/nonglass oral thermometer
- 2 triangular bandages
- Tweezers
- First aid instruction booklet (available at the American Red Cross)

Keep in mind that the kit above is based on current situations where further medical help is available and you may want to

stock more supplies than is recommended for a longer-term situation where medical help may not be available.

It is recommended that you also stock the following in your first-aid kit for post-EMP days:

- Burn gel
- Cotton swabs and cotton balls
- Needles and syringes in various sizes
- Flashlight
- Antibiotic ointments
- Allergy tablets and liquid such as Benadryl for allergic reactions
- Suture kit and Super Glue to close wounds
- Handheld blood pressure cuff
- Snake bite kit (Sawyer extractor type)
- Calamine lotion (Poison oak, etc.)
- Rubbing alcohol and hydrogen peroxide
- Insect repellent
- Bottles of ibuprofen
- Medical tubing for tourniquets and possible breathing tube

- Sharp surgical knife or Xacto type knife
- Oxygen equipment and tank
- Allergy masks
- Duct tape
- Rubber bands
- Sanitary pads
- Dental kit for removing decayed teeth

For further safety and medical/health assurance, consider stocking the following items that may not be accessible during post-EMP days:

- Antibiotics such as Amoxicillin, Flagyl, Cipro, Ampicillin, Keflex, and Doxycycline. If your doctor will not write prescriptions for these antibiotics, you may be able to find a doctor online that will provide prescriptions for an emergency stock of antibiotics. Also, many antibiotics that you can buy at farm and ranch supply stores or pet feed stores are the exact same antibiotics that are available by prescription for humans. As an example, Doxycycline can be found as

"bird biotic" and Amoxicillin can be found labeled as "fish-mox forte."

- Crutches and mobility devices such as a non-electric wheelchair
- Pregnancy and baby delivery supplies
- Birth control pills or devices

You cannot possibly be prepared for every life event or medical situation that could occur, no matter how well-stocked your emergency first aid and medical kit, but you can cover most of the common emergency injuries and illnesses if you prepare ahead of time.

17: PERSONAL CARE

In the immediate days following a nuclear attack, you may not be too concerned with keeping yourself clean and comfortable, as you will have plenty of other concerns during that time. However, the time will come quickly when you will need to keep yourself and your family clean and appropriately clothed. Preparing with the necessary toiletries, clothing, and equipment in advance will make that easier.

What you need to stock for you and your family will depend on the number of people in your family and the ages of the people. Obviously, if you are a single person who lives alone, your needs

will be much simpler but if you have elderly people or infants in the family, the needs could be considerably more complicated.

CLOTHING AND SHOES

For each person, you will need to stock clothes in the current size and one size larger for growing children that cover the range in temperatures of seasons in your area for fall, winter, and summer. If you live in an area that has harsh winters, make sure to store hats, coats, gloves, and under-layers such as thermal underwear. If you live where summers are extremely hot, remember that you probably will not have air conditioning and you should be prepared with light-weight cotton clothes to stay cool and comfortable.

If there is an elderly person in your family, make sure you consider that the temperature comfort levels can be different for them. In winter, in cold climates, they will need several layers of clothing to stay warm, as well as extra blankets for when they are sitting and sleeping.

For babies, you will need an ample supply of clothing and diapers. Consider whether you have a way to wash diapers or if disposable would be best. If disposable diapers are used, consider how you will dispose of them without normal garbage and sanitation services. If you are pregnant, plan to have a family or increase your family size in the future, always prepare ahead with necessary baby clothes, diapers, and supplies that may not be available post-EMP.

When you consider the best options for shoes, store shoes in the current size and one size larger for growing children. Versatility and practicality should definitely trump fashion when you select shoes. Depending on your emergency plan and your location, you may require shoes/boots that are practical for hiking, navigating water, walking in deep snow, or staying dry during the rainy season. Take into consideration your terrain, where you may be required to walk or travel, and whether you will be depending on outdoor living conditions for survival.

