This is a good read with lots of information bout EMP related information.

I got this information of this link and just consolidated it without all the pictures.

http://www.bioprepper.com/2015/07/11/emp-101everything-you-need-to-know-about-emphemp-and-how-to-guard-against-it/

LENGTHENED LIST OF ITEMS IN PREPARATION OF AN E.M.P. SCENARIO

EMPAUGUST 6, 2014BY BIO PREPPER

Items may be added to this list at later times. Be sure to check back for future add-ons.

Necessities and Consumables

-food supply for a year (including food for any livestock or house animals)

-water supply for three months, one gallon per person per day, for washing and cooking as well as drinking

-gasoline for all vehicles that would still work and for the gas powered electrical generator

-large quantities of iodized salt

-large quantities of chlorine tablets and bleach for purifying water

-batteries for any electronics that may still work

-a year supply of bar soap and shampoo (if you are dirty for too long you can catch/spread disease)

-a tooth brush and as much toothpaste as you can get

Tools

-an ax with a strong handle (not wooden)

-a hammer and nails

-hand saw

-lumber for various repairs and home defense needs (trees will also work, sorry tree huggers)

-multiple cheap flashlights

-One good flashlight (such as a Mag-lite or Mag-LED)

-if possible, an old radio that uses vacuum tubes and batteries

-multiple lighters

-gas/dynamo powered electrical generators (do NOT leave these plugged in)

Weapons

-small handgun (preferred .45 caliber)

-shotgun (12 or 20 gauge)

-bolt action or semi-automatic rifle with a scope (preferred .223 for semi-auto or 30-06 for bolt action)

-as much ammunition for each weapon as you can get

-a knife with a 6-8 inch blade with a belt sheath

-a bow or crossbow with reusable arrows or bolts

Commodities

-if you can afford it, an All-terrain vehicle that seats four people and has room for storage, like a small truck bed in the back

-a pretty good amount of cash, not only for the initial start of an E.M.P. attack, but also in case the currency does survive

-Little Debbie and Hostess sweets, more specifically, the Twinkie (don't forget, they still have an expiration date, it's just considerably longer than most food products). Only obtain if you have enough toothpaste.

-energy drinks, there will be some points where the carbohydrates and other forms of energy could save your life. They tend to dehydrate you so only obtain if you have enough water.

Medical Equipment and Medicine

-rubbing alcohol

-sterile gauze pads (4×4)

-medical tape

-gauze wrap

-antiseptic spray and Neosporin

-a large amount of antibiotics

-an even larger amount of ibuprofen and aspirin

-Band-Aids, small and large

-sterile rubber gloves

-butterfly sutures

-ankle, elbow, and knee braces

-over-the-counter flu medicine

-cough syrup

-any kind of cream or ointment for burns

LIGHTS OFF: HOW THE WORLD COULD CHANGE IN 7 DAYS

You might be thinking, hey, I've got this one covered! I've survived lots of power outages. If that is your thought process, you could not be more wrong.

Anyone who considers, even for a moment, how interconnected and interdependent our existence has become … so full of overly-complex, over-engineered, over-automated systems driving every aspect of our increasingly fragile existence that is dependent on just-in-time inventory and shipping virtually everything we need ridiculous distances … arrives at the same inescapable conclusion: that mankind has built a house of cards.

I doubt we could have created a more fragile world if it had been our aim from the beginning. We have painted ourselves into a corner and we are going to make a mess getting out.

Few analogies are as simple and powerful as tripping an electrical breaker to disconnect a building from the grid. One moment the building is alive, bright, vibrant, buzzing. With the flip of a switch, it lays still, cold and dead.

On/off.

Alive/Dead.

It is truly that simple. One moment we have juice, the next we don't.

The Chain Reaction

America's need for power outstrips our investment in our capability to produce it by 400%.

Yet the legislative branch of government points fingers and the executive branch (well, what used to be the executive branch before we turned the zoo over to the chimps, so to speak) sits in its tower considering "jobs for jihadis" and throwing lavish parties to congratulate and reward itself for scamming the rest of us out of our tax dollars.

Meanwhile, our electrical infrastructure continues its rapid decay and the nation's power grid slips and slides down a spiral water slide of demise. It appears that they could not possibly care less. Perhaps they figure somebody else will be in office to take the blame when the music stops.

But it is not just the US. The US economy affects the world economy and the world economy is feeling the pinch. You do not have to be a risk assessment genius to understand that a depressed world economy translates to more frequent power outages of increased duration and a weaker and more vulnerable power grid.

The grid is limping along on borrowed time. Through a combination of luck and the best efforts of the intelligence and military communities, we have dodged the CME/HEMP (Coronal Mass Ejection/High-altitude Electromagnetic Pulse) bullet … so far.

But while clock counts down to the next time the sun lobs an X-class solar flare in the general direction of our planet, the power industry has succeeded in using junk science generated by NERC (North American Electric Reliability Corporation) to pull the wool over the eyes of congress and emergency management bureaucrats alike, forestalling the Shield Act, which is our only hope to harden the grid against the inevitable threat of EMP, be it geomagnetic or manmade.

The 2012 India Blackout affected 620 million people or 9% of the world population. India's engineers blamed in on a number of factors that were merely symptoms of the same illness that affects the US and most other power grids.

The chronic illness underlying the symptoms was that the industrial and technological revolutions have catalyzed humanity's explosive growth for far too long.

This has woven fragility into very fabric of world's power grids. This has become a growth bubble of epic proportions searching for a pin. Our sun and geopolitical climate has that bubble navigating terrain akin to the Sonoran Desert. In reality, it is not so much a desert, but a forest of cactus spines, fangs, thorns and stingers, all poised to plant themselves in passersby.

FIND OUT HOW TO PROTECT YOURSELF FROM A POWER GRID FAILURE!!!!!

I am involved in emergency management and I am very blessed to have many good, competent government emergency managers all the way up to the state level. After that, it mostly government shills who fancy themselves emergency managers.

Especially at the Federal level, the US has fallen prey to a culture of academics who pretend to know inordinately more than they actually do. Rooted firmly in the personality ethic, "Fake it 'til you make it." is their motto, but they never do. Afraid of their own intellectual shadow, they fear embracing and admitting their own uncertainly, which is the first step to anyone truly learning anything. So they believe what is most convenient as opposed to what is true. In this case, it very convenient to have blind faith that the electrical grid, like everything else in their lives, is maintained by people and organizations more intelligent, wiser, more benevolent and more responsible than they are. "Move along, nothing to see here!"

EMP is the stuff of Hollywood, not what our smartest scientists, the head of the CIA, and our best and brightest minds, and those of our enemies, seem to all agree is presently our single greatest known vulnerability.

Major vulnerabilities mean increased work load for emergency managers, and government shills resist having to actually provide a valuable service in trade for their salary.

Just this type of human debris, "working" for the City of Phoenix, Arizona concluded some years ago that an evacuation of Phoenix-Metro area is simply impossible.

So no such plan even exists. “Can’t win … don’t try.” They look to Homer Simpson for guidance on important issues like emergency plans that affect the lives of millions of people, including themselves and their own families.

I sincerely hope they have since remedied the situation, but I was not going to hold my breath and relocated to someplace with better prospects and better leadership.

The Countdown to Disaster

In order to understand how to prepare for a protracted power outage, you should understand the sequence of events that will unfold after the lights go out.

The electrical grid varies greatly from state to state and country to country, as do the threats to the grid, but here’s a sample of past events and future projections in form of a timeline.

It is a simple matter to put together a plan based on your family or organizational needs once you have an idea of what you’re preparing for so visualizing your mission and obstacles is sometimes more useful than the usual list of stuff you need have on hand and obligatory reminder to practice and train.

Immediately:

Electric heating & cooling systems fail. In winter, homes will begin losing heat. In summer, many buildings dependent on air conditioning to maintain a safe temperature for occupants will be forced to evacuate.

Many hospitals, radio stations, TV stations, telecomm systems and data centers switch over to emergency power but many lose air conditioning due to the expense of backup generators capable of supplying its heavy electrical load. Consequently, many data centers begin to heat up.

Computers without uninterruptable power supplies or an integrated battery power lose power.

Tall buildings reliant on most types of booster pumps lose water pressure past the bottom floors. Buildings with rooftop tanks have water until the tanks run dry.

Entire cities lose water pressure forcing boil-water advisories into effect for any water that does make to you or that you manage to scrounge up. But without electricity, most households will be unable to boil water. The NE US Blackout of 2003 left millions of Michigan residents without any water.

Many commuters are trapped on subways. Most electric subways and electric trains cease to function. Those that remain functioning reduce numbers of trains. In the Southern Brazil blackout of 1999, 60,000 commuters where on the subway system in Rio alone when it plunged into darkness. That blackout affected nearly 100 million people and triggered troop deployments. It was caused by neglect of the country’s grid due to a depressed economy. The event was triggered by an everyday lightning strike. Likewise, the NE US Blackout of 2003, affected all Northern states from Michigan up to NY and portions of Canada. Some 600 trains were stranded and thousands upon thousands had to be evacuated or rescued from subways and elevators.

Most traffic lights go dark or default to 4-way stops. Traffic snarls due to failure of traffic controls. Increased numbers of traffic accidents and delayed emergency response times.

Slowed traffic and calls to rescue thousands of people in elevators slows emergency response times.

Most credit card terminals and point of sale terminals are inoperable, limiting commerce. Some transactions continue on a cash only basis.

Most banks and ATMs (Automated Teller Machine) close or are inoperable, impeding most cash withdrawals.

In large blackouts, cell service typically goes down before land lines, large due to increased call volume and lack of power to form many cell towers to transmit, but keep in mind that voice, and text messaging operate on completely different frequencies and systems. Text messaging often works when voice does not. Also keep in mind that the landline system operates independent of cell service is more robust.

The 2012 India blackout shutdown multiple airports.

Refilling prescription medication instantly gets a whole lot harder. Refilling controlled medications becomes next to impossible for most patients.

4 hours:

Backup batteries on most alarm systems fail. If you own a brick and mortar small business, you either have to physically guard it or leave it vulnerable. If you own both a business and a home and commute between the two, you will have a hard time guarding them both. Many criminals are well aware of this fact and that law enforcement response times are slowing. Burglaries increase.

Small portable generators need to be refueled. This will become a constant chore, very expensive and noisy security risk, so you are better off putting in a renewable energy source and battery bank while it is still possible or planning to only run your generator at certain times and doing all chores requiring electricity while it is running.

Store shelves of business still in operation begin to empty.

Price gouging, profiteering, panic buying and hording cause panic to mount, tempers to flare. Batteries, bottled water, flashlights, ice, candles and fuel are hardest hit and profiteers begin selling them in the streets.

If cell phones or social media are still up, heavily-populated areas will see some flash mob-related crime.

Any previously working phone circuits will likely be overloaded by now.

6 hours:

Long lines form at gas stations still able to pump gas with battery-powered pumps or hand pumps as increasing numbers of motorists run out of fuel and many gas stations lose access to underground fuel tanks. They will only be able to accept cash.

GMRS (General Mobile Radio Service) and FRS (Family Radio Service) radios rendered ineffective by “bubble pack” radio users and children. They will remain unusable from this point forward in most cities and suburbs. Smaller towns with redundant band plans will fare better, but will not be without major problems.

Most folk will have had to “use the bathroom” by now. Many will discover that their toilets no longer flush. Are you prepared for this eventuality?

By this point, if are well prepared, you will very likely have determined the scope of the outage, its probable duration and cause. You will most likely determine this via your emergency radio equipment such as AM/FM/SW emergency radios, scanners or amateur radio equipment. Depending on the scope and cause, you might have found out or figured out whether the blackout is due to grid failure, a geomagnetic event or an HEMP almost immediately. Understanding its probable scope and severity, however, may take some time and the use of your noggin, your ears and possibly asking the right people the right questions if you have ensured your ability to do ahead of time. Emergency responders and knowledgeable amateur radio enthusiasts, especially those who are part of ARES (Amateur Radio Emergency Service) will have a huge advantage over the average citizen when it comes to collecting and correctly interpreting intelligence about the emergency. If neither of these is your cup of tea, you might consider networking with someone so inclined ahead of time or you may find yourself doubly in the dark.

8 Hours:

Utility companies set up generators to keep coms infrastructure up.

People realize this is not just a minor blackouts where they will light some candles and play break out a board game for the kids.

Small scale looting begins if hasn’t already. What happened, the ability of emergency services to inform the public, what they choose to tell people or the people having to figure it out themselves, may all have a significant impact on crime.

12 Hours:

By the end of the first business day, blackouts cost gas stations and restaurants as much as $20K a day. Grocery store? Try more like 60K per day.

Most refrigerators are now useless under normal usage patterns so most insulin-dependent diabetics lose the means to cool insulin.

Night fall:

CPAP and oxygen concentrator users who have not invested in an alternative power solution will wake up fatigued at best and run the risk of not waking up at all.

Crime rate goes up when the sun goes down.

Day 2:

State of Emergency Declared. Troop deployments likely, if available. The Disaster Recovery Personal Protection Act of 2006, passed in 2007 specifically prohibits government officials from confiscating firearms in the aftermath of certain emergencies and natural disasters. Anyone who lies, cheats and steals their way into power these days seems to interpret the Constitution and Bill of Rights so broadly as to not apply to them or interprets one wiretap warrant to apply to hundreds of thousands of people. One such crook, former New Orleans police chief Eddie Compass, ordered police and National Guard

units to confiscate firearms in the aftermath of Hurricane Katrina in 2005. To prevent this from happening again, The People passed a law specifying penalties should some future tyrant try it and manage to survive long enough to stand trial. This is very probable in Eastern US or the People's Republic of California, but I imagine anyone who tried that in most Western states would end up at the long end of a short rope shortly after the words exited his pie hole. So, will there be firearms confiscation? Probably not unless a state of martial law is declared, and then only in areas firmly under government control. But depending on how that administration uses that power, it might precipitate a premature "leadership vacuum. "

Fuel rationing begins. Trucks start pumping out gas stations and truck the fuel to priority skeleton infrastructure.

Freezers begin to thaw. Many people begin cooking thawing meat to preserve it or at least prepare it before it spoils. BBQ's use far more propane to cook than camp stoves.

Do yourself a favor plan involves a bug out and clean out your fridge before you leave. If you come back, you will wish you had. If you come back to warm fridge after an extended absence, don't bother opening it. Just tape it shut, haul it to the dump and buy a new one. You'll save yourself a lot of grief.

Casualties and fatalities due to heat or cold exposure increase.

Casualties and fatalities due to lack of access to healthcare and medication increase.

Stores are likely cleaned out or soon will be.

By this time, lacking passive solar design features, alternative energy sources, wood stove, kerosene heater or the like, your home will likely be getting pretty close to the same temperature indoors as out of doors minus the wind chill. In some climates, this is no big deal. In other climates this is a death sentence. Plan accordingly. You will need a whole lot more clothing than in a climate-controlled home. If it is cold, create a micro-climate in a single room or fewer rooms. It will be way easier to keep one room warm than a whole house. If you have vaulted ceilings throughout your entire home, set up a cabin tent in the living room and line its walls and roof with reflective blankets.

Day 3:

72 Hour Kits or typical bug out bags are used up or close to it. The average "prepared" citizen (as per FEMA's over-optimistic recommendations based on past averages minus hurricanes, tornados and any other serious event because it is impossible that anything like that will ever happen again) runs out of emergency supplies and fuel to boil water.

As fatigue, injuries and concern for their families takes a toll on first responders, law enforcement officers, firefighters, EMTs (Emergency Medical Technician), nurses and doctors begin to stop showing up for shifts.

Rise in violent crime.

Looting picks up momentum.

Cases of waterborne and hygiene-related illness start to mount, further straining medical resources.

Some better-organized cities set up mobile morgues in refrigerated reefer trucks. It might sound a little morbid, but it is a whole lot better than the alternative.

Day 4:

Exhausted first responders and emergency personnel, nursing home staff and others have to prioritize dwindling resources where they can do the most good for patients with the best chances of recovery or survival.

Once you start using your food stores, the type or types of food you chose will have a huge impact on the amount of fuel needed to prepare it. Soaking dry packed legumes and grains prior to boiling can help reduce fuel consumption, but it takes a lot more fuel to cook from scratch than it does to prepare a freeze dried meal or heat up an MRE (Meal Ready-to-Eat).

By this time, cash may be have substantially less purchasing power and barter, mostly in the form of food, will eventually replace it.

RELATED: BEST BARTER ITEMS IF THE GRID GOES DOWN LONG TERM

Day 5:

Hospitals are forced to consolidate. Smaller hospitals and urgent care facilities are forced to shut down and must be evacuated, causing healthcare workers or volunteers to face difficult choices and patients to suffer the consequences.

Looting starts to die down because there isn't anything left to loot.

Day 6:

As reality sets in, doctors do the unthinkable and begin euthanizing patients they feel have low probability of survival. As demonstrated in the aftermath of Hurricane Katrina in 2005, this is considered acceptable practice and they will face no legal recourse if the blackout ends and society recovers. Due to limited quantities of medicine, no access to computerized medical records, lack of familiarity with the patients and lack of experience performing euthanasia, many of these attempts will fail, resulting in prolonged suffering, asphyxiation and hypoxic brain injury of patients who survive the attempt(s). This is sometimes due to the fact that patients with genetic tolerance to opioids and chronic pain patients undergoing opioid pain therapy will survive dosages far greater than a typically lethal dose.

Some elderly patients in nursing homes were simply abandoned and left to die of dehydration and exposure during the aftermath of Hurricane Katrina. If you have loved ones in such a facility, you might want to keep this in mind.

Day 7:

Cholera outbreaks and other serious fecal contamination-related and waterborne illness not seen in the US for decades or centuries begin to ravage cities, especially the large, coastal cities on the East Coast

located far downstream from large populations. A protracted power outage will churn out epidemics, so it is prudent to plan for the eventuality.

Unleaded and diesel-only generator owners who can still find fuel available are feeling the pinch as gasoline is many times more expensive and less available than natural gas in the majority of outages. Propane is cheaper than gas, but usually less available unless you have large capacity tanks.

Some people that had been getting by looting businesses decide to give homes a try. Some see that the empty homes will soon run out and decide to transition straight to home invasion of occupied homes.

If martial law has not been declared yet, they may give it a shot, but this would depend on the scope of the outage, prospects for recovery, political motives, geography, etc.

If the power is still out and there isn't a firm projection of restoration, you will likely be needing body bags soon if you have not already. Bodies can become a very serious microbiological threat and need to be properly handled and disposed of.

Are you prepared to face this?

Of all the myriad of different disasters that could strike the United States, an EMP would be one of the most devastating. Our modern society depends so much upon electronics, as well as the computers that run just about anything.

Very little of this is protected from the effects of EMP, including the power grid that we need to run it all. It is even questionable whether our nuclear power plants could survive an EMP, without the possibility of catastrophe.

The United States has many enemies around the world, some of whom have blatantly declared their desire to destroy us. While not all of these countries have the capability of shooting a nuclear device into the stratosphere, in order to create an EMP over the United States, some do. What technology our enemies don't have could easily be bought on the world market.

How It Starts

In the first few moments, the effects of an EMP will be just like a power outage. Actually, most people won't be able to tell the difference between an EMP and any other power outage. There is no obvious sign that an EMP has occurred, other than the loss of power. In fact, most of the power generating stations and other services won't even recognize what had happened, instead thinking that the problems they were experiencing were localized.

The first hours to a day of any EMP will look to everyone just as if they were having a regional blackout. People will be surprised to see that their whole city is blacked out, rather than just their neighborhood. They'll probably speculate about what has happened, but few will think of suggesting an EMP.

With the power out, a number of things we all depend upon will stop working immediately. Most stores won't be able to sell their merchandise, as their computerized cash registers won't work. Gas stations won't be able to pump gas and traffic lights will go out. City water will probably still flow for that first day, as most cities have water towers to store water for high usage times and maintain water pressure.

Nobody is going to realize that anything more major than a localized power outage is going on, because communications will break down. At the beginning everyone from individuals to state governments will deal with the problem as if it is a localized problem.

It will probably take the better part of a day for the government to verify that an EMP had occurred and several days for them to get the word out, as all means of communications will be down.

Many hospitals and other critical operations will be able to continue functioning for at least a week, as they almost always have backup diesel generators with enough fuel storage to keep them operating for at least a week. Although the electronic controls to automatically switch on the generators won't be functional, the manual controls will be. Of course, the electronic equipment in the hospital, which doctors depend on so much, won't be working.

When the Panic Attacks

The panic probably won't start until the second or third day. The first sign of that panic will be a run on the stores. Actually, we'll probably see a two wave run on the stores.

The first wave will happen within a couple of hours of losing power, as people run to the store for flashlights, batteries and candles. The second wave will happen once they realize that things aren't going to get better quickly and try to buy all the food, water and survival supplies they can.

As most people won't have cash to use in the stores, being used to using credit and debit cards, they will steak what they want, causing riots and violence in the stores. Stores will attempt to lock their doors to keep people out, but looters will break the glass in the doors and windows, stealing what they want.

This will start with food stores and quickly spread to liquor stores, pharmacies, hardware stores and sporting goods stores. Within a few days, widespread looting will become commonplace, with no stores being safe.

By the end of the first week the news will have spread throughout the country that we have been the victim of an EMP.

This will cause fear, as people misunderstand what has happened and wonder what will happen next. Companies will be shut down "temporarily" as it will be impossible for most people to work. This will begin to create concern as well, as people won't be earning money.

Without the ability to pump gas our distribution networks will break down. This will cause widespread shortages, most especially of food.

About the only food that will be available will be what people have on hand and what is produced locally. Even local produce will be limited, as there won't be fuel available to get it to market.

When people's food stocks start running out, we'll see the next wave of violence. This one will start as public protests, but turn into mob violence. People will want someone to blame for their problems and will seek out those that they can accuse. Anyone could end up a victim, but the most likely are politicians, business owners and the wealthy; people who would normally be in a position to do something about the problem.

The fact that they are impotent to do anything won't make a difference.

By this point, we'll see a general breakdown of society.

The End of the Society As We Know It

Most people will be unable to work and earn a living. Even if they could, they won't be able to buy the things they need. People will have to turn to survival mode, seeking out what they can do to survive.

Those who are prepared will hunker down, trying to make the best of the situation and avoid drawing attention to themselves. Some others will turn to violence, seeking to steal what they need. The vast majority of people will sink into a quiet desperation, trying to find out a living in any way possible.

The EMP will not only cause a collapse of society, but a financial collapse as well. A huge portion of the population will be out of work.

Everyone's money will be frozen, as there won't be any way to get to it. The small amount of currency that is available in the open market will quickly fall away to bartering, as people try to get what they need.

Many will die, either of starvation or freezing to death when they can't heat their homes.

Recovering from the effects of an EMP will be a long, drawn out affair, lasting years.

It won't be possible to rebuild the electrical grid quickly, as the suppliers for the equipment will be unable to work without power. Rebuilding will require replacing and reconstructing an enormous amount of equipment. In the time that the electrical grid is being rebuilt, people will gradually find other ways of doing things which don't require electrical power or electrical energy.