If your foot size has stabilized, it can be a good idea to invest in sturdy, well-made shoes or boots that will last many years. You can buy synthetic material shoes or leather. The leather shoes

will require some upkeep but they are breathable, comfortable, versatile, and can last for years when properly cared for.

PERSONAL HYGIENE

For personal hygiene items, you have the option of storing enough products that you purchase now to last for a few years or you can purchase and store the supplies and ingredients to make your own products as needed throughout post-EMP days. It is quite easy to make natural soap, shampoo, lotions, lip balms, and natural cosmetics and bath aids when the supplies are available. It just depends on your preference.

If you buy supplies, buy sample sizes of soap, shampoo, toothbrush, toothpaste, and sanitary wipes for each backpack (add feminine hygiene product for women's bags). A side note: liquid castile soap that is often used by hikers and campers is biodegradable, deodorizing, comes in a bottle that is easy to use and pack, and can also double as a shampoo and cleaning product. Pack a quick-dry microfiber towel and washcloth that

can be folded small. Buy the same items in larger sizes for your preparation stock. You will need to stock up on the following items:

- Razors,
- Feminine hygiene products
- Cotton swabs
- Cotton balls
- Lotion
- Bath soap
- Shampoo
- Toothpaste
- Toothbrushes
- Deodorant
- Personal wipes
- Personal preference items

You can do this by picking up a few items each time you shop. Before you know it, you will have a few years' stock on hand. Most of these items do not expire quickly.

Don’t forget about washcloths and towels for bathing. Quality cotton towels can last for years, so store one large towel and five washcloths for each family member. Label the towels with names to help each person be responsible for keeping up with their own towel and keeping it properly hung for drying out between uses. It will not be easy to do loads of laundry in post-EMP days!

18: SELF-DEFENSE

In a post-EMP world, self-defense is going to be a big issue. Sadly, even if all other things are in order, your survival and the survival of your loved ones may come down to being prepared for self-defense. This requires you to become well-studied and practiced in self-defense. It requires you to develop a mindset for self-defense and to remain prepared and vigilant at all times. If

you want to keep yourself and your family safe during post-EMP times, knowing how to protect in any situation should become as natural to you as breathing.

To avoid becoming shocked and freezing in your tracks when you need to protect yourself and your loved ones, continually train and prepare now while you still can! Everyone in your family should know what to do in any dangerous situation.

Create a disaster plan and print it out on a credit card sized sheet of paper and laminate it so it is not destroyed if it gets wet. Give each family member a card that contains the plan and pertinent information such as contact information, meeting points, radio frequencies and contact times, water source places, and so forth.

There will be other people who will threaten the safety and well-being of your family during post-EMP days. Remember, people will be scared, hungry, exhausted, and stressed beyond what they have ever known before. Just like you, they will be trying to stay alive and survive. The problem is, some will allow all integrity to escape them and demand to reap the benefits of *your* careful

preparation. Lawlessness will be rampant. You will have to depend on yourself for protection.

SELF-DEFENSE INSTRUCTION

Self-defense, sometimes known as personal defense, is a system of countermeasures to defend against an intruder or attacker. Physical self-defense is the use of physical force to counteract an immediate threat of violence. The physical defense may be done with your body or with a weapon, and may be relative to the severity of the threat at hand.

A quick check online shows that there are many self-defense schools and instructors available whether you are searching for martial arts or other types of self-defense instruction. Finding an instructor in your area and setting up self-defense classes for you and your family may be the best way to provide the training and confidence for self-defense that will be needed during post-EMP times.

WEAPONS

Guns and Ammunition

Even if you are not necessarily a pro-gun person, you may want to consider purchasing weapons and learning how to use them, as well as having your family members learn how to use them. When your life or the life of a loved one is on the line, a weapon may be your only chance of survival. An attacker or intruder may not back down with their intentions unless you have a weapon. When faced with the choice of encountering a weapon or running away, most intruders will choose to run away.

What type of weapon should you consider? Revolvers are reliable, but they take longer for most people to reload and have limited ammunition capabilities. When seconds count for saving a life, the revolver might not be the best choice for most people who are inexperienced with using them.

Semi-automatic pistols may be a good choice for self-protection because they are concealable and have large magazine capabilities. They can also be reloaded quickly.

Shotguns are adaptable, depending on the type of ammunition used. They are also versatile as they can be used for hunting and self-defense purposes when using high-powered 00 buck or slugs at close range to the perpetrator.

A rifle can be a good all-around self-defense gun because it is accurate for a great range than a handgun. A .22 rifle is also good for hunting small game such as quail, rabbit, or ducks that might be accessible near your home or base site.

Because you will be subject to many different scenarios during post-EMP times, your best bet is to own several weapons that can be used for the specific situation. Take into consideration who might need to use the weapon and what they might need to use it for. Some guns are difficult for frail or small people to use because they kick back. Consider whether ammunition is easily accessible for stocking up and how much the ammunition costs.

Some ammunition can be rather expensive if you need to buy a large stock.

Also, consider recoil performance and portability of the gun as well as the availability of holsters, accessories, and repair parts. Is the gun you are considering likely to be banned in the U.S. soon? If so, choose another type of weapon that has a lower risk of being banned.

Storage capability is an important consideration of weapons and ammunition. It's important to have a safe place to store the weapons where they are out of reach and sight of children but accessible when needed. Keep in mind that 80% of gun fights last just three to five seconds and take place at a distance of twelve feet or less, and happen at night. If you have to run to find your weapons and ammunition, you are likely to be the loser in that battle. Meeting the necessary safety requirements for guns when you have children in the house and having them still accessible is very tricky. Some experts recommended a locked gun case with the key on a small chain that remains around your neck 24-7.

It is also important that those outside of your immediate circle do not know that you have weapons or where they are stored. For good reason, weapons will be a high-theft item post-EMP. And the last thing you want is for someone to use your weapons against you to overtake your home or base site and invade your stash of food, water, and preparedness items.

You can hide your guns well in an airtight and waterproof container by using a large-diameter PVC pipe with one end cap glued permanently in placed and the other end removable with rubber gaskets. The container is sealed after desiccants have been added to the tube and the weapon has been coated with rust protectant, wrapped in protective padding, and wrapped again in a waterproof layer.

Ammunition must be stored in a cool, dry location. You can use a sealed, metal ammunition canister, such as the ones found at military surplus supply stores, to keep the ammunition dry and contained. In containers that are not sealed and made for storing ammo, use a desiccant such as a silica gel packet to absorb moisture and keep the ammo dry. Do not store bullets in leather

shell loops for longer periods of time or the casings will oxidize. Ammunition can last up to 30 years or longer if stored properly.

It is best to have ammunition stored near the gun if it's safe to do so and also have it stored in various other places on your property so you have easy access to it from various spots.

You should gather your guns and ammunition as soon as possible and not wait until after a nuclear attack when guns will be gobbled up instantly. Also, purchase the supplies for cleaning the guns. However, before you stockpile guns and ammunition, check your state laws. Gun laws vary from state to state and some states have very strict laws regarding what guns can be purchased, who can purchase them, and how many can be purchased and kept on the property. If law enforcement agencies find you have broken the state or federal laws, they may confiscate your weapons and ammunition, leaving you without a way to defend yourself and your loved ones.

Knives

Owning a good knife is crucial in a survival situation. Besides being a weapon when necessary, the knife can be used for field dressing game, preparing or carving wood, clearing brush in the wilderness, and cutting cordage as needed.