Although repairs to the electrical grid will probably be completed in three to four years, the country as a whole will be set back by decades. People won't be able to just pick their lives up where they left off, as much of what they did before will no longer exist. New companies will have to be started and people will have to find new ways to live their lives.

The effects of an EMP would be with us for the rest of our lives.

Understanding EMP, And How To Guard Against It

CORONAL MASS EJECTIONS RESULTING IN EMP

In July of 2012 a coronal mass ejection took place. A "coronal mass ejection" or C.M.E. is a massive burst of solar wind and magnetic fields rising above the solar corona or being released into space. This was reported to be the most powerful CME discharge ever recorded from our sun. The 2012 discharge missed Earth. However, if this C.M.E. had occurred only a week prior; it would have struck our planet and subsequently led to a complete technological disaster according to researchers from the University of Colorado Boulder.

To put into perspective the size and enormity of this event let's consider its speed (force) only. The typical C.M.E. from our sun take between 2-4 days to reach Earth. The coronal event in 2012 would have reached earth in just 18 hours. Its estimated speed was approximately 7 million miles per hour!

While there are systems in place that are designed to warn us of solar flares and CME activity… It's unclear on whether the teams tasked with monitoring the NASA "Solar Shield" would have been able to alert emergency services in time. The speed of this event was faster than anything previously seen in our modern space age.

Policy makers haven't taken this near miss seriously despite the fact that a senior member of the Congressional Homeland Security Committee warned that there is a 100% chance of a geo-magnetic event capable of crippling electrical grids across the globe. Certain government organizations have deemed this the "KILL SHOT". If such an event were to take place it would take up to 18 months before power could be restored to the grid. If such an event were to occur, it's estimated that 9 out of 10 people would be dead within one year. Once the electrical grid goes down, commerce systems will no longer function, food production, farming and delivery will grind to a halt almost instantly, water treatment facilities will cease to work and millions of diabetic citizens will perish from the inability to keep insulin cold. The ramifications would be serious and almost immediate.

So What Can I Do to Prepare For An EMP?

Protecting Small Equipment

A Faraday box is the easiest way of protecting most small electrical equipment that can be unplugged from the power source. A Faraday box is a metal box designed to divert and soak up the EMP. If the object placed in the box is insulated from the inside surface of the box, it will not be affected by the EMP travelling around the outside metal surface of the box. The Faraday box simple and cheap and often provides more protection to electrical components than "hardening" through circuit designs which can't be (or haven't been) adequately tested. Many containers are suitable for make-shift Faraday boxes: cake boxes, ammunition containers, metal filing cabinets and so on. Despite what you may have read or heard, these boxes do NOT have to be airtight due to the long wave length of EMP; boxes can be made of wire screen or other porous metal and be equally effective. The Faraday box is a great solution assuming that you aren't using the equipment when the event occurs. (Not likely) It is highly advised that you prepare a "back-up plan" Faraday box filled and ready for such an occasion. Shortwave radio, weather radio, small television, spare telephone and anything else you may need after. Do remember that the power grid will likely be wiped out so anything you keep will have to run off of a fuel powered generator. You should be focused on staying informed but not needlessly entertained.

The only two requirements for protection with a Faraday box are:

(1) The electrical equipment inside the box can't touch the metal container. Insulating with cardboard, rubber, plastic or even wads of paper are acceptable methods.

(2) The metal shielding must be continuous. There can be no large holes or gaps in the shielding.

Grounding your Faraday box is not advisable. Although EMP and lightning strike are very different in the big picture; a good example how NOT grounding your Faraday box is beneficial would be to look at lightning strikes on a flying plane. These strikes seldom fry the electrical components or occupants because the metal shell acts as a large Faraday box. Since the plane isn't grounded, the effects of lightning strikes are minimal.

Certain electrical parts are incredibly sensitive to EMP. These include IC circuits, microwave transistors, and Field Effect Transistors (FET's). If you have electrical equipment with such components, it must be very well protected if it is to survive EMP. Once again A Faraday box is the best solution.

There is a short list of electrical equipment that is innately EMP-resistant. This includes large electric motors, vacuum tube equipment, electrical generators, transformers, relays, and the like. This kind of equipment could possibly survive a massive EMP surge and would likely to survive if a few of the precautions discussed below were taken in their design and deployment. Battery operated equipment will also be impervious to EMP. If you don't want to buy a wealth of batteries for every appliance you own or use a radio set up with longer than 30-inch antenna, then you'll need to use equipment that is "hardened" against EMP.

Larger Equipment Hardening and Protection

If you must operate ham radios or the like during a nuclear attack; there are a few methods which will help to protect electrical circuits from EMP. These various vary in design as there are multiple ways of neutralizing the effects of an EMP. Design variations include the use of tree formation circuits (rather than standard loop formations); the use of self-contained battery packs; the use of induction shielding around components; the use of loop antennas; and (instances of solid-state components) the use of Zener diodes. Implementing these design elements can eliminate the chance an EMP surge from power lines or long antennas damaging your large equipment. Another useful strategy is to use grounding wires for each separate instrument which is coupled into a system an EMP system so that it has more paths to take in grounding itself.

Here is a step by step video for a Faraday cage.

An EMP is a just one of the threats that can hold our society at risk of catastrophic consequences. An EMP (electromagnetic pulse) can be caused by an high-altitude nuclear weapon that will interact with the Earth's atmosphere, ionosphere, and magnetic field to produce an EMP radiating down to the Earth and create electrical currents in the Earth. A determined adversary can achieve an EMP attack without having a high level of sophistication. The concern of EMP attack is such a fear of national security, there has been a congressional committee to discuss this threat. "Commission to Assess the Threat to the U.S. from EMP Attack".

EMP

CORONAL MASS EJECTIONS RESULTING IN EMP

In July of 2012 a coronal mass ejection took place. A "coronal mass ejection" or C.M.E. is a massive burst of solar wind and magnetic fields rising above the solar corona or being released into space. This was reported to be the most powerful CME discharge ever recorded from our sun. The 2012 discharge missed Earth. However, if this C.M.E. had occurred only a week prior; it would have struck our planet and subsequently led to a complete technological disaster according to researchers from the University of Colorado Boulder.

To put into perspective the size and enormity of this event let's consider its speed (force) only. The typical C.M.E. from our sun take between 2-4 days to reach Earth. The coronal event in 2012 would have reached earth in just 18 hours. Its estimated speed was approximately 7 million miles per hour!

While there are systems in place that are designed to warn us of solar flares and CME activity… It's unclear on whether the teams tasked with monitoring the NASA "Solar Shield" would have been able to alert emergency services in time. The speed of this event was faster than anything previously seen in our modern space age.

Policy makers haven't taken this near miss seriously despite the fact that a senior member of the Congressional Homeland Security Committee warned that there is a 100% chance of a geo-magnetic event capable of crippling electrical grids across the globe. Certain government organizations have deemed this the "KILL SHOT". If such an event were to take place it would take up to 18 months before power could be restored to the grid. If such an event were to occur, it's estimated that 9 out of 10 people would be dead within one year. Once the electrical grid goes down, commerce systems will no longer function, food production, farming and delivery will grind to a halt almost instantly, water treatment facilities will cease to work and millions of diabetic citizens will perish from the inability to keep insulin cold. The ramifications would be serious and almost immediate.

EMP MYTHS

When discussing what measure can be taken to guard against an EMP; it's first necessary to get rid of a few myths. It's essential to understand the nature of EMP and how it works.

One major myth or misconception is that an EMP is similar to a powerful bolt of lightning. While the two (lightning and EMPs) each produce similar results; an EMP is actually more like to a super-charged radio wave. Any bright ideas about using lightning-rods, lightning arrestors or any such grounding techniques will undoubtedly fail in protecting equipment from EMP.

Another false concept is that EMP "out of the blue" can harm your body or cause major damage to your brain way lightning strikes can. The EMP levels created by a nuclear weapon would be so minimal, they wouldn't pose a serious health threat to plants, animals or man. This is assuming that the EMP isn't concentrated.

EMP can be concentrated. EMP occurs when it is "pulled in" by a stretch of metal. EMP would be dangerous to living things in this case. It could become concentrated by exposed metal girders, telephone lines, long antennas or anything similar. Avoid being very close to such concentrations in event of nuclear war. A minimum distance of 8 feet from such stretches of metal is recommended for nuclear-generated EMP.

Concentration of metal, wiring etc… is the main reason that most electrical equipment would be destroyed by the EMP. It's not that the electrical equipment itself is really that sensitive, but rather the massive electrical surge would be so concentrated that anything working on low levels of electricity would be completely fried.

So What Can I Do to Prepare For An EMP?

Protecting Small Equipment

A Faraday box is the easiest way of protecting most small electrical equipment that can be unplugged from the power source. A Faraday box is a metal box designed to divert and soak up the EMP. If the

object placed in the box is insulated from the inside surface of the box, it will not be affected by the EMP travelling around the outside metal surface of the box. The Faraday box simple and cheap and often provides more protection to electrical components than “hardening” through circuit designs which can’t be (or haven’t been) adequately tested. Many containers are suitable for make-shift Faraday boxes: cake boxes, ammunition containers, metal filing cabinets and so on. Despite what you may have read or heard, these boxes do NOT have to be airtight due to the long wave length of EMP; boxes can be made of wire screen or other porous metal and be equally effective. The Faraday box is a great solution assuming that you aren’t using the equipment when the event occurs. (not likely) It is highly advised that you prepare a “back-up plan” Faraday box filled and ready for such an occasion. Shortwave radio, weather radio, small television, spare telephone and anything else you may need after. Do remember that the power grid will likely be wiped out so anything you keep will have to run off of a fuel powered generator. You should be focused on staying informed but not needlessly entertained.

Faraday Box

The only two requirements for protection with a Faraday box are:

(1) The electrical equipment inside the box can’t touch the metal container. Insulating with cardboard, rubber, plastic or even wads of paper are acceptable methods.

(2) The metal shielding must be continuous. There can be no large holes or gaps in the shielding.

Grounding your Faraday box is not advisable. Although EMP and lightning strike are very different in the big picture; a good example how NOT grounding your Faraday box is beneficial would be to look at lightning strikes on a flying plane. These strikes seldom fry the electrical components or occupants because the metal shell acts as a large Faraday box. Since the plane isn’t grounded, the effects of lightning strikes are minimal.

Certain electrical parts are incredibly sensitive to EMP. These include IC circuits, microwave transistors, and Field Effect Transistors (FET’s). If you have electrical equipment with such components, it must be very well protected if it is to survive EMP. Once again A Faraday box is the best solution.

There is a short list of electrical equipment that is innately EMP-resistant. This includes large electric motors, vacuum tube equipment, electrical generators, transformers, relays, and the like. This kind of equipment could possibly survive a massive EMP surge and would likely to survive if a few of the precautions discussed below were taken in their design and deployment. Battery operated equipment will also be impervious to EMP. If you don’t want to buy a wealth of batteries for every appliance you own or use a radio set up with longer than 30-inch antenna, then you’ll need to use equipment that is “hardened” against EMP.

Larger Equipment Hardening and Protection

If you must operate ham radios or the like during a nuclear attack; there are a few methods which will help to protect electrical circuits from EMP. These various vary in design as there are multiple ways of neutralizing the effects of an EMP. Design variations include the use of tree formation circuits (rather than standard loop formations); the use of self-contained battery packs; the use of induction shielding around components; the use of loop antennas; and (instances of solid-state components) the use of

Zener diodes. Implementing these design elements can eliminate the chance an EMP surge from power lines or long antennas damaging your large equipment. Another useful strategy is to use grounding wires for each separate instrument which is coupled into a system an EMP system so that it has more paths to take in grounding itself.

WHAT REALLY HAPPENS WHEN THE LIGHTS GO OUT: GRID DOWN INDEFINITELY

For those of you prepared, a grid collapse is no surprise, but it will still be a shock, and it will be worse than you imagined. Even though you think you are ready, there is no history, no past experiences for comparison because this has never happened before. You will never know if you are ready until it happens.

Grid-Down

The three nationwide power grids have been compromised. This is all you know at this point. The hums and whirs of machinery are gone, the vibrations of life sustaining electricity have ceased.

For those with their head in the sand will naturally assume it is a temporary outage, like all the times in the past. Some cellular service is still available but the volume of traffic is overwhelming and calls cannot be made. Some are already having anxiety attacks because they do not have access to their cell phones and computers.

Ham radio operators are trying to get the word out, but at this point, they are preaching to the choir, because those that had their head in the sand have no idea what a Ham Radio even is.

After 24 hours, people are getting concerned because they do not have any information. When is the power going to be back on, and why do I not see any utility trucks on my street. The utility companies across the country know the grid that services their area is essentially destroyed, not in a physical sense, but because of the damage done by either hackers or a virus that has shut down the entire system. The problem is not fully defined yet and there are certainly no solutions at this point. Grid down indefinably, until further notice.

Water treatment plants are not operational their backup generators have run out of fuel and they have no way or replenishing the fuel. People have been drinking their tap water without realizing that water treatment plants have been off line. People simply do not understand the level of dependency they have on their local, state and federal governments until the government stops providing. The nation’s power grid is down and the government has now stopped providing for the time being.

Stoplights do not work but this does not stop people from racing up and down the highways looking for answers and trying to prepare for what has already happened. A day late and a dollar short when it comes to being prepared, a little too late indeed.

Intersections are a tangled mess of damaged cars and injured people, because people drive faster when they panic, getting there at all is never the objective, but just to drive until you find a solution is the thoughts of some.

Grocery stores are overwhelmed, and those stores that tried to close are ransacked for perishable items that will be taken home to spoil on some kitchen counter. Pharmacies will be raided for life saving drugs and for drugs to sell. Every crisis brings out those looking to make money and people will spend hours of thought coming up with moneymaking schemes to fit any calamity.

Darkness

Some people have never been in complete darkness, they never had a reason to be. There have always been lights, streetlights, light spilling from a neighbor's home as you played outside, the glow from a neighboring town always lit up the horizon, and you grew up not knowing what complete darkness is. There are lights from cell phones, computer screens, vehicles, buses, taxies and lights from businesses lighting up the city every night, all night. Who has experienced complete darkness, well now everyone will experience it?

Looters will of course be out in full force the first night of darkness, but even they will sense something is not right. Prehistoric humans realized the need for shelter at night and made it a priority. Today humans like to think they are apex predators, but there is not as much need anymore. Evolution over time adapts humans and other life to the environment in which they survive.

Most people do not need to be a predator. Food is handed to them in grocery stores, restaurants and at food banks. For the most part you can walk out your front door and not be accosted by other predators, ones bigger than you are, well that is until possibly now.

Once the darkness is complete, people will change and those ancient predators still among us will begin to hunt, and in others, in the lizard part of their brains, things will change and humans will almost immediately begin to adapt to their environment.

A crisis will bring out the best and the worst in people. After three days, the citizens in many of the cities will be demanding answers, and demonstrating to show their displeasure. Riots may break out in small pockets here and there, but people will be afraid, and most will realize that demonstrations are not the answer. Something or someone has failed them and they know it, and they sense the country has changed already.

Those not prepared will suffer mightily, and no one will be there to help, nor will most even care, because once the lizard part of your brain tells you it is survival of the fittest and natural selection is at play compassion is only reserved for loved ones.

People will in the beginning naturally see to their families and themselves first. It will take months of no electricity before people come together to try to solve the problems besieging their cities and communities.

The problem is simple however, and the solution even simpler, learn to move forward without the benefits of electricity. People did it for thousands of years, and if the grid does collapse, people will have to do it again. There is simply no substitute, so the answer is to learn to live without it, for the time being anyway.

A GREEN BERET'S GUIDE TO EMP: PRACTICAL STEPS TO PREPARE FOR A "LIGHTS OUT" SCENARIO (PART 1)

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This series is dedicated to Ben Raines, one of SHTF's readers, who wrote:

"If the power is out for more than 2 weeks I will have some serious decisions to make."

Ben, I'm doing this article for you as I promised, and I hope it will help you (and others) to make those decisions in the critical moments and days following an EMP (Electromagnetic Pulse) event. Although I had plenty of science courses in college, I am not a scientist. Certainly someone with a scientific background will comment on this article. Let me state this: Scientists, I welcome all comments, positive or negative, but please make them proactive. These articles are forums where the writers are "emcees" that introduce topics for discussion and present some salient points. You guys and gals are the ones who pick up the topics and run the football in for the TD.

We need to be "SME's" as we called them in the Army: Subject Matter Experts. One of my personal goals for SHTF is not just to draw a large readership base; it is to help readers develop themselves and also develop one another. Let the site become an ORP (objective rally point) where everyone can plan, exchange ideas, and attain better levels of awareness and preparation for the times to come. In this light, there is a lot of knowledge out there awaiting use. Take the knowledge you amass, step up to the plate, and take the swing: do the best you can with what you have. And if it isn't perfect, so what? You give it your best shot and then adjust fire from there.

Lights Off: How the World Could Change In 7 Days

So here it is. Scenario 1 finds you on your way to work. You just dropped the kids off to school and you're out on the freeway heading toward work at 8:05 am, armed with a cup of coffee and your local radio station. All of a sudden the radio crackles and all of the power in your vehicle cuts off and you drift (hopefully safely!) to a halt. You do a head check: all of your fellow commuters on the road are experiencing the same problem, except one guy in a '54 Ford pickup truck who passes right by you. You look at your wristwatch and it is blank. Your cell phone is off, and out. You notice a traffic light ahead of you is out, and the convenience store and its sign on the corner are devoid of lights. Somewhere in the heart of the American Midwest, about 200 miles above the ground, an ICBM just went off and delivered an EMP to the U.S.

This article and the series are going to focus on some basic things we can do to help us prepare beforehand for such a scenario. Almost all of the readers here knows about what an EMP is and some basics about it. We are not going to delve into all of the properties of the EMP. For those who haven't heard of it, an Electromagnetic Pulse (EMP) is a high-density electrical field that can damage or destroy electronic devices. EMP can affect cars and trucks, computers, electrical appliances, aircraft, power transmission grids, and anything unshielded from it. This can be delivered by a missile or a satellite and would have devastating effects on the U.S. power grid and infrastructure, as mentioned in this citation:

Report of the Commission to Assess the Threat to the United States from Electromagnetic Pulse (EMP) Attack, CRITICAL NATIONAL INFRASTRUCTURES, and April 2008: Page 45: "It is not practical to try to protect the entire electrical power system or even all high value components from damage by an EMP event. There are too many components of too many different types, manufactures, ages, and designs.

The cost and time would be prohibitive. Widespread collapse of the electrical power system in the area affected by EMP is virtually inevitable after a broad geographic EMP attack …"

Readers, I think you grasp the concept. Now let's discuss what we can do about it. The first thing I propose to you:

"Low tech" your supplies as much as possible as your "base."

Rely on your basics that do not rely upon electricity or technology. I have mentioned some items in previous articles that we're going to stress here, as it is all interrelated. This list is neither in order nor exhaustive:

Lensatic Compass: good old-fashioned GI equipment; durable, reliable, and affordable. If you must carry your wrist compass (electronic), make sure your Lensatic is available for backup, and make sure you know how to use it.

Hand-crank flashlight: has its own little generator and doesn't rely on batteries

A Good Automatic Movement Watch: You need to keep time and coordinate things with your family after the event. You'll have to really shop and find one with a good warranty.

Slide Rule: Yes, you may find the need to make complex calculations in a hurry. The "Uncle Caveman" abacus just won't do the trick on some things. Pick up a slide rule and go online or find references on how to use it.

Optics not requiring batteries: Those rangefinders and Steiners just lost their tech, and that wonderful laser crosshair reticle with range-tab vanished. Any scope for a weapon needs to not be dependent on any batteries, electronic optics, or laser devices.

Security devices: In this case, locks, safes (guns, valuables, etc), automobiles (touch pad entry), and anything requiring electricity or electronics to enter…make 'em manual. What good is a gun safe that works electronically and then you have to blow the door to retrieve the weapons?

Vehicles: How high-tech is your vehicle? The '54 Ford truck in the example will probably still be good to go; however, the Lamborghini may have just become a lawn ornament in memoriam. We'll cover more on this later.

Top 10 Vehicles for Your EMP Survival

Well Water: The water pump isn't going to work unless you have a jenny, and even then it may not. What do you do? I ordered a kit from a guy name John Tatman: the EZ Water Well Hand Pump that has a special valve he supplies you and you build the pump out of PVC. The guy is great; he lets you talk to him directly on his cell phone if you have a problem. The kit works to wells up to 175 feet deep, at 4-5 gallons per minute; you can order it online. The whole kit and caboodle will run you less than $250.18_620x1401

Food: Yes, food. How are you going to save what is in the fridge? Prepare by having adequate supplies of charcoal and a couple of grills (I recommend a Brinkman). Also, now is the time for canning supplies. Pick up a green two-burner Coleman camp stove that works on dual fuel (Coleman/white gas, and gasoline). You can use this to fire up the pressure canners and water-bath canners at a controlled rate.

[Note: If you want to read about a "mad scramble" with food, go to Tess Pennington's Ready Nutrition site and find my articles on how my wife and I made it through Hurricane Katrina] I strongly recommend visiting your local County Extension Office or the local Community College for a Canning Course.

An Additional note on food: Keeping in the fridge only what is necessary for about a week and putting the lion's share into canned food, dry goods, or long shelf-life (dehydrated, mylar packed) foods is probably your best bet to safeguard your food supply in the long haul. Make sure to FIFO (first in, first out) your stock to keep the freshest/most recent purchases in storage.

The Bathroom: Yes, #1 and #2, always there! I highly recommend (if you don't already compost) at the bare minimum a portable potty of the type that many seniors and those with health issues utilize. There are 4-gallon bags available in a roll in Wal-Mart for the bucket liner that are about $3.50 and have 75 bags to a roll. They last about a week. When all is said and done, you can do a controlled burn of them and save your water supplies/space in your septic tank.

Importance of Sanitation after SHTF

We have covered a short list of what you need for low-tech equipment starters. But what about what you already have? How do you protect your gadgets and gizmos from the EMP? In the reference section at the end of this article, I have cited some works that will give you more EMP information and a site that you can research to find more information on Faraday Cages, which most of you guys and gals have heard about already. But just in case: What is the Faraday Cage? It is a device enabling objects stored within its confines to be shielded from EMP and other types of charges. The scientist Michael Faraday expostulated its theorems back in 1836.

Copper and aluminum are the two best metals (in order) to use for your cage structures; however, steel will work. The main point is you must have a little background knowledge of what is needed. Maxwell's equations relevant to a conductor are relevant here. The efflux (the waves: radio, gamma, etc) originating with an EMP is a broad-banded grouping. Regarding Maxwell's equation: Any resident excess charge whether fixed or time-varying must reside on the conductor's effective surface; an excess disturbance would flow around a continuous conductor's surface from one end to the other. The interior of such a conductor would not experience this flux.