There are many different knives that can be considered for your preparation kit, but there are three basic types of knives: fixed blades, folders, and multi-tool. Here are the characteristics and pros and cons of each type:

Fixed Blades—a blade that extends from the handle

Sturdy knife

Can buy various blade lengths from three inches to twelve inches long in several different increments

Not easy to carry or conceal

Should be carried in a sheath if worn on the body

Folders—includes common pocket knives

Not as sturdy as a fixed blade

Easily carried and concealed

Blade is not strong enough to use for many things that fixed blades can be used for

Multi-tools—such as the Swiss Army knife and Leatherman tools that contain other tools such as miniature scissors, can opener, bottle opener, screwdriver, wire stripper, saw, and knife blades

Very versatile and useful for many tasks

Good knife for unforeseen emergencies and scenarios

Blade is usually smaller and not as sturdy as fixed blade

As with all weapons, knives should be stored in a safe place where they cannot be accessed by children. They should also be kept dry and properly sharpened to be effective for their intended

purposes. When you purchase knives, do not forget about cleaning kits, cases, and holsters.

Night Vision Goggles

Night vision goggles are expensive and not an absolute necessity for EMP preparation, but they could be highly beneficial in many instances. Remember, without electricity and street lights and other lights, once the sun sets, every place will be darker than usual. Being able to spot human predators that would harm your family must be part of your protection plan. Night vision goggles could help you do that. They can also help you target nocturnal animals that would invade your food supply.

If you hunt at night, which may be necessary, night goggles can help you spot prey that you might not otherwise see at night. If you're hunting at night, you can spot invaders before they see you, which could give you time for taking cover before you are seen.

The operative word for self-defense is to be prepared. Make a self-defense plan and talk about it with everyone in your family. There is no need to scare children, but they should know their part in your self-defense plan. They should know what to do in case of a home invasion or if they are assaulted. It is very difficult for parents to think about these things, but it is a necessity for post-EMP survival.

19: COMMUNICATION

After an EMP strike, utter chaos will be the order of the day. Communication as you have known it will no longer exist. The convenience of taking your cell phone out of your pocket and instantly calling or texting someone will vanish. Turning on the computer to catch the latest trends and news updates will not be possible. Even sitting down to listen to the world news after work will be a thing of the past. So how will you communicate and receive news and updates?

RADIO AND TV

Ham Radio

During post-EMP days, the ham radio may prove to be a trustworthy friend. Even now, ham radios, also known as amateur radios are used to share information locally or around the world without using cell phones or the Internet. A ham radio is portable and can be set up absolutely anywhere the user chooses.

The ham radio requires that the user gains a knowledge of radio technology and operating principles. To operate a ham radio, you must pass an examination to obtain the Federal Communications Commission (FCC) license to operate on radio frequencies known as the Amateur Bands that are allocated by the FCC for use by ham radio operators. The licensing of ham radio operators was set up by the FCC to help them create a group of experts who could provide radio services during emergencies. To get the basic materials needed to study for the test and pay for the testing service is usually around $40, which is a small price to pay for the value of being able to operate a ham radio.

You can learn more about ham radios by joining a local ham radio group or a national organization such as the National Association for Amateur Radio. If you plan to use a ham radio as the main means of emergency communication during post-HEMP days, now is the time to study and get your operating license, as well as gather your equipment and prepare your close family members how to use it during an emergency.

Battery and Hand-Cranked Radio and TV

AM/FM radios or TVs that run on batteries or are hand-cranked are good options for receiving communication from the outside during the aftermath of a nuclear attack, though it is unknown if there will be any radio stations on the air post-EMP. To find the radio or TV that best meets your needs and your budget, check the reviews online. Additionally, when researching your options, make sure to check what power sources can be used for the radio and TV as this will be your most important consideration. But also try to purchase units with high-gain external antennas as

many of the local radio stations may be down. Some handheld radios come with NOAA weather band frequencies that could come in handy. Some hand-cranked radios also come with built-in lights that can be utilized when you turn the crank.

Shortwave Radio

Shortwave radios broadcast music and news and can be used for long distance communication by means of radio waves that are reflected back to Earth from the ionosphere. This allows communication around the globe. For the best signal, choose a shortwave radio with an external shortwave antenna.

With a shortwave radio, be aware that the signal will be sporadic. You may be able to get a channel one day and not the next, depending on atmospheric conditions and weather. If you can't get a channel one day, do not give up. Try it again the next day.

CB Radio

Citizens band radios that are often referred to as a CB is a system of short-distance radio communication between individuals on a selection of 40 channels. In the U.S. truckers use the CB radio to communicate with each other for industry purposes and for the company during their long days on the road.

There are CB radio clubs that you can join in order to stay in touch with individuals and groups that use CB radios as a form of communication during emergency situations. CB radios are easy to set up and use and could be a good means of communication during post-EMP days for staying in touch with family members as well as the outside world. It's best to learn how to use the CB ahead of time and form an alliance with other CB users prior to a nuclear attack. The more bridges of communication you have open before EMP, the better.

Police Scanners

Police scanners are radio receivers that can automatically tune in or scan two or more discrete frequencies, stopping when it finds a signal on one of them and continuing to scan other frequencies when the initial transmission ceases. The systems are inexpensive and can be useful for hearing what is going on outside of your own property.

Hand-Held Walkie Talkies

For short-distance family communication, walkie talkies can be very useful. They are simple enough for a child to operate so everyone can stay in touch even if they are a few miles away from each other. The average walkie talkies are line-of-sight devices, so even if you can't get a signal from you stand, you may be able to walk uphill a bit and get a signal.

For more sophisticated and long distance communication, if you use the powerful GMRS channels on walkie talkies, you need to

apply for an FCC license that cost about $90. To use a more powerful, long-range walkie talkie, you need to know the band plan—the channels that are designated for specific uses in your area.

Military Field Phones and Spark-Gap Transmitters

In the event of EMP, you are likely going to see people revert back to these older methods of communication that do not require electricity, cell phones, and the Internet for receiving and dispatching messages. Other forms of receiving and sending messages may also include military field phones that are operated by batteries or hand power and simple spark-gap transmitters built by electrical engineers and amateur radio enthusiasts to communicate Morse code because they do not transmit or receive voice signals. For that reason, it would not be a bad idea to learn Morse code, which is a method of transmitting text information in a series of on-off tones, lights, or clicks and each character is represented by a unique sequence of dots and

dashes. It sounds complicated, but it really is not once you commit to learning the required information. The more knowledge you have in this area, the more likely you will be able to communicate as needed during post-EMP days. Your knowledge could keep your family alive and also make you a valuable resource that could be traded for necessities such as food, clothing, and services.

Paper and Pen

When you make a list of the many things you need to store in your survival pack and stash, don't forget to add paper, pens, pencils, permanent and non-permanent markers, cans of spray paint, a heavy-duty staple gun and staples, and heavy cardboard or poster board for writing messages and signs. You may need to post a sign that you need emergency medical help or post a sign to let family members know where you are. You may need to send a paper message with someone who is traveling to an area where you have extended family members. There are many scenarios

where the ability to communicate by paper message could be important.

Prepare a small "message kit" for each family member's backpack and one for your base stash of supplies. Store the paper in page protectors or plastic envelopes so it does not get wet and damaged. Make sure you have plenty of heavy-duty pens and markers that will last a while and work in various situations. Common office supplies for attaching messages, such as paper clips, rubber bands, and push pins can also come in handy.

Your message kit should also contain dozens of pre-made or pre-purchased flags that have your family name, home address, and a meeting place written on a certain place on the flag so that further messages can be written on the flags and the flags posted as needed in various places to alert and provide messages for family members. The flags should be fairly small, all the same bright neon color, and attached to a spike of some sort so they can be put in the ground. They should also contain a paper clip that can be opened to create "wire" for tying the flag to something when it's not feasible to stick the flag into the ground. Even very young children should have the flags in their backpack

and understand that if they get lost, they should give their flags to people.

Without mail delivery, during post-EMP days, people will need to rely on getting places by foot, bicycle or horse if they have not prepared an older vehicle for EMP. Keep that in mind when you think about how you will deliver messages after a nuclear attack!

20: VEHICLES

As discussed earlier in this guide, most cars will cease to function when an EMP hits. This also means that city bus systems, subway trains, nation-wide bus systems, and taxi services that millions of people rely on for transportation daily will cease to operate. International travel by jet and by boat will cease. This will happen during a time when you may need transportation the most. So what can you do?