The equation shows that a solid object that can be closed off (such as an ammo can or a metal trash can with tight fitting lid) without gaps can be effectively employed for a Faraday cage. This also illustrates how a grounding rod would not be needed if the gaps are closed off correctly (or if you are going to enmesh a whole room/structure and the wavelengths are not smaller than the apertures). As I mentioned previously, I'm not a scientist; however, the information is out there and there is no need to "reinvent the wheel."

There is a rule that I use for myself. You will have to gauge your budget and availability of equipment to see if you can apply it for your situation. Here it is:

Rule: Any electronic equipment should be bought in pairs/two (2) of each, with one out for use and a second in a Faraday Cage.

This may seem a "no brainer," however, this insures that if you lose something? You may only lose one and have a backup for later. In addition, if there's time to foresee it coming, you may be able to take

that operational piece and stick that in a cage prior to it hitting the fan. Here are a list of indispensables and important items, non-exhaustive, for the cages:

Radiological Survey Meter, a.k.a. Geiger counter

Night vision devices

Scopes/red-dot sights/laser sights/electronic optics/range finders

Laptop computer (worth its weight in gold post-event)

Motorola's and hand-held communication devices

Batteries and chargers (solar and/or plug in's)

Battery-powered IR/movement sensors

Calculators/wristwatches/battery testers…small electronic aids

***ANY medical device to maintain or sustain life (diabetes testers, hearing aids, etc)

Win the game with your backups. Stick them in cages and forget about them until you need them. We're going to cover cages and other protective measures in Part 2. This will get you started, especially regarding your planning. Assess your stance and what is in place right now. What do you and your family require in terms of specialty gear? Do your research and find out about EMP's and begin to formulate a plan. I wholeheartedly welcome any and all discussion on this topic and look forward to reading your comments. Seriously, we have some real experts out there, and those comments are a gold mine for everyone (yours truly included).

NUCLEAR EMP–THE ULTIMATE CYBER THREAT

Electromagnetic Pulse (EMP) is a dimension of the cyber threat that is not usually considered a cyber-threat in Western doctrine, but is in the playbooks for an Information Warfare Operation of Russia, China, North Korea, and Iran. These potential adversaries in their military doctrines include as part of cyber warfare a wide spectrum of operations beyond computer viruses, including sabotage and kinetic attacks, up to and including nuclear EMP attack.

It is vitally important that we understand that a nuclear EMP attack is part of cyber and information warfare operations as conceived by our potential adversaries. Our cyber doctrine must be designed to deter and defeat the cyber doctrines of our potential adversaries by anticipating how they plan to attack us–but our doctrine currently does not.

Our cyber and information warfare doctrines are dangerously blind to the likelihood that a potential adversary making an all-out information warfare campaign designed to cripple the U.S. electric grid and other critical infrastructures would include an EMP attack.

The assessment that nuclear EMP attack is included in the cyber and information warfare doctrine of potential adversaries, and the effects of an EMP attack described here, are based on the work of the Congressional EMP Commission that analyzed this threat for nearly a decade (2001-2008). The

Congressional Strategic Posture Commission and several other major U.S. Government studies independently arrived at similar conclusions, and represent collectively a scientific and strategic consensus that nuclear EMP attack upon the United States is an existential threat.

A nuclear weapon detonated at high-altitude, above 30 kilometers, will generate an electromagnetic pulse that can be likened to a super-energetic radio wave, more powerful than lightning that can destroy and disrupt electronics across a broad geographic area, from the line of sight from the high-altitude detonation to the horizon.

For example, a nuclear weapon detonated at an altitude of 30 kilometers would project an EMP field with a radius on the ground of about 600 kilometers that could cover all the New England States, New York and Pennsylvania, damaging electronics across this entire region, including electronics on aircraft flying across the region at the time of the EMP attack. The EMP attack would blackout at least the regional electric grid, and probably the entire Eastern Grid that generates 70 percent of U.S. electricity, for a protracted period of weeks, months, possibly years.

The blackout and EMP damage beyond the electric grid in other systems would collapse all the other critical infrastructures–communications, transportation, banking and finance, food and water–that sustain modern civilization and the lives of millions.

Such an EMP attack, a nuclear detonation over the U.S. East Coast at an altitude of 30 kilometers, could be achieved by lofting the warhead with a meteorological balloon.

A more ambitious EMP attack could use a freighter to launch a medium-range missile from the Gulf of Mexico, to detonate a nuclear warhead over the geographic center of the United States at an altitude of 400-500 kilometers. The EMP field would extend to a radius of at least 2,200 kilometers on the ground, covering all of the contiguous 48 United States, causing a nationwide blackout and collapse of the critical infrastructures everywhere.

All of this would result from the high-altitude detonation of a single nuclear missile.

The Congressional EMP Commission warned that Iran appears to have practiced exactly this scenario. Iran has demonstrated the capability to launch a ballistic missile from a vessel at sea. Iran has also several times practiced and demonstrated the capability to detonate a warhead on its medium-range Shahab III ballistic missile at the high-altitudes necessary for an EMP attack on the entire United States. The Shahab III is a mobile missile, a characteristic that makes it more suitable for launching from the hold of a freighter.

Launching an EMP attack from a ship off the U.S. coast could enable the aggressor to remain anonymous and unidentified, and so escape U.S. retaliation.

North Korea appears to have borrowed from Russia more than the FOBS. In 2004, a delegation of Russian generals met with the Congressional EMP Commission to warn that design information for a Super-EMP nuclear warhead had leaked from Russia to North Korea, and that North Korea might be able to develop such a weapon “in a few years.” A few years later, in 2006, North Korea conducted its first nuclear test, of a device having a very low yield, about 3 kilotons. All three North Korean nuclear tests have had similarly low yields. A Super-EMP warhead would have a low-yield, like the North Korean

device, because it is not designed to create a big explosion, but to produce gamma rays, that generate the EMP effect.

According to several press reports, South Korean military intelligence concluded independently of the EMP Commission that Russian scientists are in North Korea helping develop a Super-EMP nuclear warhead. In 2012, a military commentator for the People's Republic of China stated that North Korea has Super-EMP nuclear warheads.

RELATED ARTICLE: "Super EMP" Capable of Disabling Power Grid across Lower 48 States

One design of a Super-EMP warhead would be a modified neutron bomb, more accurately an Enhanced Radiation Warhead (ERW) because it produces not only large amounts of neutrons but large amounts of gamma rays that cause the EMP effect. One U.S. ERW warhead (the W-82) weighed less than 50 kilograms. North Korea's so-called Space Launch Vehicle, which orbited a satellite weighing 100 kilograms, could deliver such a warhead against the U.S. mainland–or against any nation on Earth.

Iran has not yet tested a nuclear weapon, but may already have a FOBS delivery capability, as it has successfully launched several satellites on polar orbits, assisted by North Korean missile technology and North Korean technicians. Iranian scientists were present at all three North Korean nuclear tests, according to press reports.

Defending America and the World

What is to be done about the Cyber and EMP threats?

There is no excuse for the United States to be vulnerable to EMP or to the worst case cyber scenarios as depicted in American Blackout. The U.S. Department of Defense has understood for 50 years how to protect military systems from EMP. Private vendors specializing in EMP protection are standing by with faraday cages, surge arrestors, blocking devices and other technology, ready to protect the national electric grid.

Technically, it is important to understand that surge arrestors and other hardware designed to protect against EMP can also protect against the worst-case cyber scenarios that, for example, envision computer viruses collapsing the national power grid. For example, surge arrestors that protect Extra High Voltage transformers from EMP can also protect transformers from damaging electrical surges caused by a computer virus that manipulates the grid Supervisory Control and Data Acquisition Systems (SCADAS).

Unfortunately, the electric power industry so far shows no inclination to invest in the technologies necessary to protect the national electric grid. The congressional EMP Commission estimates that robust protection of the national electric grid could be achieved for a one-time investment of $2 billion–which is what the U.S. gives every year in foreign aid to Pakistan. The U.S. Federal Energy Regulatory Commission (FERC) estimates that EMP protection of the national grid would increase the electric bill of the average rate payer by 20 cents annually.

Administratively, a coherent and effective answer will not likely arise from uncoordinated decisions made independently by the thousands of individual electric utilities and industries at risk. Because cyber preparedness should encompass EMP preparedness–and since EMP is an existential threat–it is

imperative that Government play a supervisory and coordinating role to achieve protection against these threats swiftly:

–The President should sign the Executive Order provided to the White House by the Congressional EMP Commission directing that the national electric grid shall be protected against EMP;

–The Congress should pass the SHIELD Act, which has been stalled before the House Energy and Commerce Committee for three years. SHIELD empowers the U.S. FERC with legal and financial authorities to protect the national grid from EMP;

–States should not wait for Washington, but should immediately launch their own legislative initiatives, as done already by the State of Maine, to protect that portion of the electric grid within their states. States can "island" their grids, which will in no way impede their ability to receive or export electric power from or to other states, and thereby protect their people from an EMP catastrophe.–Industry should start manufacturing Extra-High Voltage (EHV) transformers, SCADAS, and other critical technologies hardened against EMP. Defense Department experience with hardening military systems has shown that, when systems are built with EMP protection as part of the original design, it only adds 1-3 percent to manufacturing cost. As old EHV transformers are retired and other systems are replaced with new systems designed EMP hard, not only the United States, but the entire Free World would eventually become protected from an EMP catastrophe.

The Unfree World, Russia and China, have already hardened their grids against EMP.

PREPPER'S GUIDE TO EMP

Those of us who frequent this web site, the prepper community, prepare for a host of potential crises that may befall our nation. Some are more likely than others, but most share a common background when it comes to being prepared for them. The event of an EMP strike, however, requires some very specific knowledge and safeguards. This is a serious enough issue that a study was commissioned by congress several years ago, which found that the threat was real and that we were woefully unprepared. This essay will provide a brief description of the event itself with some supporting history, discuss the likelihood of such an event occurring, and finally go over the potential impact of an EMP strike with recommendations for preparations.

What is an EMP?

EMP stands for Electro Magnetic Pulse, a powerful burst of electromagnetic radiation that interacts with the Earth's atmosphere and creates a wave of electrons that travel outward at the speed of light. This "pulse" lasts only milliseconds, but the magnetic field that it produces creates a powerful electric current in conductive material through the Faraday principle. There are actually three components to an EMP, but only the first, called the E1 wave, is considered a threat. (The E2 mimics disruption by lightning and is comparatively easy to shield against, and the E3 phase is similar to a solar flare but would typically not reach the ground in a high altitude burst.)

This type of energy occurs naturally in the form of solar flares, but can also be man-made in the form of a nuclear burst. While a solar event is possible, and strong examples have occurred in the past, it is typically much weaker than a weapon-based pulse, which will be the focus of this article. EMP energy

travels in line-of-sight, so ground bursts actually have much more localized effects. The most damaging type of strike for EMP production occurs at altitudes of 40-400km above the surface of the Earth, where line of sight extends for thousands of square miles. At altitudes such as these there is no blast damage, fallout, or even dangerous radiation. Certainly these are the immediate and disastrous effects of a detonation near the ground, along with the now universally known mushroom cloud. Why, then, with this kind of damage potential, would someone choose to exploit the EMP effects of a nuclear blast rather than the direct destruction? Read on…

EMP- The early years:

EMP was discovered by accident to be the byproduct of a nuclear explosion. In early tests, recording instruments located miles from the blast were destroyed by energy that traveled through cables and power lines, and in some significant early tests there was a demonstrable "practical application" component for EMP production and use. Many people are familiar with the two historical examples of nuclear tests that resulted in measurable damage from an EMP. The first is the 1962 American hydrogen bomb known as Starfish Prime, detonated 400km above the Pacific Ocean, and estimated at 1.4 megatons in yield. The effects of the EMP component couldn't be accurately measured since many of the instruments maxed out their readings, but the effects were felt 900 miles away in Hawaii. 300 streetlights were knocked out along with the phone exchange and many alarm systems. It also crippled 1/3 of the satellites then in orbit, including some early communications models. If this doesn't sound severe, remember several key things about this test:

It was intentionally detonated over the ocean far away from any landmass

The Earth's magnetic field at that location actually minimized the effects because it was located far from the poles

The electronics of the 1960s were very simple and robust compared to the circuit boards and microprocessors used today. Cars were not fuel injected, there were virtually no computers, satellite communication was extremely limited, most electronics were vacuum tube based, and cell towers were non-existent.

The second test of note was a Soviet air burst in a series known as test 184. It was "only" a 300 kiloton burst, but it took place over sparsely populated Kazakhstan. The EMP from this blast caused a massive voltage surge in an underground power line, started a fire in the power station and burned up several generators that were not even connected to the grid. (Presumably due to the lengthy copper winding present in generators that would mimic a long power cable as far as current induction.)

Bear in mind that neither of these tests were tailored to generate EMP, and note the difference in the size of the warheads. As further research revealed, the size of the yield is not proportional to the EMP energy released. Smaller warheads are in some cases more lethal in this regard than the big ones, and weapons have since been engineered to maximize EMP production.

So, what's the point?

The intent of the history above is to demonstrate that the EMP generated by a nuclear device is not just theory, and that it acts as a force multiplier. During the cold war we had thousands of nukes designed to literally destroy an enemy's ability to wage war. If they had been employed, we could have leveled

nations and left nothing but a smoking ruin. Now, with the SALT treaties and efforts to limit nuclear proliferation, only a select few nations have nuclear weapons and with few exceptions, none have more than a handful. Compared to the still-impressive might of the American nuclear arsenal, small players such as North Korea, Iran, or even well-funded terrorist cells might only be able build, buy or steal a small number of weapons. Two or three would probably be the most they could field. (Make no mistake, there are weapons available; by most accounts there are over 100 missing Soviet weapons, many of them the small "suitcase" variety of tactical nukes.) With ground bursts they could clearly decimate our largest cities, kill hundreds of thousands and cause trillions of dollars in damage. But, if they were to employ even small nuclear weapons in a high altitude burst, three bombs could literally cover most of North America with an EMP burst. With a design intent similar to the neutron bomb, there would be little to no physical damage done by the actual nuclear blast. In fact, from a high enough altitude there wouldn't even be a sound, just a bright flash if you happened to be looking in the right direction. The damage they are capable of makes ground burst weapons and dirty bombs seem like an almost welcome alternative.

Okay, it sounds bad, but it's not like this would ever happen…

The reality is that during the cold war, no one fired off a weapon because it would have been immediately apparent who was responsible (through missile launch tracking), and the retribution that America and her allies would have delivered was too awful to consider. We knew who the bad guys were, but more importantly they knew that we knew and it kept everyone honest. Even if they had destroyed Washington and all of our land based missiles, we would have had enough warning to alert our airborne SAC bombers and the Navy's ballistic missile subs, which would have delivered more than enough counterstrike to make the whole thing an exercise in futility. The old policy of mutually assured destruction really did have merit and it kept an uneasy peace, but the world today is completely different. We now face an enemy who is difficult to put a face on, impossible to identify, and hates us for no other reason that the fact that we are a nation of free infidels. Muslim terrorists are unlike anyone else we have fought, and our nuclear deterrent is from their point of view no deterrent at all:

They have demonstrated the desire and ability to kill Americans and cripple our country whenever and wherever possible. Two attacks at the World Trade Center, embassy bombings, The USS Cole attack, and countless smaller events prove that they have the will and can execute complex and lengthy planning.

Muslim terrorists have no compunction about dying in the process of the attack; in fact that is their ultimate goal.

Those that subscribe to Sharia law believe that it is their duty to convert or kill non-believers

Terror groups have now linked with other countries to expand their capabilities and global reach, and we have no shortage of detractors around the world. There is evidence of communication between Islamic terrorists and Mexican cartels, as well as between Iran and North Korea.

It goes without saying that most of the world's Muslims have no interest in this, but those that do are sometimes well funded through oil-rich state sponsors. As mentioned above, there are many unaccounted for weapons from the old Soviet Bloc. Several countries were left with nuclear weapons when the Bloc broke up, including Armenia, Kazakhstan, Belarus and Ukraine. Many of them are poorly

inventoried and protected, meaning that if they were stolen there is some doubt that the theft would even be noticed or reported. There is also a strong possibility that they could be sold by cash-poor nations or even individuals to unscrupulous customers. State run nuclear programs are also not above suspicion; China, Pakistan and North Korea all have weapons that could find their way into the wrong hands. In the event of a ground burst detonation, it would take some time to analyze the residue and try to determine the origin of the bomb. In the event of an air burst EMP strike we may never be able to determine who was responsible. As we will shortly see, this type of attack has far-reaching consequences that would be far more disastrous than even a detonation in one of our largest cities.

The delivery method of such an attack is not nearly as complicated as you might think. Ballistic missiles are expensive, complex and highly technical, as is evidenced by the failures of North Korea to build and launch one in the past few years. The delivery system for an EMP strike does not need to be nearly so precise. In fact, it might be the simplest part of the entire thing; certainly much less so that building or acquiring a nuclear weapon. As we will see when we begin discussing the effects of the pulse, the EMP is not a surgical strike. In fact, it could conceivably be hundreds of miles off course when detonated and still cause massive levels of damage. If multiple weapons were used to provide overlap, accuracy becomes even less important. Here are some of the potential methods for lofting a weapon to the appropriate altitude for a successful strike. For maximum results a high altitude of 40-400km is ideal, but even a burst at lower altitude will cause damage for hundreds of square miles. If an attack were to include the Eastern seaboard of the US, or the Pacific coast, tens of millions of people would be affected.

High altitude balloon

Jet aircraft; i.e. a chartered business jet

Medium range missile launched from a ship

Low satellite orbit

If the methods above seem a little odd, remember that we are dealing with a “simple” nuclear device. It does not require a complex targeting system, a military aircraft, or any type of specialized delivery system. Iranian Shahab-3 missiles, purchased from North Korea, and others in development might be candidates. Also, North Korea just last month put their first satellite into space and Iran has similar ambitions. While these two options are reserved for nations with substantial funding, balloon delivery and chartered jet are within the range of virtually any group. This may seem farfetched, but the weapons and the delivery systems already exist, and there are plenty of groups who would be happy to employ them. This is not science fiction, and is well within the realm of possibility.

So what happens when it goes off?

The impact of an EMP strike on modern society is open to a great deal of conjecture. The last tests, mentioned previously, were in 1962 and the technology of today is vastly different. Broken down simply, an EMP has the potential to affect the following:

Electrical power generation

Communication

Transportation

Microprocessors

There are many subsets of the four categories above, which will be examined below, and it is important to remember that they are all interrelated. For example: Your power has gone down due to an EMP strike and you need replacement parts to get it up and running. The problem is that you need power to manufacture replacement components, a method for conveying what exactly you need, and the transportation to bring the components to your plant. As a more local example, with no communication you can't call and report a fire, the water pressure at the hydrant isn't maintained because the pumping station has no power, and the fire trucks may not be functional anyway. A blow to any of the four will adversely affect the other two.

The E1 component of an EMP is a powerful magnetic wave, and it creates a massive voltage spike in metal components. The energy is measured in volts per foot, so longer the metal, the more power is generated. This means that long high-tension transmission lines could generate huge amounts of power, which would blow transformers and cause severe damage to power generation plants. Let's break down each of the above three broad categories and see how they would impact life in these United States.

Power generation:

Right now when the power goes out it's annoying, and we sit and fume for the few hours it takes to replace a downed line or transformer knowing that American Idol is coming on. An EMP has the potential to knock out virtually all of the power plants and transformers within line of sight from the blast. (Remember, from an altitude of 40-400km, or up to 250 miles, "line of sight" only ends at the curvature of the earth. An airliner only flied at 6-7 miles high, so imagine the vast area that line of sight covers from that vantage point). There is evidence to suggest that the E1 pulse, which travels at or near the speed of light, would not be stopped by most surge protectors, meaning that much of the standard lighting protection equipment would offer no shielding. Imagine the casualties in the immediate aftermath. Hospital life support systems would shut down; even those with underground generators that might avoid destruction only have a fuel supply sufficient for a few days. During the colder months people may freeze to death without heat in as little as a few days. Food rapidly spoils.

Gas stations can't pump gas even if the vehicles are operational. All of the automatic monitoring and management of utilities, gas and oil pipelines, infrastructure down to the traffic lights. Telephone exchanges and standard radios are useless, as is anything that you plug into a wall. What could be worse than having all the power out in an instant… and not being able to find out what happened? No internet, no cell service, no phones. The water treatment plant is shut down and your toilets may back up. Depending on where you live, you may immediately lose water pressure when the pumps go down. As mentioned, there is no firefighting capability and fires which would have been easily contained now rage out of control. Instead of one townhouse with a small fire, the entire row burns to the ground, or the entire apartment building, high-rise, etc.

Communication:

Many of us don't appreciate our modern communication network, which is heavily satellite based. While an EMP wouldn't take out satellites beyond the curvature of the Earth, those within line of sight

are at risk. Also knocked down would be cell towers, relay stations, computers and servers, etc. There is some debate over whether or not small transistor devices such as two way radios would survive, but even they would provide a very limited range for communication. Some military hardware is hardened against EMP, but only a small percentage of it. With no comm systems intact you cannot call for help, check on your family, organize relief efforts, or even find out how extensive the damage is. The pony express may make a sudden resurgence in popularity. Satellite damage will also preclude the use of GPS systems and national defense, and with the damage to the power grid and transportation systems it will not be easily repaired.

Transportation:

The effect of an EMP on our national transportation system is up for some debate; it could range from severe impact to negligible damage and there is no easy way to test the theories. Since this is a forum for preparedness and survival, we will examine a worst case scenario. Aircraft are one of the biggest unknowns in an EMP; they are designed to absorb lightning damage but as mentioned above, the E1 pulse is faster than lightning and may "leap over" the standard safeguards. If this is the case, then aircraft would literally fall from the sky. Modern jets do not glide well at all, and most require computers for operation. The loss of life would be heavy, not just from passengers being killed but from the aircraft on approach and departure crashing in populated areas and the fires that would result. Remember the comment above about lack of firefighting ability? Even a single airliner going down could burn massive areas of a city. Trains would likely cease to function as well, since most of the controls are computerized and in some cases they are powered by electricity from an external source. Trains carrying hazardous waste that are unable to stop in time or divert to side tracks could be catastrophic. Cars and trucks are the biggest question mark in this equation. While most cars produced since the late 1980's are computer controlled, the electronics are fairly robust. It is possible that they may experience a brief problem or not function as well, but many may keep driving even if in a limited capacity. Older models and carbureted vehicles would probably fare much better. Generally the simpler the ignition system, the less likely the vehicle would be incapacitated by an EMP. Many motorcycles, ATVs, riding mowers, etc. would likely continue to function. The good news is that even in modern cars the computers are simple and may retain some functionality. Vehicles parked underground in concrete parking structures may be shielded from a pulse and continue to function. In the final section, we will mention a few steps that might keep your car running.

Microprocessors:

1177Virtually everything electronic today has some form of microprocessor control. Obviously if the power is down then this is a moot point, but what about the large number of battery powered devices that rely on these controls? The short answer is that no one is sure what will happen. Think for a moment about the devices that you may be relying on as part of your preparations that could cease to function:

LED lights

Electronic optics (EO Tech and Aim point are most common)

Two-way radios

Small battery powered radios

Portable computers (Meaning that documents saved might not be accessible even on the hard drive.)

Home standby generators with automatic controls

Some medical devices such a pacemakers

So what are we supposed to do?

With all of the above in mind, how do you prepare for an event that creates an EMP? There is not much that you can do to preserve the integrity of your local power grid and communications systems, but you can prepare some obvious backups. The problem then is how do you shield your power supply, communications, transportation and microprocessors from the pulse when it happens? What are the first steps you should take to stay ahead of the curve and secure your family? We will break down your areas of concentration into several categories and dig a little deeper into each one. The good news, if there is any, is that an EMP is an instant event and you don't have to worry about overreacting or convincing your family that there is a problem. In fact, you will have several critical hours, (maybe even days), where the rest of the neighborhood/town/city is trying to figure out what the hell just happened. (That said, there may be a small benefit to waiting for a brief time before repairing things. Earlier we talked about the potential for several weapons to be employed and an overlap of affected areas; if another weapon is detonated 15 minutes after the first and you have just fixed your car or taken your secured items out, it will require another fix or potentially ruin your sensitive items.) Remember, there are no phones, no TV, no internet and most of the population in classic fashion will be sitting on the front porch cursing at the government and wondering when someone is going to come out and fix this for them. In this case more than most, forewarned is forearmed, and reacting just a little quicker than the population at large can make the difference between life and death. The primary focuses are going to be the same that we talked above previously; power, communication, transportation, and some concern for microprocessors, with the addition of these:

Water

Food

Security

Heat

Let's go through the list and see what we can do to mitigate the effects of an EMP event both before and immediately afterward.

Transportation:

If you have a bike, you have EMP proof transportation. Unfortunately you won't have an advantage over everyone else with a bike. If you have access to a motorcycle, ATV, or older carbureted truck, it will probably keep on running or at the most require a new ignition box. If you have a new vehicle, try the following before abandoning it: First, examine the fuse box and replace any that may have been blown. (It is not a bad idea anyway to carry extra fuses and relays with you. For EMP protection, wrap them in a paper towel and then in foil.) Before you replace them, disconnect the power cable from the battery and leave it off while you work with the fuses. Most automotive computers have a "reset" function where removing the power supply for a few minutes will cause a re-boot when you energize it again. If

the computer or key sensors have been destroyed by the pulse this will not help, but most systems are also designed with the ability to operate to a limited degree without full capability. This is why bad sensors may cause a dash light to illuminate, gas mileage to decline or the emissions test to fail but won't actually cause the car to stop running. Once the fuses and relays have been replaced connect the battery and try to start the vehicle. If it runs, great! If not, grab your GHOB and anything useful in the vehicle and start walking home. As a side note, security will rapidly become a problem so if it is legal for your to carry a weapon in your car, this is a compelling reason to do so. It may be a long walk home.

Water:

This is the time to fill all of the bathtubs and every other container that you own with water. The generators at the pumping stations and treatment plant may or may not work; you may only get whatever water is currently in the pipes and can be drained by gravity. Don't trust the quality of it either, treat and filter like you would water from any suspect source. For filtration, a gravity-fed unit like a Berkey is preferable to something requiring a lot of manual labor or electricity. Make sure you have this prior to the event, since you won't be placing any online orders for the time being. Take your water very seriously; simple infections can be deadly with no medical care, and many people will drink from the faucet out of habit not realizing that the treatment plant many not be functioning.

Food:

We all know that grocery stores only have a few days' supply of food on the shelves, so with the power out and transportation crippled it won't last long. If you are prepared, you can capitalize on the slow reaction of the rest of the population to fill in any gaps in your supplies. Take whatever transportation you have and get to the grocery store, now. I'm talking about minutes after it happens. Bring your credit cards and cash, and if possible go to a smaller store rather than a big chain. Even though the power is out, smaller stores often still have manual credit card devices that create an imprint of the card. I am not suggesting that you defraud anyone, and when the power comes back on (eventually) you will absolutely be responsible for any charges. It certainly beats the hell out of starving to death though, so stock up on canned goods, bottled water, first aid supplies and non-perishables. If the store doesn't have a manual credit card machine use whatever cash you have on hand, but you probably won't be bartering with gold and silver at this point. No one will be all that worried at first and assume it is just a large power outage, so when you try to pay in old dimes don't expect them to go for it. Go to as many stores as possible and stock up; with manual machines in use you won't hit any credit limit. Crank up your old Jeep, find a trailer, and go shopping before the barbarian hordes arrive. When you get home, use up all of your refrigerated items quickly. Cook your refrigerated meat over charcoal to save your propane for heating and boiling water later. Thaw your frozen meat and salt and dry it, and plant your garden now. Don't wait; your supplies won't last forever. If you live in an area with game and fish, start shooting deer and spend time fishing, preserving the meat by drying and salting. Once reality sets in, there won't be a deer to be found.

Microprocessors:

Virtually everything now is controlled by some sort of circuit board or microprocessor, which may be at some risk from EMP damage. Protecting them is easy; it just requires some forethought on your part. The best way is to place them in a Faraday cage, which channels the electric current around a metal enclosure and shields whatever is inside as long as it is not touching the metal. The best example is a

microwave oven. It is designed to contain radio waves, and you can usually see the metal mesh in the door. A gun safe also works, as long as there is no metal contacting the objects inside. Any metal enclosure will work, even mesh as long as the holes are small. You can build them yourself use existing metal cabinets, etc. Store anything in it that you want to survive an EMP pulse. Medical monitors, LED flashlights and weapon lights, holographic and laser sights, two way radios, small AM/FM radios, etc. Remember that GPS will be useless if satellites are down and so will cell phones since the towers will be knocked out. If you have a laptop with critical documents on it try to keep printed copies on hand since you probably won't be able to access them later. (You might even consider printing out articles like this from this web site and keeping them in a binder, along with your food storage details and supply lists.) A steel storage building may also provide some protection, so if your ATV, old car, generator, etc are inside they may fare well and not require any repair. Home standby generators are generally located inside a steel enclosure, but are connected through a transfer switch to the home; there is no clear evidence one way or the other to suggest whether or not they would survive a strike.

Security:

It is safe to assume that the days following an EMP strike will be filled with examples of society at its worst. People on life support or even those that use pacemakers will be first wave of the dead, along with those killed in fires and accidents. A progression of disease, injury, starvation, dehydration and predation will kill many more. It will begin with simple looting, robbery and rape as criminals realize bulletproof that no one can call for help and the police are overwhelmed and can't respond. As the days pass and they realize that there is no food, expect gangs to form and scour the area for resources. Expect authorities to attempt to confiscate fuel, weapons, and food; resist if possible and with deadly force if needed. Prescription medication will be unavailable, painkillers will be stolen almost immediately and refrigerated drugs like insulin will spoil. Suicides will increase exponentially as will violence as hundreds of thousands on anti-depressants and anti-psychotics run out of their meds. Prisons will likely be emptied of all but the worst offenders since the guards will leave and food will quickly run out. Lack of basic necessities makes for desperate people, and desperate people are capable of anything. It will start in the cities, where there are not enough resources to support even a fraction of the population once the transportation system is crippled. High rise buildings with no power cannot pump water to the upper floors, creating an immediate crisis. From the inner cities it will spread, as the inhabitants flee looking for resources. They will swarm over the suburbs and into the rural areas, mistakenly believing that they can "live off of the land" or that the countries rural areas have food to spare. Many people have no appreciation for the process by which food gets to the table, and the fact is that without modern irrigation, fertilization and harvesting only a small percentage of the grain and livestock will actually be turned into food.

A bug-out shelter in Wyoming is a great idea, but not if you can't get there, so the odds are that you will have to secure your home. This is not the place to discuss the ideal types of weapons to use. What is more important is that you are armed, stocked with plenty of ammunition and spare parts, and most importantly have the training and will to use what you have. If you have stockpiled food, have a generator running, and are driving a functional vehicle, you will certainly be a target. Your best defense is to look innocuous; keep to yourself, don't flaunt what you have, and if possible try to surround yourself with like-minded people so that you can support each other. Run your generator only at limited intervals and try to muffle the exhaust as much as possible. There are plenty of resources on fortifying your home; do your research now. Even plywood sheets over the windows can provide a degree of

protection and on most houses can be cut ahead of time and kept on hand to prevent storm damage anyway. To survive an EMP you will need to have a one year plan as a minimum, and you really can't have enough food, fuel and medical supplies. Remember that you will attract friends and family in the area, and take on additional dependents at your own peril. The food that will feed your family of four for a year will feed eight for six months and twelve for only four months.

This is just theory, but no one can deny that the possibility exists for an EMP strike and that it is in fact more likely that many other types of disasters. They key to surviving will be to plan ahead, rapidly identify it when it happens, and then work the plan. Remember, there is a North Korean satellite in orbit right now and the Iranians have recently practiced launching ballistic missiles from ships. It may not be as far-fetched as you think.

TOP 10 VEHICLES FOR YOUR EMP SURVIVAL

Thirty years ago, most of the cars used carburetors, and only a few people believed that electromagnetic pulse (EMP) is a real threat.

Nowadays, even NASA admits that EMP is one of those events we could not recover from: it would stop all infrastructures that sustain modern society which rely so much on electronics.

No communication, to transportation, and no escape with your fancy new car out of the crowded urban jungle.

So if you are one of those readers who wish to consider EMP-resistance as a factor in selecting a bug-out vehicle, then you should not miss this article.

I have been doing the survival thing for some time and I see precious few absolutes when it comes to survival and a whole lot of gray area. And I am not a mechanic or car salesman by trade, but I do have a solid background in technology and understanding of EMP as well what most people would term as vast experience as a self-reliant consumer.

Considering this, I will take a poke at answering some questions about EMP and how it would affect automobiles, which were asked by our readers after our recent article that described some top picks for ideal bugout vehicles.

9 EMP-Related Factors to Think Of When Buying Your Vehicle

First, there are factors to consider in choosing a post-EMP bug-out or survival vehicle:

1. Benefits of Diesel

A large and strong enough EMP could stop the extraction, refinement, distribution and sale of fossil fuels. Whatever gas you have on hand could be all the gas you get for years. The more highly a fuel is refined, the shorter its storage life. Diesel is less refined than unleaded so diesel stores longer.

You make biodiesel from crops that you grow. Diesel motors are somewhat simpler than gasoline motors in that they do not have an ignition system. This cuts down on some vulnerable parts

Most tractors also run on diesel too, so for many homesteaders, it is worth considering.

2. Fuel Capacity

You can add oversized and/or additional fuel tanks to many vehicles, increasing the vehicle's range. A post EMP world will likely have far fewer gas stations, if any. To get at any of remaining fuel, you will need a pump and hose like the Jackrabbit by Black & Decker.

3. Cargo or Towing Capability

By the time you pile in what will surely be everything you own in this world, your spouse, your 2.4 kids, grandma and the golden retriever, you may be looking for ways to increase your vehicle's carrying capacity. So cargo space, a trailer hitch, roof rack, swing outs and so forth will come in handy. For many, the vehicle will likely double as their home.

4. Off-Road Capability

Features such as 4-wheel drive, a full size spare, plenty of ground clearance, all-terrain tires, lockers, extraction or trail gear, towing points, winch and off road lighting will come in handy post-EMP because roads will no longer be maintained, disabled vehicles and vehicles that have run out of fuel will litter the roadway. Imagine the highway or even your own street after a snowstorm without any snowplows or drivers to remove the snow and 4-wheel drive and over-size tires starts to look like a pretty good idea.

5. Ease of Maintenance & Repair

Simplicity is a good thing when it comes to survival. Without computers, there is only so much to "do it yourself" on newer vehicles so older vehicles have greater appeal. A good repair manual and well-equipped toolbox are mission-critical equipment.

6. Commonality of Parts

An expensive custom vehicle might look cool online or be fun to daydream about, but after a HEMP, the first time it needs a part, you might wish you bought something a little more pedestrian (no pun intended). Better still would be 2 or 3 less-expensive vehicles as opposed to a single vehicle that strains your financial resources.

My grandfather did this and I learned it from him. He would take multiple beat-up vehicles and turn them into fewer good ones … and have a bunch of spare parts left over. A bunch of spare parts would be a good thing post-EMP.

7. Fewest Possible Microelectronics, Computers or Chips

Some newer vehicles have in excess of 100 processors that run on miniscule amounts of power. They sense and control virtually every function of the vehicle and are very sensitive to EMP.

How far are you going to get without an engine, fuel injection, transmission or 4-wheel drive system? Sure, car manufacturers take reasonable precautions to shield them, but not against such great field strengths or over the entire frequency range EMP covers. Any transistor-based technology is vulnerable.

Avoid vehicles with the following systems, rewire them or replace them with their non-electronic counterparts and/or stock replacements in a Faraday cage:

PCM (Powertrain Control Module)

Anti-lock Braking System

Electronic Fuel Injection

Electronic Ignition

Computers Controlling Critical Systems

Consumer Electronics

Long Antennas

Negative Battery Terminal Grounded to Vehicle Frame

8. Overt vs Covert

It is often best to blend in as opposed to standing out. In the city, that might mean driving a white sedan or van. In the bush, it might mean a camouflage or matte earth tone paint job.

Other times, looking like you are not worth tangling with might be the better option.

9. Conductive Metal Body

For the best EMP-resistance, choose a vehicle with conductive metal body enclosing the engine and passenger compartment or cab over a vehicle with body panels made of fiberglass, plastic or any other non-conductive material.

How to EMP-Harden Your Auto

If your vehicle already has these features or you are already doing these things, then you are already part of the way there. There are many features to look for and modifications to make to both your vehicle and your SOP (Standard Operating Procedure) regarding that vehicle.

No matter which automobile you choose, there is always more that can be done to minimize the effect of HEMP on the vehicle.

Ground all conductive components of the vehicle to a single point on the chassis. Do not ground them to the earth.

Park in an EMP-protected garage: I described how to build such a structure in the article How to Turn Your Q-Hut into an EMP-shielded Home.

Do not connect your vehicle to an unprotected engine oil warmer.

Rewire with shielded wiring: Verify that your wiring is shielded or replace all you can with shielded wiring.

Re-bond metal body panels: Remove body panels and make sure that you have good conductive bonds between body panels by removing paint and installing conductive gasket material or make sure you have metal on metal contact with as much overlap as possible. This will help the body conduct energy

through the vehicle skin like the skin of a Faraday cage. Just do not allow yourself to be fooled into thinking that the vehicle skin is without holes that compromise its integrity. EM shielding is not all or nothing. Every little bit helps.

Route wiring close to the vehicle frame

Install ferrite clamps or snap on cores on cable ends

Protect cable entry and exit points with surge suppression: This will need to be fast-clamping surge protection faster than one millisecond that will handle high voltages. (Think lightening protection.)

Mechanical ignition (points and condenser)

Install EMP-rated surge protection on antennas

Mechanical fuel & water pumps

Carburetor or mechanical fuel injection

Keep spares of vulnerable parts you cannot replace in a Faraday cage: You may have a vehicle that is mostly good to go, but it still parts like a starter, alternator and voltage regulator that do not contain microelectronics, but could still conceivably be affected. Get some extras and store them in a Faraday cage. They do not even have to be new. Pull them off a junk vehicle and test them if you cannot afford new parts.

Manual transmission: Some will surely disagree with me on this one, but they are easier to repair and make it possible to push start vehicles even if the battery is shot or missing. Even some diesels can be push or roll started if you wire open the fuel valve.

This is by no means a comprehensive list of vehicle modifications. Every vehicle is different. As previously stated, there is no one standard followed by manufacturers even for EMP shielding.

Keep in mind that everything you do improves your chances. Start with the easiest and least expensive and work your way through the harder ones.

10 Recommendations for EMP-resistant Transport:

There are a lot of good vehicles to choose from. There are many appealing aspects to these older vehicles. They are inexpensive to buy, inexpensive to work on as long as you provide the labor, simple to understand, inexpensive to insure and inexpensive to register.

You will have to do a little research on specific models to figure out what year the manufacturer started installing EFI (Electronic Fuel Injection) and so forth because I am supposed to be writing an article or two as opposed to a book here, but the topic is certainly worthy of a book.

1. Pre-1985 Toyota Hilux 4×4

EMP-cars-Toyota_Hilux_1983

These are tough little trucks. If you can find a 4×4 with the solid front axle and a carbureted 22R motor, you have a good starting point.

I have run one of these since the 1980's and the worse I treat it, the better it runs. They are tough little trucks.

2. Sand Rail or Dune Buggy

The simpler the motor the better, but with larger motors, long wheel travel and skid braking, they will go faster than I want to go, and that is for sure. Top a hundred mph off-road in one of these and it will either age you or make you younger. If you like to EMP-cars-dune-buggy tinker and weld, they can be a great hobby. Hey, if they are good enough for the SEALs …

They are short on carrying capacity, but can sometimes fit in small planes when disassembled. Depending on where you live, a simple model of any of these may be a must have or you might keep one or more at a retreat or in a Toy Hauler trailer. There are even some diesel models out there.

3. CUCV

CUCV (Commercial Utility Cargo Vehicle) on the surplus market. They are basically a military diesel pickup or Blazer.

They started being manufactured in the 1970's and are not armored, but some models do have some BOV-friendly features like a diesel power plant, blackout switch (to kill all lights), 4 wheel drive, dual 12v/24v voltage, Detroit lockers, dual alternators, Dana axles, brush bars, tow hooks and pintle hitches. And some are topped with shelters or ambulance beds.

You have to research each model though. Not all are 4×4's and so on.

4. Pre-1980's American-made Trucks and SUVs

Ford, Chevy, Dodge, these older US-made trucks are very common and are great candidates for a low profile bug out vehicles that double as daily drivers. I do not believe that any other vehicle on this list has the volume of accessories and options available to customize it.

5. Deuce and a Half Variants

There are many variants of these iconic 6×6 vehicles. Some are even bobbed to 4×4's. They are not so great for keeping a low profile, but they are the go to choice for many preppers looking for a vehicle with plenty of cargo space and can be had starting at under $10K.

There are even some shops that will fix them up for you if you are not particularly mechanically inclined. Plan B Supply can hook you up with a Deuce and a half that is all decked out for the apocalypse for less than $40K, which is a tenth the price of a Knight, UniCat or the like, a whole lot less than an Earth Roamer and way more likely to still run after a HEMP.

6. Older Mercedes Benz Unimog (Diesel with Mechanical Fuel Injection)

Think of these as the European answer to the Deuce and a half. They were first manufactured just after WWII and were sold as the Freightliner Unimog in the US. They are popular as off-road expedition vehicles and even off road endurance events.

They are very reliable and you may find them hauling supplies in jungles, running the Dakar Rally, fighting fires or plowing snow in the North. They come in medium and heavy series.

Large diesel rigs like Unimogs and Deuce and a half's are sometimes outfitted with marine diesel appliances and solar power and can even be fitted with a wind generator.

7. Sail Boats and Older Vessels with EMP-resistant Diesel Power Plants

If your bugout plan involves blue water, it likely involves a boat or sailboat. Space is limited on boats and must be carefully planned out, but many vessels have miniature versions of all the comforts of home.

There have been many self-reliant adaptations of boats and sailboats. They usually have one or more sails, a diesel power plant and appliances that run off diesel, use solar and sometimes wind as backup power sources.

A heavy duty desalinator and a backup desalinator are critical to make this option work.

8. Canoes, Kayaks, Sailboats, Pack Rafts and Other Small Watercraft

Maybe your bugout plan does not involve a blue water voyage, but it does involve running a stretch of river, lake or crossing a body of water. Man has used boats to solve these types of problems since prehistoric times.

A couple recently rowed across the Atlantic Ocean, but I would not recommend it and I am sure they would not either.

But if your route involves crossing a smaller body of water, a small watercraft may be an important arte of your plan.

9. Draft Horses & Wagon, Horses or Pack Animals

After a severe HEMP, they may make a comeback. As some of our troops were surprised to learn in Afghanistan, there is just no substitute for horses and pack animals in certain terrain.

My county has a mounted search and rescue team that is very effective in certain regions. Mules are an important part of maintaining many of our nation's wilderness trails to this day and American mountain men would not have been able to travel the Western US trapping without horses and mules.

I have been grateful for them on trips that I have used them and it is plain to see why they figured so prominently into life until the advent of the automobile and how they will again if we lose are large electrical transformers due to EMP or any other reason.

10. Motoped or Bicycle with Trailer

Motoped is on my shopping list. You do not have to be a prepper to appreciate not having to deal with the Department of Motor Vehicles and being able to park in the bike rack.

Motopeds and bicycles are quiet and can be carried on the outside or on top of your rig as backup transport. If the motor is small enough or it doesn't go faster than a certain speed motopeds are not classified as motorcycles in many states, but this varies by jurisdiction so check your local laws.

Other noteworthy options are:

Older Toyota Landcruiser

Pre-1980's International Scout

Pre-1980's Jeep, Cherokee & Cherokee Chief

Pre- 1980's Land Rover

Volkswagen Bug and Bus

Motor Cycle, ATV, UTV or Snowmobile

In truth, there are many vehicles that would serve the function of bug out vehicle admirably, but in the end, your choice will likely be determined largely by availability, opportunity and economics. Whatever your financial situation may be, automobiles are generally a lousy investment. Invest in function as opposed to form when it comes to rolling stock, including bug out vehicles.

Similar to the prepper who is all guns and no groceries, every so often, I see someone who owns a car that is worth more than their home or someone who has invested a substantial portion of their net worth in a vehicle while living in an apartment. This never fails to cause me to pause to consider it.

Find a vehicle that will get you from point A to point B and make sure you have your food storage and other survival priorities in place.

If you get too far out of balance in any one area of preparedness, your plan is flawed.

THE OLD-SCHOOL FORGOTTEN ART TO EMP-PROOF ELECTRONICS

Even though we've all seen the effects of solar flares and their ability to knock out electricity and communications, some do not believe that an EMP attack will lead to social collapse. But it will…

As someone that loves to tinker with electronic devices, I am a firm believer in the potential for both natural (odds have increased substantially in the last few months because Earth's magnetic field is weakening faster than expected) and human-made EMP attacks.

That being said, I also know that many of the worst problems that will come from an EMP attack can be reduced by using older technologies that rely on electronic components which are far less vulnerable to an EMP.

Electronic Devices Are Not As Complex As You Might Think

If you find yourself confused by electronic devices, simply remember that every component does one of five things with mathematical precision depending on the materials used:

allows electrons to flow through it

does not allow electrons to flow through it

prevents electrons from flowing until enough of them build up on one end of the component

allows electrons to flow if they are moving in one direction, but not if they try to go the opposite way

atoms within the component may change the organization of their own electrons so that the flow of electricity is accelerated, slowed down, or number of passing electrons increases

Once you understand what each component does, connecting parts in various patterns will create larger devices that meet specific goals.