You need to prepare with a bug out vehicle. That's right—a vehicle that is ready to go if you have to leave your home or base site when there is a HEMP attack. If your bug out vehicle still runs, is fueled to go, and the streets are not blocked, you can get yourself and your family to safety immediately in your bug out vehicle, which is much preferred over walking to your emergency spot.

Reliability after a nuclear HEMP attack is the first priority for choosing a bug out vehicle. A well-maintained older model is more likely to be reliable than a newer model with electronic/digital parts and computers. Even with an older vehicle, if the vehicle has any starter or key systems that could be affected by HEMP, make sure you have spare parts and know how to replace the ignition system and other affected parts. Remember, you won't be able to open your laptop computer and click on a YouTube video to provide this information for you!

Parts of a vehicle that may be affected by HEMP include the following:

- Electronic fuel ignition

- Anti-lock brake system
- Electronic ignition
- Ignition coil
- Mechanical distributor
- Alternator or generator
- Computers that help operate the vehicle

If your vehicle contains these components, you should purchase replacement components and store them in shielded bags.

The vehicle that you use as a bug out vehicle should be large enough to transport your entire family and hold your emergency backpacks, food, water, and essentials. This most likely means the vehicle will not be a small economy car that gets great gas mileage so make sure the tank is always full and you have extra gasoline in safe storage cans as well. (If your bug out vehicle has a dual gas tank, that is even better!)

Listed below are some attributes that would be desirable in a bug out vehicle:

- Model older than 1986 with as few EMP-sensitive parts as possible

- Large fuel tank or extra fuel tank
- High clearance 4x4 for traveling all terrain
- Tow package and a trailer hitch
- Roof rack to accommodate a car-top carrier
- Bull bar type bumper
- Off road lighting
- Plenty of cargo space
- Communications gear (such as CB radio)
- Off road or all-terrain tires
- Non-electric fuel pump
- Rear bumper with swing out storage for gas cans, water cans

Additionally, you should carry the following auto supplies in your bug out vehicle if possible:

- Extra radiator, heater, and vacuum hoses
- Spare tire
- Tire changing tools (jack, lug wrench, tire tool)
- Tire pump (compressed air)
- Tire patch kit
- Extra charged battery or two

- Extra oil
- Extra air filters
- Coolant
- Extra oil filters
- Extra spark plugs, points, condenser
- Extra distributor
- Tie down straps
- Auto tool box for repairs

If you choose a pickup or truck as your post-EMP vehicle, consider putting a trailer hitch on it and purchasing a camper shell to put on it or a travel trailer to pull behind it so you have a home away from home on wheels. Note that you would need to modify the travel trailer as components such as the transformer and electric pumps, etc. would not work after an EMP hit. Furthermore, consider purchasing a small utility trailer to hook up to your emergency vehicle to carry supplies that you do not want to leave at your home site if you must leave the home. A utility trailer that is sealed and has a locking door would probably be necessary to protect your belongings from looters. A utility

trailer could prove useful in many instances during the disaster following a nuclear attack. In extreme cases, the trailer could provide a dry, safe, place for your family to wait out a storm or sleep if necessary.

ALTERNATIVE TRANSPORTATION

It may not be feasible for you to afford a full-on, decked out bug out car to use for an emergency escape to your bug out site and to have available for transportation during the HEMP aftermath. If that is the case, think about alternative means of transportation. Alternative transportation may not be ideal but it is certainly better than no transportation and walking!

Alternative transportation may include the following:

- Old motorcycles with saddle bags for emergency supplies
- Bicycles with bags and a basket for emergency supplies
- Horse, saddle, saddle bags for emergency supplies

Keep in mind that on a motorcycle, horse, or bike, you can go into areas that a car or truck cannot go. With these modes of transportation, you can go into the wilderness on narrow trails or go through the forest. The best thing is that horses and bikes do not require gasoline. If you do choose a bicycle, make sure you have a helmet for each person, extra tubes, tires, chains, a bike tool kit, and a hand air pump.