All you need are the right components and a diagram that shows you how to arrange them.

Electronics Before Integrated Circuit (IC) Electronics

While Tesla and Edison were battling for control of how electricity would be produced and transmitted, most people were relying on oil lamps for light and cranks to start their automobile engines.

Interestingly enough, everything from the first telephones, victrolas, and radios, to televisions and nuclear bombs operated without the use of microchips and other semiconductor components that are highly vulnerable to EMP attack.

Therefore, if we go back to “old fashioned” electronics, we can both store and maintain EMP resistant devices. Perhaps even better, when you go back to basic electronics, you can fashion components from the same kinds of Earth or nature/wilderness based materials that you might use for a fishing pole or some other survival need.

To Build Or Not Build Semiconductors?

As you may be aware, a semiconductor is a special material that is selective in how to allow or denies passage of electrons.

When semiconductors are arranged in layers with insulators (materials that do not allow the flow of electrons) and conductors (materials that easily allow transmission of electrons), you can create all kinds of fascinating effects that take the place of older style electronic components.

This includes resistors, capacitors, relays, diodes, crystals, vacuum tubes, transistors and circuits (paths that arrange electronic components).

Many people today mistakenly believe that it is not possible to avoid using semiconductors in electronic devices. Further, there is also a belief that semiconductors will not be available because the technology will be lost to build integrated circuits.

That being said, you can still create some semiconductor based applications by layering glass and copper. You can also use crystals, capacitors, and resistors to duplicate transistor effects. While they may take more power and require more maintenance, they will still be of use until other technologies can be recovered.

Simple Devices That You Can Build And Keep On Hand

Here are just a few simple things you can use to make fairly powerful electronic components. Once you master making these basic elements, you can easily go on to building radios, transmitters, perimeter defense alerts, generators, and jury rigging for bypassing electronic systems in other gadgets.

Salt water, oil, and paper based capacitors

Wood and paper based resistors

Speaker wire and metal rings for coils

Simple grounds from wire and nails

Earth batteries

Solar power arrays that use heat to generate electricity

Tesla turbines and shell designs that run on moving water or air

Quartz crystals for translation of sound to electrical pulses

Suggestions for Further Study

Not so long ago, you could visit your local Radio Shack store and pick up an electronics project kit that would easily teach you about electronic components and how to arrange them into useful circuits.

Unfortunately, if you walk into a Radio Shack these days, all you see are endless arrays of cell phones and pre-built devices while “old fashioned” electronic components are relegated to dusty bins in the darkest corner of the store.

To add insult to injury, project kits for kids these days are little more than solar cells, snap together robots, and an IC chip that do very little in the way of hands on educational building and exploration.

From that perspective, I recommend starting off with a used book on introductory electronics. Make sure the table of contents includes information on basic principles of electron movement, resistors, capacitors, diodes, transistors, relays, crystals, and coils. There are also some good YouTube videos available if you would prefer that form of learning. I also highly recommend the Mechanical Universe series if you are math inclined and want to delve into physics more than electronics.

If you do some research online, you will also find a few places that offer surplus electronic components. You can get grab bags of different components to practice with, and then gradually move towards making your own parts. For example, once you build a simple FM radio from basic parts, you can go on to make your own capacitors, etc. as the next stage in your learning. With regard to tools I recommend the following:

A multi-meter that measures AC/DC, amperage, resistance, and capacitance. It does not need to be digital or hook up to a computer

A good quality soldering iron with variable heat settings

Circuit board etching kit

Breadboards and wire connectors for practicing

Grounding strap and non-magnetic tools

Calming aides for your family members if they fear you will blow up the house or get into some other silly mischief

A place to work outside the house if calming aides do not work.

“Old fashioned” resistors, capacitors, relays, diodes, crystals, and simple wire can be used to build radios, transmitters, generators, and many other simple devices. While you may not be able to repair a cell phone or computer, these old technologies offer a starting point that can be used for survival, and ultimately, recapturing lost solid state and other technologies.

Perhaps even better, if you know how to create these simple electronic parts, you can also make them on your own from bits of paper, ore bearing rocks, natural crystals, and other items that you don’t normally think about in terms of building electronic devices.

COMMUNICATION BREAKDOWN – HOW TO STAY IN TOUCH AFTER A HEMP ATTACK

What is a HEMP attack? No, it’s not a bunch of hippies smoking pot on your front lawn. HEMP stands for High-Altitude nuclear Electromagnetic Pulse and is an extreme form of EMP. Any strong enough EMP can damage sensitive electronics that we rely on so heavily today.

Sources of EMP

The most common EMP comes from lightning strikes and normal power surges as equipment is turned on and off. Other natural causes, such as solar flares, can also create an EMP. In 1989 the entire electrical grid of Quebec was shut down in about 90 seconds due to a solar flare that hit on the opposite side of the earth.

Modern electronics with microchips are most susceptible, followed by older transistorized circuits. That’s why we have surge suppressors for computers and other sensitive equipment. But most will not protect against a nuclear EMP attack.

EMP damages electronics by overvoltage. The EMP induces an extreme voltage into the conductors of small integrated circuits, causing them to arc and break down. In other words, they get fried.

What many people see as advances in technology also makes us more vulnerable to a HEMP attack. Smaller and more sophisticated electronics are more easily damaged by EMP. And as our society integrates more electronics into everything from the power grid to banking to coffee makers, more of the infrastructure is at risk.

The threat of a HEMP from a nuke is more sinister and dangerous than lightning. When a nuclear weapon is detonated, it produces a very high EMP that spreads like a “wall of energy” and will wipe out anything with solid state electronics over hundreds of miles. Commercial surge suppressors and most

military-grade units are not fast enough to stop it. Power lines act as huge antennae to carry the pulse even further, knocking out power grids and electronics that are plugged into the wall socket.

This excerpt from the film TRINITY AND BEYOND, THE ATOMIC BOMB MOVIE shows a few high altitude tests conducted by the United States military shortly before the Limited Test Ban Treaty was signed. It is complete with foreboding, dramatic music and even includes a (simulated?) AM radio cutting out during a detonation?

EMP Protection

So how do you protect against an EMP attack? There are two ways to do it:

Shield the equipment from the EMP

Harden the electronics so they aren't susceptible to EMP

Shielding is the first and easiest line of defense. Sometimes called a Faraday cage, after its inventor, Michael Faraday, an electrically conductive enclosed shield will equalize the electrical charge on the outside, cancelling it on the inside of the shield and protecting the contents.

A true Faraday cage is made of conductive metals, like copper or aluminum or a properly engineered steel enclosure. The inside of a microwave oven is an example of a Faraday cage. But an adequate electromagnetic shield can be made from galvanized steel or aluminum foil. Bare or painted steel doesn't work, because rust and paint are insulators.

Most safes and file cabinets will not work to shield against EMP. The entire container must be conductive with no breaks in the electrical path. Gaps will "leak" EMP to the inside, making most containers ineffective. Conductive screen or mesh with fine holes will work, though (like the screen on a microwave oven door).

The easiest way to shield small electronics, like a radio or laptop computer, is to place them in a heavy duty zip lock freezer bag, then wrap the whole thing tightly in heavy duty aluminum foil. Be sure to seal any gaps in the foil by folding the seams tightly and be careful to avoid puncturing it to prevent EMP leakage. Thicker foil is more tear resistant, but makes no difference in blocking EMP.

If you do this right, it will work with one layer of each. But for some added insurance add more layers. Add another freezer bag and another layer of foil. Each layer will help to greatly reduce any leakage of EMP if you don't get it perfectly sealed. Just make sure you alternate layers. If the two layers of foil come in contact, the EMP induced voltage will simply pass from the outer layer to the inner, making the outer layer ineffective.

Testing Your Shield for Leakage

The easiest way to test that you are shielding your device properly is to shield a radio tuned to a strong radio signal. Here are step by step instructions:

Supplies:

Portable AM/FM radio

Fresh set of batteries

2 or 3 heavy duty freezer bags that fit the radio

Heavy duty aluminum foil.

You'll also need a strong radio signal supplied by a radio station (don't try to do it with other radio sources like your cell phone – it will not work properly with week signals – you want tens of kilowatts or more).

Install the batteries, make sure the antenna is fully collapsed (in the storage position) and turn the radio on. Start with the FM band.

Tune the radio to the strongest FM station you can find. If you live in a rural area, you may need to get closer to a station to do this test. Make sure the signal comes in loud and clear with the antenna down.

Turn the volume up so you will be able to hear the radio through several layers of foil and plastic bags.

Put the radio in the first freezer bag, fold the bag over tightly and seal it. You should still hear the FM station clearly.

Next wrap a tight layer of heavy duty aluminum foil around the bagged radio. Make sure the foil sheet is large enough that you can fold the seams at least twice. If you do this right, you should hear the signal drop off to practically nothing.

If you can still hear the radio clearly, you haven't sealed the foil effectively. Try again until you get it right and make sure there are no gaps.

If you are unable to shield it with one layer of foil, add more layers alternating the freezer bags with foil until you get no signal.

After doing the test with an FM station, take everything apart and repeat with a strong AM station. You should get the same result (no signal). It may be harder to shield AM than FM, so don't get discouraged if you have to add more layers.

Make sure you test both AM and FM (the order doesn't matter). EMP from a nuke is broadband throughout the RF spectrum, so tuning it to both bands is a better test of real conditions.

After doing your test, unwrap everything and remove the batteries from the radio before sealing it back up. You don't want find out in an emergency that the batteries leaked and now the radio won't work.

EMP-Hardened Electronics

So what do you do if you need access to your radio on a regular basis? Obviously you don't want it wrapped in foil if you use it every day. One option is to simply buy more than one radio. But there is also another option.

The solution might be with old technology: vacuum tubes. If you are old enough to remember the RCA repairman, then you probably recognize vacuum tubes or electron tubes. The British call them valves.

Vacuum tubes can withstand EMP thousands of times higher than modern solid-state electronics. A well-built tube radio can be a hardened communication system that will get you through almost any emergency including a HEMP. And if it ever breaks down, it can usually be fixed with just a little basic tube electronics knowledge.

Ham radio operators are known to be the first ones to establish communication during a disaster. And many of them are returning to the use of vacuum tube radios. Tube transmitters are normally run off AC wall current today, but there are easy options to set them up for battery power. Even a set of D-cell and 9V batteries can provide makeshift power for a small radio.

If you decide to use a solid state power supply with a deep cycle marine battery, just remember to shield the power supply with freezer bags and foil like we showed you above. During normal use you can use the grid to power the radio.

Today tubes are still manufactured in Eastern Europe and China. In fact, there has been a mini-boom of sorts in tube manufacturing for guitar amplifiers and high end audio amps. And fortunately there are large numbers of NOS (New Old Stock) tubes of many kinds still available through online stores and eBay. As long as the seal isn't broken between the glass and the pins most tubes will last indefinitely.

Vacuum tubes are far more robust against EMP than any solid state device, but there are still a few precautions that need to be taken to protect a tube radio from EMP:

Disconnect the antenna when not in use. The antenna not only pulls in the radio signal, but it will also pull in an EMP. Lightning arrestors aren't enough to prevent a nuke EMP from getting through.

Disconnect the AC power source when not in use. EMP will travel through power lines just like an antenna. In fact it is best to remove the AC power cord as it will also act as an antenna.

Radios powered by AC line voltage need a rectifier to convert AC to DC. Earlier rectifiers were vacuum tubes and are also resistant to EMP. But later models used fragile selenium rectifiers that are susceptible to EMP. So look for an older radio that has a tube rectifier.

The best way to learn about vacuum tube transmitters and radios is through a local ham radio club. And you no longer have to learn Morse code to get an amateur radio operator license if you choose to go that far.

All geekiness aside, there is probably no better resource for communication in any emergency than ham operators. And many of them will be glad to share their expertise to help you set up an emergency transmitter. They are also a good source of electronics education that could be valuable after a major "event."

HIGH ALTITUDE EMP

Any nuclear detonation above 25 miles will cause a high altitude EMP (electromagnetic pulse).A nuclear weapon detonated at an altitude of 200 miles could affect all unprotected electrical equipment within the continental United States. High-altitude-hemp

Nuclear weapons at that altitude could be detonated from a satellite, an intercontinental ballistic missile, or from a 'Scud' type missile launched from a freighter. Depending on the location and size of the blast, the effect would be to knock out the power grid across most, if not all, of the continental United States.

It is believed that some terrorist organizations and numerous countries have the ability to deploy nuclear weapons via smaller range missiles at altitudes capable of causing devastating consequences. Both Iran and North Korea have reported tests describing mid-flight detonations of such missiles. Intelligence analysts have stated they believe these tests were designed to exercise HEMP capabilities.

The United States is at significant risk from even moderately sized weapons. A terrorist country or organization might have trouble putting a nuclear warhead "on target" with a Scud, but it could easily launch a missile from a freighter in international waters, and detonate a crude nuclear weapon in the atmosphere high above one of our coastal cities.

In a briefing to the congress, Senator Jon Kyl said, "A single Scud missile, carrying a single nuclear weapon, detonated at the appropriate altitude, would interact with the Earth's atmosphere, producing an electromagnetic pulse radiating down to the surface at the speed of light. Depending on the location and size of the blast, the effect would be to knock out already stressed power grids and other electrical systems across much or even all of the continental United States, for months if not years."

In a briefing to the House Armed Services Committee, a congressional commission reported that "HEMP is one of a small number of threats that can hold at risk the continued existence of civil society within the United States, and our ability to maintain national security and project military power anywhere it is needed . . . This threat also places our national economy and worldwide military forces at risk."

Another scientist said, "An electromagnetic pulse (EMP) attack on the American homeland, is one of only a few ways that the United States could be defeated by its enemies – terrorist or otherwise, and it is probably the easiest." The report stated, "The loss of power beyond emergency power supplies may well cripple financial systems, telecommunication, health care, emergency response, government control, water and food supplies and other critical societal functions — a potentially escalating rather than diminishing situation".

The commission said a blackout of the power grid would be "virtually certain" following such an attack. Moreover, the briefing states, the panel predicted a "high proportion of computers" and other systems would be affected; major telecommunications would be interrupted; many high-frequency, VHF and UHF receivers would be damaged; and cell phone, satellite and Internet communications would be hindered.

Other infrastructure impacts could include damage to fuel supply and refineries, the transportation system, water supply and sanitation, chemical plants, financial systems, health care, emergency response and "government integrity." The loss of power would have a cascading effect on all aspects of U.S. society. Communication would be largely impossible. Lack of refrigeration would leave food rotting

in warehouses, exacerbated by a lack of transportation as those vehicles still working simply ran out of gas (which is pumped with electricity).

The inability to sanitize and distribute water would quickly threaten public health, not to mention the safety of anyone in the path of the inevitable fires, which would rage unchecked. And as we have seen in areas of natural and other disasters, such circumstances often result in a fairly rapid breakdown of social order…. Not only would there be nobody nearby to help, it could take years to replace destroyed equipment."

THE FIRST 3 DAYS AFTER SHTF: BEST E.M.P. SURVIVAL GUIDE

EMPJUNE 4, 2014BY BIO PREPPER

Something strange just happened. Your cell phone, MP3, and household electricity have mysteriously shut off at the same time. You go out to your car and attempt to start it… nothing. Then, a strange nagging hits you that you know what's going on, but you can't quite put your finger on it. You soon remember it, because you read about it in a blog once.

First we need to discuss a little bit more about what's going to happen in the first few days of an attack. On day one, everyone will probably just assume the power will be back on in a matter of minutes or by the next day. That means that things will not be frantic, people will not be worried, and stores will probably still be open. That makes the very first day the most valuable day of this scenario. Even if you had stocked up and prepared for this beforehand, this day can be the game changer, possibly the determiner of whether or not you and your family will live or die. You must utilize this first day to the best of your ability.

First and foremost, you need to find a neighbor with an old car that still works. If you can't find a neighbor with an old car or maybe you don't even have a neighbor, keep in mind that any simple engine will also work (Like ATV's, riding lawnmowers, gas powered golf carts, etc.). If you aren't sure if an engine is simple or not, simple engines will almost always have a gas choke on them. The chances are there is someone around you with some sort of vehicle that works that you can borrow. If you can't find any motorized transportation, ride a bike or walk, but only if you have to, as the quicker you get to the store, the better. Drive or ride to the nearest store with every bit of cash you can find, right down to pennies. Only cash; no checks, credit or debit cards, or gift cards. Cash is the only thing that a store will accept because all of the registers will be down. Don't worry about conserving your cash, as it will be useless in only a few days, but the stores will not know this at this point. ALL OF THIS CASH NEEDS TO BE SPENT.

Water is a top priority if you don't live by an accessible source of water (gravity fed water pump, a hand pump, or some kind of water source nearby like a lake, river, or pool). Get water if you need it, but the problem with getting water is that it is bulky and heavy, so this is best if you have a working car. If you have a working car, you can obviously get much larger amounts of things piled into it, so getting a working car on the first day is a top priority. Buy long lasting food, like cans or dried goods. Large packages of dried rice and beans are the cheapest, and rice and beans together are the "perfect protein". You could live on them for prolonged periods of time, and they last for a good 10 years before they go bad. If you have the time, ability and cash, it is also highly recommended that you buy IODIZED

salt and food for any household pets. Iodine is an important nutrient that most Americans already don't get enough of and it can be used to purify and clean things and as a hunting lure (because deer love salt [thanks for the info mizztanya]). Get the food for your pets to prolong their life and not tempt you to feed them some of your own rations. Having a pet is a great comfort in a time a survival and losing a pet is just another blow to the face in a crisis, so try to keep them alive.

After gathering all the food you can, it is time to go to a sporting goods store if you have one nearby. Wal-Mart has a sufficient sporting goods section to work so if you can just make one stop at a Wal-Mart or similar supermarket that is preferable. At the sporting goods store or section, pick up ammunition for any guns you have (you had better hope you have a gun, at least a .22). The ammunitions are prioritized from first to last, the last ammunition to buy being the least important. Make sure you get enough of the first munitions before you buy ammunition from lower priorities. At the top priority is .22 ammunition. If you have a .22, get the most ammunition for that. Many stores sell them by the 500 round boxes, so pick up a couple of those big boxes as they can provide a steady income of food through small animals. Next, get shotgun shells if you have a shotgun. A shotgun can hit a small moving target, so they make hunting a lot easier and expand what you can hunt. When buying shotgun shells, buy all or mostly bird shot, and maybe a box or two of buckshot for hunting large animals or defending your home. Next, buy bullets for any rifles you have, or maybe a bunch of ammunition for your best rifle. At the bottom of the list is handgun ammunition. Handguns are very limited in what they can do hunting wise. Your top priority with ammunition is to feed yourself and those you love.

Next stop is to the pharmacy (again, many Wal-Marts and other supermarkets have pharmacies also, and one stop is better than multiple stops). You will need some basic first aid supplies, and some more advanced first aid supplies if you are a nurse or doctor. Antibiotics are a high priority, as even the smallest of cuts can get infected without proper care. Antibiotics also cure a number of things, so if at all possible, get some. If you require any medications, get them here and get as many as possible. Unless you stocked up beforehand, you WILL run out before more medications start coming in. To be blunt, almost all diabetics will die. Insulin for diabetics must be kept at exactly at 40 degrees Fahrenheit. The shelf life is halved with each 10 degree variation. Try to slowly wean yourself off of any medication you take regularly. Stopping cold turkey will result in a withdrawal, which you do not want.

Batteries are also very important to get. Flashlights will be your only source of light, and if any of your electronics do survive, there will be no plugging them into the wall. While in the sporting goods section, look for camping items. These items can be huge blessings to whoever gets them. If you can find some good shoes, meant for walking long distances, get some for everyone in your house. Some common camping items that can help you are:

-Waterproof matches

-A gas powered stove with plenty of extra gas (usually small propane cylinders)

-A gas powered heater that runs on the same fuel as the stove with even more extra gas

-A hatchet for cutting wood (preferably one that can also be used as a hammer and nail puller)

-Emergency blankets (usually come in small pouches and are silver)

-Hand warmers (the kind in the packet)

-Starter logs for burning wood fires

-A battery powered lantern

-a crank powered radio

Here is a full list of items for EMP preparedness

The crank powered radio would easily be destroyed by an E.M.P. blast, but there may be a way around it for small electronics such as this. It is said that if you wrap things in multiple layers of tin foil (a LOT of layers) that it hardens things against E.M.P. While this may be true, do not rely on it, as it has not been tested full scale. In case this does work though, it would be wise to wrap some walkie talkies in many, many layers of tin foil. Communication is the most valuable thing in an E.M.P. scenario.

If you fully take advantage of Day 1, and you prepared ahead of time, you will be better off than anyone else in your town in the days to come, which brings us to the next subject: the town you live in. Your town will be your government. In the event of an E.M.P., Martial Law will be declared in a matter of days. Towns will be the centers of life, and the chances are, you won't travel out of your town much. The smaller the town you live in, the better off you will be. Rural farming communities are the best off, as they will be able to provide their own food and water easily. Cities such as New York will be massively chaotic and will starve in a matter of days. If you live in a large city, and an E.M.P. strikes, EVACUATE IMMEDIATELY. Take whatever you need, go to the store if you have to, and GET OUT OF THERE. Cities such as New York are built to rely on our highly intricate web civilization. These cities do not produce enough to sustain their occupants. Rural farming communities can sustain more than their occupancy though, and are ideal hubs of survival in any disaster, but especially an E.M.P.

Day 2 of an E.M.P. strike can also be valuable. Organize what you have and help others get organized too. After you are set and ready, help others in your community understand what is going on, but do so without causing a panic. Tell others what they need to do to get ready, and start finding people with valuable skills, such as nurses and doctors, plumbers, electricians, mechanics, dentists, skilled hunters and fisherman, gunsmiths, and even some military or ex-military types that can serve as community guards. Skills like these can make a community sink or float in an E.M.P. scenario.

On Day 3 people are going to start figuring out what is going on. People will realize that the power isn't coming on, and there might be a huge rush on the stores. Widespread looting will occur, and people just might be willing to hurt you for supplies. Do not leave your house if you suspect panic, and just hope and pray that you got enough supplies to last you for at least a little while because there will be nothing left after the looting occurs. The days' timeline here are approximated and will vary according to your city and the people who live in it, but what will happen in these days if an E.M.P. strike hits America is very real and very likely to occur.

THE FIRST 3 DAYS AFTER SHTF: BEST E.M.P. SURVIVAL GUIDE, PART II

EMPJUNE 4, 2014BY BIO PREPPER

The first few days are now over. The panic has died down and cities are starting to organize. Martial law may or may not have been declared, but your city is now your domain. Hopefully all of your family members were at home or near home when the electromagnetic pulse strike hit, or you may never see them again. You are starting to eat the rations that you have. Now what? Sit and wait? Not by any means. You need to be constantly preparing for the future. Constantly hunting and fishing. Constantly working on something.