The obvious problems with these alternative methods of transportation are that they are primarily built for one person and a number of supplies that you could carry with you would be severely limited. However, you can buy bike seats and bike trailers for children or let them ride with you on a horse saddle. You can also purchase various kind of packs for horses, bikes, or motorcycles.

As the saying goes, when it comes to your bug out vehicle, do the best you can do with what you have. If you do not have a suitable vehicle and are not able to purchase one, look around and see what options you may have. Do you have a wagon, luggage rack, or cart you can use to transport your emergency items if you must walk away from your home? Think as creatively as possible for

repurposing what you have. The biggest thing is to develop a survival mindset and prepare.

21: BUG OUT BAGS

Nobody really knows exactly what will happen immediately after a nuclear attack. There is scientific research that provides likely scenarios and some details, but many details and scenarios are dependent on factors that are not predictable. One of the factors that you cannot predict for certain is whether your home will remain fit for habitation during and after an EMP hit. You may need to leave the home instantly and not have time to do

anything more than grab a backpack that is already packed and ready to go. The backpack is known as your bug out bag.

Every family member should have their own bug out bag with their name printed clearly on the front in permanent marker. Each child should know that when someone yells for them to grab their bug out bag they must immediately grab the bag without delay. If there are babies and toddlers in the family, someone older should understand that they are assigned to grab a specified bag for a younger one.

The bug out bag should be waterproof and items in the bag should be protected in plastic if practical to do so. The bag should not be so packed that it is not easily grabbed and carried by the owner of it. Backpack style bags are great because they are easy to manage and carry for distances.

Your bug out bag should be packed and ready to go at all times. If you need to rotate anything out of it, immediately stock it again rather than let it sit un-stocked. Keep your bag seasonal as you will not have room in the bag for items for all seasons. You have

no idea when a nuclear HEMP could happen and the goal of the bug out bag is to always be ready to go.

The contents of your bug out bag will depend on your personal needs but should definitely contain the following:

- Three-day supply of lightweight freeze-dried instant food or other instant food that does not spoil
- Water for hydrating instant food and drinking
- Utensils for preparing and eating food (fork, spoon, sharp knife, mini-tongs, drinking cup)
- Heat source such as a Rocket style camp stove and fuel
- Waterproof matches, lighter, mini propane fire starter and tinder
- Flashlight, headlamp, batteries
- Change of clothing, including hat, gloves, layering items with polypropylene next to skin and wool on outside if cold season, extra socks
- Rain poncho with hood
- Emergency first-aid kit with essentials
- Hygiene wipes, toilet paper
- Medication

- Communication devise if you have one
- Hand-cranked radio if you have one
- Weapon if you have one
- Solar blanket
- Bandana (multiple uses)
- Ultra-light tent or tarp, spikes, cordage
- Ultra-light sleeping bag that keeps you warm in sub-zero weather (unless you live in tropical climate, then use bag rated for higher temps because it will be less bulky and less expensive)
- Mini fishing kit
- Your identification and medical cards if you don't carry it on you at all times (You may need your ID to prove who you are to get your home back)
- Your most important papers in waterproof page protector or laminated
- Small machete and ax
- Leather work-style gloves

You may think of other things that you need for your bug out bag that pertain particularly to your needs, but the list above should

get you through the most immediate time after a HEMP if you are displaced from your home. Just make sure you keep your bug out bag where it is easily accessible at all times.

Make sure you are knowledgeable about how to use everything in your bug out bag. Do you know how to quickly set up your tent in the dark? Can you quickly start a fire? Have you read the instructions for using your portable stove? Do you know how to prepare the food you have packed in your bug out bag? Do you know how to use your mini fishing kit to catch a fish if that is all you have available for food?

Having the skills and knowledge necessary to survive an emergency is just as important as having your bug out bag ready!

22: EMP PREP COMMUNITIES

As the world goes on about its business, you may feel as though you are the only person who is aware of the threat of nuclear HEMP and the preparation that is required for such an event. But the truth is that there are millions of people in the United States that are aware of the likelihood of a nuclear attack and they are preparing. Some of them probably live in your neighborhood!