E.M.P. Survival Guide

If it is summer, it's time to start preparing for the winter. Start cutting firewood to keep warm and cook with. Hunt to conserve rations. Try to grow your own crops year round. Hopefully you know what grows in your area, or have a guide that tells you what does and how to grow it. Turn your entire yard into a garden filled with fruits and vegetables. Trees are too slow to grow unless you already have them grown. If water is scarce, you might have to dig your own well. Remember that those who work hard need more rations than those who don't. You must remain an effective worker, so you must eat well. Remember to keep entertained somehow. Play board games with others or read books. Entertainment has a major psychological impact in a survival situation that can greatly help you. Do not expend any physical energy unless it is to help prepare (meaning no more working out, along with other things).

When hunting, look for squirrels, rabbits, possums, and raccoons (raccoons are the smartest and hardest to kill) with a .22 rifle. If you can get a deer or any kind of large game such as a bear, you and your family won't be able to eat all of it without refrigeration, but don't let any of it go to waste. Share it with your community, with those working hard and to feed their families and help the community. If there are any livestock in your community, breed them, don't eat them. At least, don't eat them yet. Grow the number of livestock before eating them.

If your city is smart, it will start a communal supply of food and water and issue out ration cards. Homes should be searched before receiving a ration card, and if any food is found, it will be added to the communal supply. Ration cards should only be taken if you are really in need of food and are dangerously low. Many cities will not issue ration cards, though. In such a case, self-sufficiency is key. You MUST hunt, fish, farm, and forage for food. Food is at all of our fingertips, we just have to have the knowledge and skill to get it. Save your stockpiled rations for emergencies, only using them when you are not able to produce your own food.

It's starting to kick in that you may never receive the commodities we once had ever again. No more central A/C and heat. No more deodorant or smelling good. No more sweets and candies. No more video games, movies, or TV. It's starting to click inside your head that America is gone, replaced with a shell of its former self attempting to scratch out a living, to survive. Help may be on its way, but how long until it gets here? It could be months or years even for help to arrive to some parts of America. Coastal cities and ports will be the first to receive help from foreign countries and the navy and coast guard that were away at sea and not affected by the electromagnetic pulse wave.

Attempts to rebuild will be slow, and the United States may never be the same as it once was. The chances are, if an E.M.P. hit, it was from an enemy country, a country at war with us. We will be scarred forever from this event. Hopefully the military can keep out invasions from whoever attacked the U.S. with an E.M.P., and if they don't, we may have a full scale invasion on our hands as well. Without a

doubt other countries will come to our aid in battle to help us. We will be victorious one way or the other, somehow.

America has gone silent. You must learn to survive the silence, to accept it. It is the silence and lack of communication that will drive people crazy, not knowing what is going on, who America is fighting, or who is winning. You must think like pioneers, act like pioneers, and work as hard as pioneers of the old American west did. You will certainly smell like them.

SURVIVING AN EMP ATTACK: PART ONE

EMPMAY 20, 2014BY BRYAN WILDE

An electromagnetic pulse (EMP) is a very real threat. Not only have EMPs been weaponized, meaning that a rival military force could use one against the United States, terrorist organizations have also adopted the technology. If that weren't enough, scientists acknowledge that a large solar flare could produce a natural EMP powerful enough to disable electronics around the world simultaneously. Although an EMP event may seem more like a science fiction movie, it could very likely be the event that catapults the world into an apocalyptic frenzy.

What is an EMP?

An EMP is typically characterized by short bursts of electromagnetic energy across a range of frequencies. Although not an exact comparison, the range of frequencies experienced during an EMP is most comparable to the difference between very low frequency AM radio transmissions and the much higher FM spectrum. This means that EMPs are capable of disrupting a large number of devices across a broad spectrum of frequencies. The source of the EMP can be radiological, electrical, or magnetic. EMPs are actually a common occurrence; however, most of them are very weak in nature and do not affect surrounding electronic equipment. For the purposes of this guide EMPs refer to large scale pulse events that have the potential to permanently disable electrical and electronic devices.

Natural EMPs are created by lightning discharges and by solar flares. Lightning is a very powerful natural event but the electromagnetic pulse created is relatively localized. Lights may flicker in the presence of a large lightning discharge but the effects are usually not much more severe than that. A massive solar flare could produce an EMP so powerful that every electronic device in the world could be disabled instantly. No solar flares have ever been recorded that are even close to the size required to generate an EMP of this magnitude but the possibility is greater than ever based on studies of the sun.

Weaponized EMPs come in three forms. Nuclear, high altitude, and non-nuclear. Whenever a nuclear blast occurs a very powerful EMP is generated. Some nuclear weapons are currently being manufactured for the sole purpose of generating an EMP blast instead of physical damage caused by the explosion. A high altitude EMP is created when a nuclear device is detonated at a high altitude. These are the most powerful man-made EMPs as the EMP waves are made stronger by interactions with the Earth's magnetic field. Non-nuclear EMPs are a more recent development and are used more as a localized solution during battle than a large scale weapon.

Although the effects of a man-made EMP are very serious, it is considered a somewhat localized event. A high-altitude EMP blast could knock out the electrical grid in large areas of a country but it is not a global phenomenon. This increases the likelihood that the effects will not be permanent as unaffected areas try to help. However, the effects of fallout from a high-altitude nuclear detonation have not been studied in great detail. Radiated debris could add another dangerous facet to this already devastating attack.

Consequences of an EMP

Depending on the strength and intensity of an EMP blast, the world could be sent into the dark ages in an instant. A solar flare, for instance, could disable electronics and communications devices around the world indefinitely. Even a more localized event could leave entire states or even countries without power or any other form of technology.

Once the lights go out, the real consequences of an EMP begin. Like any other apocalyptic event, riots and widespread violence will follow. People will begin to realize the gravity of the situation within a few days. At first, many people will shrug off the power outage as a temporary setback akin to a bad storm damaging the local power grid. It won't take long for society to comprehend the seriousness of the situation at which time things will quickly deteriorate.

Every electronic device you have will be destroyed following an EMP unless you have taken steps to protect them from the pulse. A common method to protect electronics is discussed in Part 3. Even if you protect some things, it is impossible to protect everything; especially large items like vehicles. All modern vehicles rely on complex electronics to run. Without them the vehicle will not start or run. Any electronic devices you have set aside for survival are going to be inoperable. This includes GPS units, radios, electronic fire starters, and every appliance in your home.Us2

The power grid will not come back on for months if it does at all. There will be no media, no TV, no radio broadcasts. Essentially, there will be no way for you to find out new information about what is going on. The best course of action is to assume the worst and put your survival plan into action. Waiting for something bad to happen usually doesn't end well.

Just about every manufacturing process currently used relies on electricity meaning that new products cannot be made instantly. Picture a world similar to when electricity was first introduced to general public and massive infrastructure projects began to create the grid as you know it today. A similar phenomenon will occur following an EMP assuming that societal breakdown does not destroy any chance of overcoming the disaster.

People everywhere will begin searching for anything that can help them survive. Since the majority of people have not made preparations for post-apocalyptic survival, they will be frantically searching for answers and solutions for their circumstances. The world will be an exceptionally dangerous place as everyone struggles to survive.

Now that you have an understanding of the many far-reaching consequences possible in the wake of a massive EMP, the next step is learning tactics that allow you to survive in these conditions without the assistance of technology while avoiding the droves of people that are not equipped with this knowledge

that have resorted to violence as a means of survival. Parts 2 and 3 discuss tactics you can use to increase your chances of survival during this chaotic time.

SURVIVING AN EMP ATTACK: PART TWO

EMPMAY 25, 2014BY BRYAN WILDE

After an EMP attack, life will not be the same. Society will begin to crumble and law enforcement will no longer be available to help with emergency situations. One of the most important survival strategies following an EMP event is evacuation. This could be to a secure bug out location you have previously designated or to an area of the country not affected by the EMP.

Transportation Following an EMP Event

Getting to either your bug out location or even to just a less-populated area can prove to be a difficult challenge. All modern cars rely heavily on electronic components to operate and will be completely useless after an EMP event. Older vehicles are not as susceptible to complete failure because they rely more on mechanical processes for operation. An older model vehicle is defined as a vehicle manufactured in the1970s or before. The simpler the engine, the better your chances of being able to use that vehicle for travel.

If you are fortunate enough to have one of these vehicles on your property, it may be ready to go right away. Worst case scenario, the battery and starter solenoid are damaged. These items are only used for starting the vehicle and can be bypassed by pop-starting the vehicle. If it is a manual transmission, simply hold in the clutch and push the vehicle until it reaches 5 to 10 mph before rapidly releasing the clutch. In an automatic, keep the gear selector in neutral while gaining speed and then quickly switch it into to drive. Once the engine on one of these older vehicles is started, the process is self-sustaining.

Even in older vehicles, an EMP could disable the few electronic components that are necessary for operation. Specifically, these include the spark plugs and the distributor. These parts are inexpensive and small so it is advisable to keep an extra set of spark plugs and a distributor cap in your survival bag just in case.

If an older vehicle is not present, other modes of transportation might include tractors, gas powered golf carts, or older model ATVs. Following an EMP it is not guaranteed that any of these machines will be fully functional but there is a good chance that they can help you travel faster than you would be able to on foot.

Food and Water

The technological advances made by society during the Information Age will become serious drawbacks following an EMP event. Computers, the Internet, manufacturing facilities, and communications all rely on the power grid to function. Once the power grid has been disabled, all these operations will cease to

function. That means no food on the shelves, no public water purification services, and no law enforcement to keep order.

Scientists have estimated that most humans will only survive for 12 to 18 months after a large scale EMP. Society has become so dependent on technology that without it, very few necessities are going to be available. The mass population is not preparing; even the U.S. government is not prepared for the devastating effects of a large scale EMP.

Supply lanes will be halted as they also rely on the power grid. Unfortunately, society has become so dependent on importing food that many areas cannot sustain themselves for even a week without food from outside sources. Think about a large city like New York or Los Angeles. These places have huge populations of people and no agricultural production of their own. Stores are 100 percent reliant on trucks to keep the shelves full of food and supplies. Potable water is usually transported from hundreds of miles away into these large metropolitan areas. These transportation systems require the power grid and without it, millions of people will instantly feel the effects.

Storing your own non-perishable food supplies is an excellent way to avoid the immediate effects of the EMP. Although your supplies are finite, a couple months supply of food puts you in a position where you can carefully plan your long-term survival strategy.

Water is another concern. The human body can only survive approximately three days without water. Without public water supplies, you need to have a large supply of potable water on hand or have methods for purifying your own water. Boiling, iodine treatments, and constructing a still are all excellent ways to purify water. Iodine treatment should be considered a short term solution because excessive exposure to iodine is harmful, especially to children and women who may be pregnant.

Heating

Every modern home relies on either electricity or fossil fuels for heating. Some homes even use a combination of both to maintain a constant temperature throughout the structure. These services are not going to be available following an EMP. Air conditioning is a luxury that did not become mainstream until about 50 years ago. It is certainly not a necessity. Cold weather, however, is responsible for thousands of deaths each year. Exposure to freezing temperatures can bring the human body to its knees within hours. Even in desert climate zones, nighttime temperatures can often fall below the freezing point.

Heating your home in a world devoid of modern conveniences is paramount. You have to look for heating methods that do not require electricity or fossil fuels. The single best option is to use wood. In most areas of the country, wood is a plentiful resource and can be used to efficiently heat a home.

The wood stove is the easiest and most cost effective method of home heating. Available in a variety of sizes and styles, a wood stove provides heat and a hot surface perfect for cooking. Wood stoves have been used to provide reliable heating for centuries and in some parts of the country are still used as a primary heat source.

In more moderate climates where temperatures remain relatively stable, a wood stove may not be required. Passive solar heating is often all that is required to maintain a constant temperature. Solar

heating harnesses the power of the sun by allowing as much sunlight as possible into the home through windows during the day. The insulation of the home holds the heat in during the night. This type of heating can be used anywhere but in colder climates it should be considered a supplement to a wood stove or other heating source.

SURVIVING AN EMP ATTACK: PART THREE

EMPMAY 25, 2014BY BRYAN WILDE

Cooking without electricity or other public utilities doesn't have to be difficult. If you are using a wood stove for heating (as described in Part 2), the hot surface of the wood stove provides an excellent platform for cooking most meals. Standard pots and pans can be placed on top of the stove and heat up as efficiently as a standard stove top.

In addition to the wood stove, many cooking duties can be performed by a solar oven. A simple solar oven can be constructed in under an hour from readily available materials. A cardboard box, some black paint, aluminum foil, and an old pane of glass are all that's required to make an efficient, sustainable cooking solution.

Solar ovens are an excellent survival option because they do not require maintenance, have no moving parts, and it is nearly impossible to burn food cooking in this manner. On a sunny day, the internal temperature of a solar oven can easily reach temperatures of 200 degrees; plenty of heat to cook any meal without burning. A solar oven does require significantly more cooking time than a conventional oven so it is advisable to put a meal in the oven in the morning and expect to have it ready in time for dinner.

Protecting Your Electronic Devices

Although it isn't practical to protect most of the electronics in your home there is certainly value in protecting some things from permanent damage. TVs, personal computers, and MP3 players won't do you much good in a post-apocalyptic world. Shortwave radios, weather radios, flashlights, and power generation equipment could become very helpful following an EMP and should be protected whenever possible.

There is a method designed to protect electronics from strong electromagnetic pulses known as a Faraday cage. Named after a scientist who discovered the designs ability to shield equipment from electromagnetic waves, a Faraday cage is a versatile tool that can be constructed very easily in any size depending on your needs.

Contrary to the name, a Faraday cage doesn't have to be a cage at all. Commercially available units are commonly made in a cage configuration using copper mesh and solid aluminum but a simple Faraday cage can be made using aluminum foil and a steel trash can.

When constructing your own Faraday cage, you have to consider how many devices you are trying to protect. This dictates the size of the unit you are creating. A steel trash works well for a few household items but it is hardly big enough to fit a portable generator or other electrical device that you may need

following an EMP attack. Maybe you decide that you want to ensure the functionality of your vehicle. This requires a large Faraday cage. Many survivalists have successfully been able to successfully convert their garage into a large, walk-in Faraday shielding device capable of protecting a vehicle and many other household items that could be useful in a survival situation. This can be done by constructing a cage of fine mesh caging inside the entire garage. The mesh has to protect the entire area including any doorways in order to be effective but just imagine how many electronic devices you could protect in a standard size garage with built-in Faraday shielding.

For those with more modest shielding goals, the steel trashcan makes for an excellent solution. The key to protecting electronics from an EMP is multiple layers of shielding. The more insulation from the electromagnetic pulse, the more likely it is that your electronics will remain functional after an event occurs.

The first step in constructing the trashcan cage is to assemble your electronic devices and put them into non-conductive packaging. This could be small cardboard boxes, shipping envelopes, or similar. You can fit multiple small items into a single container or separate them into individual packages. Once they are securely packaged, wrap each box in at least two to three layers of heavy-duty aluminum foil. This is the first layer of protection against an EMP attack. Unfortunately, this layer of conductive material is not enough.

This is where the trashcan comes into the equation. The steel trash can acts as a second layer of protection. For this to work, the aluminum foil wrapped containers cannot touch the metal of the trashcan at all. If it does the cage will often work more like an antenna and amplify the EMP waves. An easy way to ensure they do not contact the trashcan is to line the inside of the trash can with thick cardboard. The bottom, sides, and even the lid of the trashcan should be completely covered in cardboard so there is no risk of metal-to-metal contact.

Items can now be stored in the trashcan and should be impervious to most EMP attacks. Since an EMP can occur with little or no notice, it is best to have a supply of extra electronic devices that can be permanently stored in the Faraday cage until after an EMP has occurred. Place the items in the trashcan, make sure the lid is securely fastened, and place it in a safe location until the day when they are required arrives.

As previously mentioned, larger cages can easily be made depending on your needs. Maybe you have a portable generator that you plan on using for survival. Solar panels, wind turbines, and other large survival-related electronics require a much larger enclosure. Instead of using a trash can, consider converting your garage or a small storage shed into a Faraday cage by using fine mesh fencing and surrounding the inside of the enclosure. This includes the floors, roof, and all four sides. If there is an opening in the mesh, the pulse will find its way through and damage your electronic devices.

Although a Faraday cage is not a guarantee, it is the single best method to shield your electrical and electronic devices from an EMP. Waiting until an EMP is imminent is not the time to start experimenting with various designs. Constructing adequate protection is merely a weekend project and greatly increases your chances of survival. Combined with other techniques for living after an EMP, you are well-equipped to forge a new life in a world most similar to that of your 19thcentury ancestors

STAYING ALIVE AFTER A NUCLEAR ATTACK: STEP BY STEP GUIDE

EMPJUNE 10, 2015BY JAMES COLE

While it is true that the likelihood of a full-scale nuclear conflict between Superpowers is far less likely than it was decades ago, the risk of a more targeted nuclear strike by a terrorist state or organization, or the release of a radiological event, has actually increased.

The Department of Homeland Security identifies the following most likely targets of nuclear attack.

Strategic missile sites and military bases.

Centers of government such as Washington, DC, and state capitals.

Important transportation and communication centers.

Manufacturing, industrial, technology.

Petroleum refineries, nuclear and electrical power plants, and chemical plants.

Major ports and airfields.

Major cities and financial centers.

If you live near any of the above, your risk is greater than someone who does not.

Communications in the aftermath of a nuclear event may be difficult or totally non-existent, because of the effects of EMP. If you are separated from your family, you had better plan on some methods of communication other than cell phones.

Taking shelter during a nuclear blast is absolutely necessary. There are two kinds of shelters - blast and fallout. Most communities no longer have designated blast or fallout shelters. Look for buildings or facilities with large basements, such as hospitals. Not a pleasant prospect but hospital morgues make for great shelters, as they usually are in the lowest basement, and have heavy concrete walls. Other places to take shelter:

Boiler Rooms and Pipe Runs and Chases (a pipe run or chase is under large buildings such as schools that are a series of catacombs housing pipes and electrical conduits, usually below the basement.)

Subways and Other Tunnels,

Underground Parking Garages

Bank Vaults – a great shelter if you can get access, and not locked in if electronic or timed locks fail in the blast.

Caves – as long as you stay well back from the entrance.

Any protection, however temporary, is better than none at all, and the more shielding, and distance from the blast or fallout area you can take advantage of, the better.

You do not have to be within the immediate vicinity of a nuclear blast to feel the effects of fallout. Once fallout is predicted to start, sleep in the basement, especially along the walls that are underground, to

enhance the minimal protection offered by your house. Pile items on the floor above you – such as books and heavy or thick furniture, because everything between you and the fallout on your roof will offer you some degree of protection.

In the section on first aid, I told you that we are trained to keep wounds uncovered to let them drain. In a radiation fallout area, that changes -you MUST cover any exposed wound to prevent radiation from entering your body.

Tips and Takeaways

Here is a trick I've learned that could come in very handy for you during civil unrest, or martial law.

Buy a Video Camera

A big one, not the kind that is used for personal use, but a big camcorder that looks like it is used by TV News Crews. You can find these pretty cheap on EBay and such as they have been replaced by much smaller and digital models, it does not even have to work. It is not for filming, but a great way to "hide in plain sight" and stay safe during a riot. If you look like you are part of the Press, usually both rioters and police will avoid attacking you. You can complete the disguise by wearing a "Shooter's Vest" with lots of pockets, and a baseball cap with a TV News logo on it, which you can usually find in any Thrift or Second hand store.

RELATED: HOW TO BUILD YOUR PERFECT BUG OUT BAG: U.S. ARMY GUIDE

Crushed in a crowd?

Self-preservation is the key. Try to ride it out like a buoy in the sea. If caught in a crowd surge, stay away from anything solid like a wall, barrier, or pillar. Keep hands out of your pockets and remove your tie, or anything else that could be grabbed and take you down.

Be careful of roadblocks.

In a time or urban conflict or unrest you are going to see both expanded police roadblocks, with warrantless searches, harsh questioning, and possibly mass arrests, and most likely "freelance" roadblocks set up by anybody from political protesters to bandits. If it's humanly possible, avoid roadblocks. It's not illegal to turn away from a police or military roadblock, as long as you don't disobey any traffic laws. Police do consider it suspicious behavior and may come after you, even if you've done nothing wrong; but in a time of civil unrest, avoiding a roadblock could save your skin. If, in a time and place of unrest, you're in a line approaching a roadblock, watch what happens to the people ahead of you. If you see any sign that the motorists ahead are being abused, get the hell out of there.

When confronted by a thug, or mugger – look for anywhere nearby where you can flee to help you escape or gain an advantage. This is not a movie, this is life and death. There is nothing dishonorable or "unmanly" by running away if that will save your life!

A great Survival Tool is a large Mag Light or similar Tactical Flashlight -- it not only serves your needs for a flashlight in various Survival Situations, this powerful flashlight may dazzle an attacker, and also makes for a sturdy and handy club.

If you live in an area that has outlawed the sale of Pepper Spray, go to your local hardware store or supermarket and get a can of Wasp Spray in the insecticide aisle. Get only the Wasp or Hornet Spray, nothing else. It gives you a range of 25-50ft with a chemical spray that is almost as effective as pepper spray when hitting the face of an aggressor.

HEPA filters do not filter out chemical agents, and will not help you during a chemical attack, however they are useful in biological attacks. If you have a central heating and cooling system in your home with a HEPA filter, leave it on if it is running or turn the fan on if it is not running. Moving the air in the house through the filter will help remove the agents from the air.

You should add a radiation detection device, and potassium iodide tablets to your survival kit if you live within 10 miles of a nuclear power plant.

TOP 5 DANGEROUS PLACES TO BE WHEN AN EMP TAKES PLACE

EMPAPRIL 20, 2015BY BIO PREPPER

Nuclear power plants will go off-line. Hospitals will become death traps. Battles over food will be fought in the streets. And that's just day one. Welcome to the EMP nightmare.

The threat of a "permanent blackout" across the United States caused by an EMP (electro-magnetic pulse) weapon has received a lot of press in recent months.

Considered an unlikely event by most people in years past, the more it has been discussed in both the private sector and the Pentagon, the more likely it has become that we will one day be attacked by an EMP, seems to be what the data on the EMP threat is saying. The U.S. government has even created a commission to address the threat, EMPCommission.org.

As a result of just one EMP attack on the U.S., in an instant the nation's power grid will fail as anything with circuits (including most automobiles built since the early 1960s when without someone else to give you a boost up, even if you do have tools to open it.

Trains, buses, subway systems and commercial airlines and other modern planes will cease to work also — even the 4,000 or so commercial flights (think Delta, U.S. Airways, Southwest Airlines, and many others) that are in the sky over America at any given time.

Our electricity driven society, built on a complex web of intersecting wires and computer circuits, will suddenly come to a standstill.

All Hell will probably break loose shortly after.

Chaos Following an EMP Attack on the U.S.

Why chaos after an EMP?

Imagine the world suddenly without TV, radio, phone, internet, refrigeration, microwaves, stoves and ovens, washers and dryers, waste removal, sewage treatment facilities, clean water from the tap (provided by water companies that use industrial equipment to treat water; even water that at a previous time may have been sewage) making it safe to drink; gas companies who provide heat and power gone; or of course the electric company.

Imagine each going offline — permanently.

Imagine the U.S. unable to transport food from farmland in distant states and counties — meat, dairy, eggs, produce, grain products, packaged food.

300,000 million people (the population of the United States) will quickly descend on the packaged food left on store shelves in the initial hours of the realization that an EMP had taken place.

Many will hoard — meaning, get their hands on as much packaged food as possible and then fight tooth and nail to keep it out of the hands of others who may experience panic when they see store shelves emptying and realize they don't have more than a few days of food at home. They realize now they're in trouble. Food is disappearing fast. Everyone is taking it.

Too bad those unprepared for disaster didn't see the signs that America (and other Western nations) are increasingly hated by nations in the world — nations with the desire and growing means to bring our nation (and possibly other Western nations) to collapse.

There will be additional panic that will become widespread across the states — a concern that grocery stores are shutting down permanently, due to the EMP.

All Food Deliveries Will Stop

With no vehicles or trucks on the road — due to the majority of vehicles' fried components as a result of the EMP — there will be no new deliveries of food to restock store shelves as store shelves empty when there's a mad dash for groceries across the land.

If that's not bad enough, all foods requiring refrigeration will start going bad within just a few hours. A fully stocked refrigerator and freezer will have to be eaten in a very short time frame (frozen meats could be thawed and then smoked using primitive methods for long term food storage, so not all is lost for people who have taken the time to learn how to smoke and preserve meat)

Lights Out for Good-Blackout USA

Lights out in every city. Jails and prisons power down (how are more than 1,000,000 inmates going to respond to that? Probably quite a few riots. There will likely be a handful of mass escapes.)

Nursing homes and hospitals will lose power instantly also — the elderly, sick, and those requiring medical equipment to simply stay alive will be in immediate trouble. Within minutes and hours people will start dying — within days many of these people requiring medical devices to live will be dead.

Many other Americans will be in trouble also — especially those due for refills of important medication they rely on to live; this includes diabetics (which there are a lot of nowadays) who have to store their insulin medication under refrigeration as it goes bad quickly when not kept at a constant, cool temperature. Many diabetics will die as a result of the EMP.

But the biggest initial death toll from an EMP isn't going to come from the sick and elderly — it's going to come from the skies overhead.

EMP: Death from the Skies as Jumbo Jets Fall

One expert on the EMP threat says that in the first hour we can expect 250,000 – 500,000 people to lose their lives. What? How?

Remember the approximately 4,000 commercial flights in the sky over America at any given time? When the EMP strikes, their on-board computers and electrical components are going to be fried, just like computers and electrical components down on the ground. And when that happens a few thousand commercial jets with 250,000 – 500,000 people on board (when you total the number of flights in the sky at any given time) are going to be on a collision course with disaster, their on-board computers and navigation now dead, zero power.

It's extremely difficult to pilot a jet with zero power and bring it in for an emergency landing — some might say it's impossible. This isn't a matter of an engine failing and then the pilot getting on the radio and being guided to a nearby airstrip. No, it won't be like a traditional emergency landing.

No Radio, No Navigation, No Controls

You see, when the power goes out in these flights so will communications (there won't be any radio); so will electronic navigation; so will the ability to steer these commercial jets, from what I understand.

While many of these flights will be over rural country and mountains when they start to come down from the sky, many others will be in the vicinity of large cities and urban areas. Imagine the horrible sound of a full size commercial jet coming in for a hard and fast attempted landing — in most cases resulting in the destruction of the jet as it strikes a neighborhood or industrial area or shopping district or hopefully in most cases, farm land.

Commercial jets do have a fair glide time — meaning that even if the engines lose total power a plane at 10,000 feet elevation is said to be able to glide right in to an airport like MAX 32 miles distant.

A major problem jets will have though — without on board computers — is maneuvering — especially when the stick (called a control yoke) that they steer the plane with isn't actually connected to the tail or wing flaps — it's connected to a computer that sends signals to the tail and wing flaps of the plane as

the stick is maneuvered. This is a jumbo jet, remember. With no on board computers, that stick becomes useless when there is absolutely no power to send signals to the wings and back of the plane.

The threat of losing power in a jumbo jet exists today, without an EMP — but because there are so many battery backup systems and generators on board, if one system goes down, another goes online. That is why we don't see commercial jets crashing from time to time due to electrical failure. They are built to always have multiple sources of backup power.

An EMP will fry all chances of any back up power.

RELATED: LIGHTS OFF: HOW THE WORLD COULD CHANGE IN 7 DAYS

Flights overhead — perhaps a flight you'll be on with your family — will be dead in the air and begin falling from the sky, counting on glide time, prayers to God, and with luck or God's deliverance, a convenient place to bring the plane down, hopefully in one piece.

One Second after an EMP

Does 4,000 flights falling from the sky sound far-fetched? These reports come from William R. Forstchen Ph.D., author of "One Second After", an expert on EMPs who wrote this book in an effort to bring attention to the threat of EMP and what just one nuclear detonation

300 miles above the earth would do to our nation.

William Forstchen writes on his website, OneSecondAfter.com: "EMP, has managed to 'stealth' its way on to the highly dangerous list and few, except for a small number of personnel in the Pentagon, various research labs, and men like Congressman Bartlett (R., MD) who heads the Congressional Investigative Committee on EMP, are aware of it."

Top 5 Most Dangerous Places to Be in an EMP

Commercial Airplane

If you're in a jumbo jet and you're going down with a few hundred other people and the jet has no on board maneuvering capabilities, that seems to say that the jet will be at the mercy of wherever it happens to be and what elevation it happens to be at when it comes

Down out of the sky — flights that make emergency landings on to land are said to statistically fair a lot better than flights that come down in the water.

The only problem with these emergency landings will be that if it's at night, there won't be any lights on the ground to signify cities vs rural country side; nor will there be lights on the ground to signify local airstrips.

If the EMP happens during daylight, at least the pilots have a chance of eyeing what's on the ground as they come down. If the control yoke is useless for steering, I'm not sure what chance at all they have of

the jet being directed toward a relatively flat area to land. If this thing comes down on anything other than concrete, most likely everything on the

Bottom of the plane — landing gears, wheels — are going to be torn off as the plane sinks into the soil. Will the force of that kind of impact cause the plane to break up?

Left to chance, my guess is that the majority of those 4,000 approximate flights in the sky when an EMP takes place are going to end in disasters. A few are likely to make it out ok though.

Trapped in an Elevator — Complete Darkness

An elevator is one of the last places I'm sure most people would want to be when an EMP takes place — especially an elevator in a tall skyscraper in a large city experiencing a terrorist attack. You might get left in there for a few days.

The chances of being trapped in an elevator increase if you work in a downtown skyscraper or other building and regularly take elevators; you need to consider that if the EMP occurs while you're in that elevator, you're going to be stuck, for hours and possibly days; you might want to learn in advance what it takes to get out of an elevator when the power goes down for good.

First tip: Talk to your building management — make sure they have a plan for immediately rescuing people from stuck elevators in the event of a blackout. They need to be concerned about the well-being of people who may be trapped inside. Keep in mind that they won't be able to simply call a maintenance man to come to the building to rescue tenants trapped inside. If that building's maintenance man lives 20 miles away and his car doesn't work, how is he going to get to the building?

Besides, his phone isn't going to work, so he can't simply be called on the phone. Finally, the last thing on his mind might be his job that he doesn't care too much for anyway — in fact right now he might be a lot more worried about his children or parents who live thirty miles or so in the opposite direction of that building where he works as a maintenance man.

What does that mean for people stuck inside an elevator in a downtown high rise or other building? They're going to have to figure out a way to get out, and also hope that other people who live or work in the building will also care to take the time to help get them free. Escaping a trapped elevator may involve a few people.

Not only is the elevator trapped between floors, the elevator (and much of the building) may be in total darkness.

If you're stuck inside an Elevator

Yell and bang on the sides of the elevator. Make a lot of noise until someone responds and confirms they're going to help you get out.

Where Will You Be When an EMP Strikes?

Do you know where you're going to be when the lights go down for good — if an EMP takes place? You might want to start carrying a small pen-size flashlight, one that can fit on your key chain for example — so you always have it with you.

Theory goes that small devices with small components not connected to larger devices should be fine in an EMP; the reason these should be fine is that the "pulse" that fries components is picked up by devices with longer wiring that then acts as an "antennae", picking up the pulse as it goes out from the initial nuclear blast; small devices with small circuits and wires won't pick up enough pulse, as statements I've read indicate. They should be ok.

Do you take a daily elevator? Get yourself that small flashlight. Also get yourself some training on how to get yourself out of an elevator the power should go off and it get stuck in between floors.

If there's no maintenance man around, rescuers (who know you're inside) can also look for the fire department; fire departments are trained in elevator rescue. One unfortunate aspect of an EMP though (or other major disaster that knocks out power) is that the local fire department might be spread thin and already responding to multiple other emergencies in distant parts of the city.

To get people out of stuck elevators after an EMP, other people (who are aware of people trapped inside stuck elevators) will have to search far and wide for the fire department.

Ventilation Failure in Buildings

Final concern for people trapped inside an elevator — buildings without air conditioning (when the power fails) can turn into ovens during the summer months, especially an elevator in the heart of a building. Additionally, buildings — especially large buildings — are built with electronic ventilation systems.

Some of these buildings may become dangerous to be in after a few days of the power being out, due to stagnant air. Rooms will need to be ventilated by hand shortly after an EMP — meaning, a window in each room broken if need be or holes made through walls.

Last tip for people who take a daily elevator to work or home — along with that small flashlight (and extra batteries), carry some bottled water and a bit of food. I'd throw a Bible in there also. Here's why: If you live or work in a high-rise downtown in a city experiencing a disaster or terrorist attack — no help may come for you in time.

Not if fire departments are overwhelmed elsewhere in the city, perhaps a secondary terrorist attack has taken place — or perhaps massive fires have erupted following a jet falling from the sky or 15 separate pile ups of 100 or so vehicles in each crash.

You might be on your own here — stuck in a pitch black elevator in the heat of summer with no one to come to your rescue; you're going to need God or an angel to bail you out of this one.

One more thing while you're stuck inside that elevator: Hold on to the hope that this is just a temporary power outage — and not an EMP.

If you're stuck in an Elevator after an EMP and Help Never Comes

You can search the roof of an elevator for a service latch to a hatch, but sometimes these require special tools to open; if you can reach the service latch that is — meaning you're either about 7 feet in height or you're lucky enough to have a second person in the elevator with you, who can give you a boost up. Some elevators do have hand rails though. Use a corner of the elevator to climb up on to the hand rails to look for a service latch.

(If you take a daily elevator in a high rise downtown I'd suggest you find out what those special tools are for the hatch in the type of elevator you ride and you start carrying them — just in case.)

Also – don't ride that elevator alone – you may have a hard time reaching the hatch, without someone else to give you a boost up, even if you do have tools to open it.

Dangers after Escape

Once you've climbed out of the top of the elevator, you're only partly out of danger. If the power comes back on you can get crushed — so I wouldn't make this escape unless you know for sure that the power is down for good:

Be sure to pull the "STOP" button in the elevator before you climb out through the top. That way the elevator doesn't start moving again if the power comes on

Once in the elevator shaft you also risk electrocution (depending on the wiring for the building) if the power comes back on.

Some elevator shafts have no way to escape. Once in an elevator shaft though your cries for help might be heard easier — perhaps a few people with sledge hammers and manual concrete breaking tools can chip their way through the elevator shaft and get you out that way — though the best way to get to an elevator will likely be to break through doors in a floor above the elevator and drop rope down (headlamps would be a handy tool to have to provide light); rescuers could then climb down the rope to the top of the elevator and break open any service hatch — unless it opened from the top.

If an EMP occurs during day or early evening hours, we can expect tens of thousands of people across the U.S. to be stuck in elevators in thousands of cities.

If you live near buildings with elevators, consider rounding up a number of people to do a search for anyone who may be stuck in an elevator.

Hospital / Nursing Home Care Requiring Machines

Hospitals are going to be a disaster following an EMP — people needing medical attention will show up on foot; aid workers will likely be sent to nearby emergencies and other aid workers will stay behind to help with the many people on critical systems that are now without power. People in surgery and connected to machines will be in trouble. Hospitals in major cities are going to be a mess.

Nursing homes with elderly patients requiring critical care (machines and scheduled medication) and also hospice are likely to become a disaster also. These will be some of the first people to die across the nation — after all those flights from the skies come down to earth and initial car wrecks take place.

Near a Nuclear Power Plant after an EMP

Nuclear power plants operate in a "controlled meltdown" — rods in a state of meltdown emit high amounts of heat, generating steam from fresh water that is pumped over these rods, which then turn turbines, which produce electricity.

When electricity fails at a nuclear power plant backup generators come online to keep everything operating safely. But like a commercial airplane these backup generators will end up fried in an EMP, as everything is wired to everything else, and it's this wiring that allows an electro-magnetic pulse to do so much damage to so many systems.

With the power failure and fried generators, we now have a nuclear meltdown on our hands. In the coming days high levels of radiation will soar into the air, dusting the land and lakes and streams and any people for miles around — especially those people downwind of a nuclear power plant.

Do you live nearby any nuclear power plants? Do you have plans to "bug out" in the event of a disaster to a remote location? You might want to study prevailing winds first, and look to see where in relation the nearest power plants are to those prevailing winds so that you can predict what direction radiation will be carried and how far. Compare this path to where you live and also to where you plan to flee to in the event of disaster.

In a Highway / Freeway Tunnel when an EMP Occurs

When the lights in the tunnel go black from an EMP, so will most vehicles controls, so will your headlights — and so will most lights in most vehicles in that tunnel, large trucks with tractor trailers and buses included.

At 60 MPH freeway tunnels filled with traffic that is suddenly in the dark could immediately end in crashes where cars, trucks, semis, and buses pile up, one on top of the other — glass breaking, metal and fiberglass colliding violently — sheer devastation.

Think about that the next time you're driving through a long tunnel that is lit by traffic and overhead lights.

Good news in this? It's very possible that gas that spills on the roadway from crashed vehicles won't ignite from sparking vehicle wiring — unless sparks are created from metal grinding on the concrete. That might ignite a fire ball that turns that tunnel into an instant furnace.

Some reports indicate that it's likely that not all vehicles will be effected by an EMP. These reports say that many will lose power and that some will not. They back these claims off of reported tests that have taken place.

What If you're the Only One with a Working Car?

Whatever ends up happening, I don't think it would be a great idea to own a working vehicle when most other cars have stopped working. You might become a target for a heist.

Emergency Transportation: Mountain Bikes and Bicycle Trailers

Rather than counting on your car or truck, you may want to have some mountain bikes and bicycle trailers in your garage back at home (which of course may also make you a target of a heist).

If you do want to run the risk of owning a running vehicle — and if you're a mechanic — you can disassemble electrical parts to things like an ATV or motorcycle and then store these electrical components in a device known as a Faraday Cage (more on that below) — which is a "do it yourself" metal box that can be used to protect small electronic devices from the effects of an EMP.

This is reported to be a way to get older vehicles (early 60s for example and before) operating after an EMP has taken place. You may not be able to get a newer car back on the road — due to the sophistication and number of electrical components needing to be replaced — however an older vehicle with a lot less electrical related parts could get back on the road.

You just need to make sure you have those electrical parts on hand and the ability to replace these parts.

As part of your preps for an EMP, buy yourself an old car or truck that runs and then remove key electrical components; store these components in a safe place.

How to Protect Electrical Devices from an EMP: Build a "Faraday Cage"

As reported in a previous article on our site on Doomsday Preppers prepping for an EMP, there are steps a person can take to protect electrical devices at home — that is to build (or purchase) a metal box called a Faraday Cage.

What is said to happen is that the metal box protects items inside from an electromagnetic pulse — causing the pulse to flow around the box and unable to reach electrical devices inside (as long as they are wrapped in a non-conductive material).

Electrical devices placed inside a Faraday Cage could be an emergency AM/FM radio, two-way radios, solar battery charger, small generator, emergency medical equipment, inverters, and a laptop or external hard-drive (should either have important documents or eBook downloads you want to hold onto and not lose).

EMP Protection

A Faraday Cage can be built out of scrap metal or other metal containers you have on hand — even an old microwave could be used is what one writer claims.

Wrap each device you want to protect in plastic, newspaper, cardboard or other non-conducting material and place inside.

While you can build a Faraday Cage from scrap metal, you can also use things like metal filing cabinets, metal safes (like a gun safe), and even ammunition boxes. Building a copper mesh around each box adds another layer of EMP protection to your contents inside. A metal tool box would also work well. In fact you could have a tool box (wrapped with plastic or cardboard) with electronic devices inside (each wrapped with plastic or cardboard); this small tool box could then be kept inside a second larger tool box — now you have multiple layers of protection from an EMP.

Which Electrical Devices to Protect

If you have an early model car or truck or motorbike (for example, 1960s and before), key electrical components could be stored in a Faraday Cage. After the EMP strikes, the components taken out and then put back into vehicles so they'll start again.

Other electrical devices to protect:

* Ham radio

* 2 way radio

* Solar battery charger

* Small generator

* Emergency medical equipment (if you or a loved one require it)

* Inverters

* Laptop

* External hard drive

* Emergency AM/FM radio

* Extra batteries for operating each device for several weeks or months.

* Watches with hour / minute hands (being able to keep track of time can be an important survival tool; your ability to coordinate meeting times and locations with others after splitting up into different groups will likely call for precise time keeping in certain situations — don't forget the importance of a watch — I should say "watches". You'll want more than one watch for different people in your party).

How to Store Battery Back Up Power

One terrifying aspect of an EMP is the loss of communication with family — your children, your parents, your wife, your husband. In fact it's possible even likely you will never again talk to loved ones who live in distant states (if not in this life, hopefully Heaven; have faith in God, and your loved ones also, if you want that of course).

But is there a way for you to have communications, even after an EMP?

Possibly. Using a Faraday Cage and a few stored batteries kept charged for emergencies, you may be able to reconnect with loved ones using a series of two way radios or Ham radio / CB (CBs have a much shorter range though than two way radios; though it may not hurt to have both, if you have that capability).

WHAT'S IN YOUR FARADAY CAGE? A COMMON SENSE GUIDE TO PREPARING FOR AN EMP

EMPAPRIL 18, 2015BY LISA BEDFORD

An EMP can be caused by the detonation of a large bomb, nuclear or otherwise, in the atmosphere, miles above land. Its pulse wave can easily cover a continent and destroy electronic components in computers, engines, power plants, and solar panels alike.

An event like this has never happened on a large scale, and there are differing opinions as to the exact consequences, but one thing is certain: In a matter of moments, life as we know it would be gone forever. Our closest star, the sun, could also do extensive damage in the form of a Coronal Mass Ejection (CME). The results would be similar.

Excerpted from Survival Mom: How to Prepare Your Family for Everyday Disasters and Worst-Case Scenarios

Massive solar flares have been in the news recently, along with vague warnings of how a Coronal Mass Ejection (CME) might affect us here on earth. The dangers of a solar-flare-orange-sunman-made Electro-Magnetic Pulse (EMP) was outlined in excruciating detail in One Second After by William Forstchen.

We rely on electronics way too much to ignore the potential of these events, and although even the experts aren't always in agreement where details are concerned, it makes sense to have a plan to protect important electronics in either event.

What experts do agree on is that many items with any type of electronic component may become inoperable by either a CME or EMP. From Survival Mom: How to prepare your family for everyday disasters and worst-case scenarios:

I don't have a plan to turn my garage into a giant Faraday cage in hopes that our vehicles would be spared, but I have made plans to protect other, smaller items that would make a huge difference in our survival following a CME or EMP. Here is a list of some of those items.

Mp3 players filled with music. Also, every spare set of earphones I can scrape up around here.

An old laptop computer with downloads of eBooks and stored personal information

One or more digital cameras.

A set of walkie-talkies that run on rechargeable batteries

Solar battery chargers

A Kindle containing more than 150 books, many of them reference and survival books but also dozens of classics and a couple version of the Bible

One or more digital watches and clocks

Small DVD player (a backup player would be good also)

Any and all digital photos stored on a DVD and/or a thumb drive

Scanned documents stored on a DVD and/or thumb drive (See Grab-n-Go Binder.)

Computer hard drives

Ham radio equipment

A small generator

LED flashlights

Shortwave radio

Inverters

Electronic medical equipment

And what should these be stored in? Well, again, most every expert has differing opinions. We have a few Tech Protect Bags and a metal trash can. Here are some other options:

Tech Protect Bags "The owners of this company recommend nesting Faraday containers.

A metal garbage can

Ammo cans

An old microwave (mixed reviews on this one)

Heavy duty aluminum foil wrapped around individual items, wrapped in plastic, and then again with aluminum foil.

A tool box

Gun safe

A cardboard box or other container that has been Faraday-ized

Holiday popcorn tins

If/when an EMP or CME occurs, there is no going back for a "re-do". Whatever works, works. Whatever doesn't, doesn't, and there will likely be no way to make repairs. Because of that, I highly recommend taking these precautions.

EMP13First, if you have more than one of an item, 2 digital cameras, for example, don't store them together in the same container. If the metal trash can proves to be effective but the microwave doesn't (and you will only know following the EMP/CME), at least you'll have one item that operates.

Next, pack small Faraday containers into larger Faraday containers. If you are using a Tech Protect Bag, store it inside a larger Tech Protect Bag, an ammo can, or another (hopefully) EMP-safe container. This layering could include a clothes dry, metal filing cabinet, or metal drum.

If you have emergency kits that contain electronic items, package them in an EMP-proof box or bag, so you'll have your most important survival items protected when you may need those most.

True, we could survive just fine without music, photos, probably most documents that are important today but may not be, "one second after," but since the exact results of a CME/EMP are so unknown, I would rather protect even just a few of these items than face a future without anything at all containing an electronic component.

One final thought. No one knows if or when either a CME or EMP will happen, and if it does, what the intensity will be. Whatever you pack in a Faraday container will be safest if it remains there. For example, don't pack your laptop if you use it several times a week. Instead, pick up an older laptop on Craigslist, store your information, and then pack it away.

What are your plans for protecting electronics and what is in your Faraday cage?

Lisa Bedford is the author of the book Survival Mom: How to Prepare Your Family for Everyday Disasters and Worst-Case Scenarios. You can follow her regularly updates prepared tips and news at The Survival Mom Web Site.