There are many reasons to join like-minded people when it comes to preparing for HEMP. There are many clichés that fit the situation: *No man is an island unto himself. There is safety in numbers. Two heads are better than one.* But perhaps the most profound reality is that a group can accomplish what a single

person cannot accomplish alone, and the one who walks to the beat of a different drum than most of the world can feel as though they *belong* in a group of like-minded people. The sense of belonging can be energizing and motivating and provide a sense of security during difficult pre-HEMP days for those who are preparing for the disaster.

There are people of various ages, vocations, genders, religions, and socio-economic status who are preparing for a HEMP attack. These people each possess skills and knowledge that you and others can learn from. YOU possess skills and knowledge that others need. When these people are united and share resources and information, it creates a complete plan for survival.

How do you find these people? For starters, be aware that some people will automatically think you are a doomsday person if you approach the topic of preparation for a nuclear attack and HEMP. Knowing this, it's best to be cautious about whom you approach. And when you do approach people with the topic, start casually to test the waters and find out where they stand on the topic. It won't take much of a conversation to understand how they feel about the topic. You might initiate the conversation when you're

chatting at a ball game or getting your mail at the same time as your neighbor and start with something to the effect of, “Boy, times sure are difficult, aren’t they? There is a lot of craziness going on in world politics.” If they agree with you, you might proceed with questions such as, “Have you ever thought about what you would do if there was a huge disaster such as maybe a nuclear attack?” At that point, their response would probably give you a good idea of where they stand. If you’re fortunate, you may have found someone who is on the same page as you are! If not, just move on. Don’t try to convince them of anything.

You can also find like-minded people by starting an online community prior to an EMP disaster. You can do this by starting a Facebook page or blog on the topic and creating a forum for interaction. The blog can be intended for local people in your neighborhood, community, town, or city. You will gain a better sense of community if the blog caters to local people. You can print a half-sheet flyer announcing the blog and providing the URL for it. You can pass out the flyer at some of the organizations to which you belong. Once people start to “meet” online, they

may want to start having local meetings in person to strategize and organize preparation events.

There are many preparation groups already out there. You may be able to find out about them by asking around at places that preppers might go such as outdoor supply stores, military surplus stores, libraries, co-op food groups, homeschooling groups, church groups, gun clubs, and county extension groups.

If you form a local group, consider finding a leader to organize the group (or you can be the leader) but encourage everyone to participate and bring their areas of expertise to the group. A large group might be broken up into these survival topics with leaders over each topic to teach classes or assign someone to teach classes as well as to take on the community responsibility for the topic and assign people to take on responsibilities:

- Energy—fire builder, light provider, fuel storage supervisor
- Professionals and First responders—firefighters, doctors, nurses, dentists
- Military—active and retired in all disciplines

- Security—active and passive, police officers, security guards, guarding of community goods
- Mechanical—small engine repair, car repair, electrical repair
- Communications—devices, newsletters, messenger chain, communication devices, phone directory, etc.
- Education—teachers, speakers
- Transportation—secure vehicles, etc.
- Laborers—crafters, barterers, physical labor, gardeners
- Hunters/anglers—scouts for water sources, scouts for hunting/fishing areas, gathering of guns, ammunition, fishing equipment, etc.
- Accounting—account for community supplies, equipment, finances, food, etc. Accounting for bartering system among members
- Legal—attorneys and those who have access and can interpret laws that affect preppers now and after HEMP, legal representation for the group and those in the group

Trust will be a huge factor in a prepper group. Make sure all members get to know one another. Have potlucks at the meetings so people can relax and talk to each other in an informal setting.

Distribute preparation work evenly among those in the group so that no one feels as though they are doing the bulk of the work.

You can see the value in forming a community preparation group that is active during preparation time and can immediately take action when a nuclear attack occurs. Though it will take time to start and maintain a strong group, it will be time and effort well invested when HEMP occurs.