LENGTHENED LIST OF ITEMS IN PREPARATION OF AN E.M.P. SCENARIO

EMPAUGUST 6, 2014BY BIO PREPPER

Necessities and Consumables

-food supply for a year (including food for any livestock or house animals)

-water supply for three months, one gallon per person per day, for washing and cooking as well as drinking

-gasoline for all vehicles that would still work and for the gas powered electrical generator

-large quantities of iodized salt

-large quantities of chlorine tablets and bleach for purifying water

-batteries for any electronics that may still work

-a year supply of bar soap and shampoo (if you are dirty for too long you can catch/spread disease)

-a tooth brush and as much toothpaste as you can get

Tools

-an ax with a strong handle (not wooden)

-a hammer and nails

-hand saw

-lumber for various repairs and home defense needs (trees will also work, sorry tree huggers)

-multiple cheap flashlights

-One good flashlight (such as a Mag-lite or Mag-LED)

-if possible, an old radio that uses vacuum tubes and batteries

-multiple lighters

-gas/dynamo powered electrical generators (do NOT leave these plugged in)

Weapons

-small handgun (preferred .45 caliber

-shotgun (12 or 20 gauge)

-bolt action or semi-automatic rifle with a scope (preferred .223 for semi-auto or 30-06 for bolt action)

-as much ammunition for each weapon as you can get

-A knife with a 6-8 inch blade with a belt sheath

-a bow or crossbow with reusable arrows or bolts

Commodities

-if you can afford it, an All-terrain vehicle that seats four people and has room for storage, like a small truck bed in the back

-a pretty good amount of cash, not only for the initial start of an E.M.P. attack, but also in case the currency does survive

-Little Debbie and Hostess sweets, more specifically, the Twinkie (don't forget, they still have an expiration date, it's just considerably longer than most food products). Only obtain if you have enough toothpaste.

-energy drinks, there will be some points where the carbohydrates and other forms of energy could save your life. They tend to dehydrate you so only obtain if you have enough water.

Medical Equipment and Medicine

-rubbing alcohol

-sterile gauze pads (4×4)

-medical tape

-gauze wrap

-antiseptic spray and Neosporin

-a large amount of antibiotics

-an even larger amount of ibuprofen and aspirin

-Band-Aids, small and large

-sterile rubber gloves

-butterfly sutures

-ankle, elbow, and knee braces

-over-the-counter flu medicine

-cough syrup

-any kind of cream or ointment for burns

HOW TO TURN YOUR Q-HUT INTO AN EMP-SHIELDED HOME

EMP, HOW TO...FEBRUARY 5, 2015BY CACHE VALLEY PREPPER

Can a Quonset hut be turned into an EMP-shielded home? With this reader question, the devil is in the details. If you are ready to face them, grab a napkin, sharpen a pencil and then go rent a crane: you have work to do!

First let's see what it takes to shield something from EMP and how a Quonset Hut is constructed to determine if this building could provide a cost effective solution to EMP under the right circumstances.

I imagine that the reason that leads to this question is something along the lines of: "Quonset Huts have a steel skin, and steel is a conductor, so they must provide some shielding against EMP. Almost 200,000 of the buildings were manufactured for WWII, some are still in use by the military to this day and many others are still knocking around as surplus, so maybe this could be an inexpensive way to build a shielded home or retreat or some sort. But the subject of EMP is complex, and a building is a major investment. For most people, it would be a considerable waste of resources to erect a building that did not serve its intended purpose."

The (Very) Basics of How to Shield Against EMP

As you may recall from an elementary physics class (or a diligent 2-seconds of research on your "Inter-web Thingy,") Faraday cages can be used to shield vulnerable microelectronics from EMP.

For some, but certainly not all, of our readers, that fact and perhaps how to improvise a Faraday cage from a metal trash can (or similar conductive vessel with a tight fitting lid) is about the deep end of the pool when it comes to the depth of their knowledge this particular subject.

Now, that is not a bad thing. Where that not the case, us folks toward the nerdier end of the scale might be doing something other than writing about EMP survival, so I'm good with that.

But society's ever-decreasing attention span being what it is, that is to whom I orient this type of article, so those of you who are "Walter White-level intelligence", and beyond, you will have to bear that in mind (or break down and buy the book.)

A Faraday cage provides EMP shielding by creating a conductive skin around what you are trying to protect. Imagine that this conductive skin helps conduct some of the flow of energy around a protected envelope, like a river flowing around a sand bar. This is a bit of an oversimplification, but I think it is an effective analogy for most people.

The idea is that most of river goes around the sand bar. You end up with a lot less intensity of water flow inside the sand bar than outside because the amount of flow that penetrates the sand bar is reduced by the (shielding effect of the) sand bar. The bulk of the flow of water is "conducted" around the sand bar like the conductive skin of a Faraday cage conducts electricity around the occupant of the cage.

Another way to say this is that the Faraday cage attenuates (or reduces) the intensity of the field strength of the EMP that is able to penetrate the shielding provided by the cage.

Back to the sand bar analogy, the shielding provided by the conductive skin of the Faraday cage is the difference in EM flow outside and inside the cage. So the cage does not completely stop or shut out the EMP, it just "turns down the volume" to point that it doesn't "blow the speakers" (so to speak) of electronics protected by the cage. The volume of sound, EMP wave flow or sound wave flow is lower or quieter inside the cage than outside it.

This protective skin needs to have the following properties:

1. It must completely encapsulate whatever you are trying to protect. Depending of the frequency range of energy you are protecting against, the skin can be a cage or a mesh. But for our application, openings as small as a quarter inch could allow EMP inside, compromising the protected space. So mesh would have to be roughly 20 openings per inch or finer. If you are trying to shield a multisided space such as a cube, all six side would have to be shielded. I often see people forget about the floor! EMP is not like rain, you cannot just drape a space blanket over the object and call it good.

2. The flow of electrons through the skin must be unimpeded. If you join two or more sheets of conductive material to form the conductive skin, the seams where they mate must be free of non-conductive paint or any other insulation. I see people make this mistake a lot with metal ammo cans. They fail to remove the paint where the lid fits onto the box and remove the rubber gasket. Gaskets are still helpful, but they need to be conductive gaskets as opposed to the non-conductive rubber gaskets that come in the cans.

3. Any insufficiently shielded wires or other conductors penetrating the skin compromise its integrity.

4. The conductive skin must have a non-conductive layer gap of air between the skin and whatever you are protecting. If the object touches the skin or is too close to it, the electromagnetic energy can be conducted from the skin into what you are trying to protect.

5. The conductive material must provide sufficient electromagnetic shielding darkest_days_product(measured in decibels) to protect against EMP. The thicker the conductive material, the more shielding it will provide. To shield against the field strength of an EMP generated by a nuclear weapon detonated high in the earth's atmosphere, directly above your location, would require approximately 73dB of shielding. If the weapon was detonated hundreds of miles away, this number will be lower.

Just keep in mind that the relationship of shielding thickness to the number of dB of shielding it provides is logarithmic, so doubling the shielding layer thickness does not double the dB of shielding. This means that if you buy a Faraday bag that provides 40dB of shielding, and you put your bag inside another 40dB you don't end up with 80dB of shielding. You would end up with less than 50dB of shielding at that level.

And to protect against a super-EMP weapon (a nuclear weapon optimized to yield the maximum amount of energy released in the form of EMP as opposed to light or heat) this number would have to be much higher. You would not be talking Mylar bags, aluminized bags or tinfoil anymore, you would need a shielding material more along the lines of an aluminum pressure cooker for that.

How Does the Quonset hut stack up as a Faraday Cage?

Once assembled, a Quonset hut is essentially a semicircular cross-section of corrugated, of galvanized steel that can be moved by crane and set on a concrete slab or wooden floor. Steel is a conductor, so won't that offer some electromagnetic protection?

If you have been paying attention, you may already know the answer. IF the steel sections have been properly joined THEN you have a start.

Notice that the answer is conditional and that even then, a Quonset hut can only be viewed as possible place to start or source of raw material in the form of steel. Even if the integrity of the building's steel skin is maintained, you would still have some major issues to deal with in order to turn it into an EMP-shielded structure.

Here is what it would take to turn a "Q-Hut" into an EMP-shielded stronghold:

Any sealant, lacquer, paint or other non-conductive material between the seams of steel sections, any holes or gaps a quarter of an inch or larger will compromise the free flow of electrons through the shielded "skin" of the structure so they would have to be stripped and replaced with conductive product.

Any holes or gaps a quarter of an inch or larger will compromise the shielded envelope, including any windows, doors and the entire floor would not be shielded by "upside down steel half pipe" formed by the steel portion of the Quonset Hut. All these areas would need to be covered with material that meets our shielding requirement of greater than 73dB (for a normal nuclear weapon used to initiate Compton Scattering, generating a nuclear high-altitude EMP, not a super-EMP weapon.) As mentioned, 20OPI or

smaller mesh could be used for the windows and to encapsulate any solar panels you add. To add solar panels to the project, please refer to my past articles on the subject starting here: How to Protect Your Solar Gear from EMP (Part 1)

No unshielded long conductors such as electrical wiring should be attached to the building without first being shielded, shunted through EM-shielded gaskets, fitted with fast switching (less than a millisecond) surge protection with power handling in the same range as lighting protection circuits. They should also be properly grounded.

The conductive skin should be separated from the building interior by a gap or suitable non-conductor. A non-conductive spray-on bed lining material or any other non-conductive material could be used for this purpose, just do not forget the floor!

There you go! If this does sound like a fun project, let me know, I just might squeeze you into my consulting schedule so I can see how it turns out, so shoot me an email.

Better yet, leave your comments below. Either way, I enjoy reading them, and have even been known to respond to reader questions and comments from time to time.

HOW TO SURVIVE A HIGH ALTITUDE EMP ATTACK (HEMP)

EMPDECEMBER 13, 2014BY JAMES COLE

An HEMP (High-altitude Electro Magnetic Pulse) attack is usually a nuclear attack detonated above 25 miles. It will disable all unprotected electronic equipment over a wide area depending on the size of the pulse. A nuclear weapon detonated at an altitude of 200 miles could affect all unprotected electrical equipment within the continental United States.

There is a danger that there will be more such attacks, particularly over large cities. Survival will depend on your level of preparedness. Your family's chances of survival will increase if your survival plan includes sheltering away from populated areas. A single Scud missile, carrying a single nuclear head, detonated at the right altitude and location could knock out the entire power grid across the United States for months or even years.

Normal information channels such as news updates and emergency broadcast warnings, will be affected when the HEMP attack is triggered.

Plan to evacuate to a rural area if at all possible.

Prepare and practice evacuation plans and secure your safe location. The supplies that you purchase for long-term survival (see below) should be stored at this rural site unless you are uncertain that you will be able to reach that site in time.

Purchase supplies needed for survival

Firearms and ammunition should be stored under lock and key, with everyone in the family trained on their safe use. At least one silent weapon, such as a bow and arrow, should be included for hunting.

Other supplies to purchase include: food and water, water purification tablets, medicines, garden seeds and supplies, and first aid equipment. Keep a well-stocked supply of batteries for flashlights as well as some easily accessible backup generators.

Prepare your home for safety.

Establish safe places to hide your extra supplies, weapons and ammunition. If 240x400_bph4_1-cae6563possible, plant a garden and stock supplies for next season. Create strong but portable shields for your windows and doors as protection against possible violence outside. Ensure you have a sufficient amount of plywood sheets or other boards to cover all glass openings around your home to deter and prevent looters or other nefarious characters from entering your house. This increased level of security will keep you from becoming an easy target if looting becomes prevalent. You need to make sure certain redundancies are in place and that you always have a backup plan.

Protect your electronic equipment.

Plug the electronics you use on a daily basis into good surge protectors. Store other electronics that you don't regularly use, like generators, in a Faraday cage or similar container. (A Faraday cage is a metal box made of conductive material).HERE you can find the best Faraday cage DIY. The Faraday box is a great solution assuming that you aren't using the equipment when the event occurs. The only two requirements for protection with a Faraday box are:

(1) The electrical equipment inside the box can't touch the metal container. Insulating with cardboard, rubber, plastic or even wads of paper are acceptable methods.

(2) The metal shielding must be continuous. There can be no large holes or gaps in the shielding.

Other items that could protect your equipment in the same way as a Faraday cage are old microwaves and metal garbage cans. Make sure you have adequate alternative backup power for the electronics that still work.

Plan for a barter economy.

Emergencies and other unexpected situations may arise causing a need for a supply of something you don't have. Paper money will have become almost worthless within weeks of the pulse so barter will likely be the method of exchange. Some of the more popular barter items to stock for emergency needs include: food, water, water purification tablets, alcohol (the drinking kind), garden tools and seeds. You can read an entire article about the best items to hoard for bartering after a long term grid down scenario HERE.

Learn safe behaviors.

Knowing how to keep a low profile is the safest behavior all around, and will be even more critical in the cities. Survival will depend on staying clear of crowds and not revealing information about your family's level of preparedness.

Preparedness is the key to survival after an HEMP attack. Life and survival in the city will be more difficult than in rural areas. Cities will have more violence due to people living closely together with

limited resources. They will also be targets for additional attacks. If you live in a city, begin to make evacuation plans now to take your family to a safer area.

HOW TO REDUCE YOUR RISK FROM AN EMP

EMPSEPTEMBER 3, 2014BY RICH M

Astronomers everywhere have been warning about the severe rise in solar flares that is expected for 2014. Even NASA has issued warnings for this, concerned that they could cause major disruptions on a worldwide basis. Part of the problem is that we're really not sure what kinds of effects the solar flares are going to cause or how serious those effects will be.

It's a known fact that all solar flares cause some sort of radiation. Often, this is broadband radiation, which hits our atmosphere and causes problems with radio reception. Back in the 1970s, this was severe enough to put an end to the CB radio craze, essentially eliminating all but the shortest-range communications on the frequencies that CB radios use. In addition, it affected commercial radio and television transmissions, sometimes severe enough to block out reception in outlying areas.

However, the bout of solar flares that happened in the 1970s is nothing like what's expected this year. The solar storm of 2013 should be a couple of orders of magnitude greater than that of the 1970s. So the radiation which we receive will be much more severe as well.

The biggest risk that scientists are concerned about is that of electromagnetic pulse (EMP). This is the same sort of radiation that occurs when a nuclear bomb is exploded above the atmosphere. Since the lack of an atmosphere prevents the energy from going out as a physical shock wave, it goes out as electromagnetic energy. Since the sun (or any star) is essentially the same as a sustained nuclear explosion or hydrogen bomb, it produces large quantities of electromagnetic energy as well, especially during times of solar flares.

The Problem of an EMP Hit

If a massive EMP pulse from the sun hits the earth, the results could be disastrous. Other than military electronics, very few pieces of electronic equipment are designed with the necessary protection to prevent EMP damage. So, there's a strong possibility that a large portion of the commercial and consumer electronics that we depend on for our day-to-day lives would be out of commission.

That may not sound all that serious, but you have to realize that the entire infrastructure that we depend upon is controlled by electronics, specifically computers. A severe EMP hit could knock all of that out of commission. Were that to happen, our lifestyle would be set back 100 years or more.

The greatest risk that we face from an EMP hit is the loss of the electrical grid. This is already the most sensitive portion of our infrastructure, with much of it being outdated and in need of repair. Because of that, it's highly susceptible to EMP.

Imagine living in a world without running water, city sewer service, all of the home electronics that we all depend upon, stores, gas pumps, heating and air conditioning, refrigeration and much more. That's the world we are likely to find when and if this electromagnetic pulse hits.

An EMP attack is probably one of the worst disaster situations possible to prepare for, simply because of how much we depend upon will disappear in a moment. All of the preparations that preppers typically do will be needed. People will have to do everything for themselves, from filtering their own water to growing their own food. Until the electrical grid can be rebuilt, everyone will have to be independent to survive.

Protecting Yourself from EMP

The common way of protecting yourself from the results of EMP is to use a Faraday cage. This is based upon two things: the fact that metals are great conductors of electricity and that electromagnetic waves are attracted to metal. When they encounter it, they are stopped by that metal. Even a piece of metal as thin as aluminum foil is enough to block electromagnetic energy.

Placing electronics in a Faraday cage is an almost foolproof way of protecting them from the devastation of EMP. However, the Faraday cage must be constructed properly. First of all, the cage must totally surround the electronic device. If there are any gaps, then it may be possible for the electromagnetic radiation to enter. Secondly, the electronic devices inside must be fully insulated from any physical or electrical contact with the faraday cage itself. This is accomplished by insulating the cage with a non-conductive material.

If you wanted to make your own Faraday cage, it would be extremely easy. All you need is an enclosed metal container, such as a portable metal file box or a metal trash can. You can line the container with any of a number of materials, but one that works extremely well is sheets of Styrofoam. You can buy this in any building materials center, as home insulation. Merely cut up the sheets and glue the pieces in place.

That will take care of small electronics, but it won't help you much with large electronics or electronic devices that you use regularly. You can protect those to some extent by a combination of using surge protectors and grounding them.

Our electrical grid is going to act like a huge antenna for that electromagnetic radiation, capturing it. That will cause a huge electrical spike. In fact, that spike is probably what will ruin most home electronics, rather than the EMP itself. If you put surge protectors on everything, you can stop most of that. The surge protectors themselves may not survive, but they will protect the equipment connected to them.

The earth itself is the best electrical ground there is. Your home electrical grid is probably grounded to earth. Electrical code requires that the circuit breaker box by grounded. This is usually accomplished through a copper-plated rod, installed through the foundation, right below the electrical box (it's usually hidden in the wall). However, that may not be enough protection. If you have a room with a lot of electronics in it, such as a home office, adding an additional ground would be advisable.

Not all of our home electronics is connected to electrical power. All modern cars have more computer power in them than the old time mainframes. Yet, almost by definition, the rubber tires on a car insulate it from the ground. That can be dangerous for the electronics.

Driving a ground rod into the ground next to where you park your car provides you with a simple way of grounding your car at home. Simply use a jumper cable, connecting it to any accessible part of the frame (bumper supports are accessible and might work) to the ground rod. Then, if an EMP strikes, it will be grounded, protecting the vehicle's electronics.

9 PREPPING LESSONS FROM AMERICAN BLACKOUT

EMP, SURVIVALOCTOBER 12, 2014BY P. HENRY

Like millions of others on Sunday night, I plopped down in front of the TV to watch National Geographic's American Blackout. I was curious to see how the hypothetical scenario of a 10 day nationwide power outage caused by terrorism would be portrayed. I was also watching this as I do with each episode of Doomsday Preppers to gain new insight or ideas from the other people on the show. While there are some silly moments and outlandish situations on some of the more notorious prepping shows, there are always nuggets of information if you know where to find them and are willing to look at things with an open mind.

As I watched American Blackout, I pulled some obvious conclusions out of the examples of people who were videoing themselves after this pretend emergency and jotted them down.

1 – Always have some cash

The scenario is a nationwide power outage and like we discussed in our Blackout checklist, that means that a lot of life's modern conveniences aren't going to work. Things we take for granted like running to the ATM for a little cash aren't going to be possible in a power outage. One of the characters was a father who was trying to get his very pregnant wife and child back home as he navigated the streets that had descended into pandemonium because the traffic signals were out. Sensing how this might be a problem he tells his wife that he was going to go "get some cash" only to come back to the car with an empty wallet and a worried look on his face.

Don't let this happen to you! There is no reason to not have some cash on hand with you at all times or at least where you can get to it. I recommend having at least a month's worth of cash on hand if you can afford this, but even a couple hundred dollars would have kept this family in water and some food if they acted quickly enough. If ATM's and Banks are closed, chances are your credit cards, debit cards and EBT cards won't work either. If stores can't take credit, you will need cash. Make sure you have some cash stored in a safe place at home or in your car that is never spent and is ready if needed in an emergency.

2 – Water and food are necessities

Things didn't turn out too well for the "Yuppie" couple.

We have covered this topic in a lot of different ways, but it bears repeating until it is never any issue anymore. In any disaster or crisis, food and water will be snatched up first and food and water are two

of the most important things you need to have. Make sure that you aren't the Yuppie couple who live day by day eating at restaurants and who only have some old caviar and a bottle of champagne in their apartment. Ensure you have stored food to last you as long as possible. Most of us have at least 3 days' worth of food in our homes, but for an event that lasts 10 days as in American Blackout, three days isn't enough. What if you have others staying with you?

Food and water are the simplest items you can stock up on because you use them every day. You are already buying them on a weekly basis I bet. In a power outage, the pumps that run water to the city will shut down and if you have no water coming out of the pipes, what will you do for drinking and sanitation? Actually, the sanitation part was only so briefly covered in the show that I was surprised. People will still need to go to the bath room regardless of what calamity is happening outside.

3 – If you are going to leave, get out of town fast

Even though this show was a dramatic hypothetical, the situations presented have all happened before and on a much more catastrophic scale, so it isn't complete fiction. Power outages are probably the least horrible "disaster" to live through but can still be deadly. People will get scared and when they do, the absolute worst in your fellow human beings will come out. This has been played out time and time again in history.

If you have plans to bug out, you should be hitting the road as soon as possible in a situation like this. Power outages were being reported all over the country so the token prepper loaded his family plus 1 tag along into his Bug out Vehicle and skedaddled out of town. As the crisis goes on, people will become more desperate. The early hours of a crisis could be marked with good natured people having block parties, cooking the contents of their freezers and drinking the last of their beer. By day 4, people are going to be stressed out, frazzled and possibly dangerous. You don't want to be around at this point if you have somewhere else to go away from the mass of people.

4 – Don't trust others to keep your secrets

There have been hundreds of posts written on OPSEC and the need to keep your prepping information on a need to know basis. This is done for security and the show documented how this can quickly spiral out of control. The "prepper" took his daughter's boyfriend, Jason along with them when they bugged out to his hidden retreat "Somewhere in Colorado". Upon arrival Jason was given a tour of the facility, shown the food storage and how the food they had in the pantry wasn't all the food the family had. It was meant for decoy to keep the real food storage safe.

In a later scene a few days into the power outage, a neighbor comes to the Prepper's property asking for food. At this, the prepper said "We don't have anything for you" and good little Jason piped in to say that "We have two years' worth of food". My mouth hit the floor when this happened; because that is the last thing that prepper wanted anyone to know. The begging escalated between the neighbor and the prepper to the point where the prepper pulled a gun and finally made his neighbor leave. Cue the ominous music.

My wife and I had a slight disagreement on how the prepper handled this which I'll address later but the point for this topic is that you can't tell desperate people information like this unless you are ready and willing to deal with the consequences. In desperate times, people will do desperate things and you soon find out how this situation turns south for the prepper. If I were in the same scenario, I don't think I

would have taken anyone along with me to my retreat unless they were family. Had I no choice, I think I would have treated them with extreme suspicion until they had proven themselves. There is no way I would have shown this kid, who I didn't know, who also just so happened to want to sleep with my daughter, anything about what I had stored at the retreat and I would have instructed my family to do the same. This topic is worthy of its own post, but the main point is people will kill you for nothing very quickly. People will kill you much faster if you have something their starving children need.

5 – Have a grid-down way to communicate

Along with the power being out, communications will go out as cell towers rely on power to push that signal out. Just a simple pair of warlike talkies can be a huge advantage if we have only lost power. For longer communications, HAM radio would be the next best bet and it's easy to get into this hobby. For less than a hundred dollars in equipment you can talk to people hundreds of miles away in a disaster situation.

6 – A little kindness goes a long way

OK, so the neighbor who was asking for food wasn't being mean. He was nicely asking for food and may have gone away for a while if the prepper wasn't yelling at him to leave and saying "I got nothing for you". If the situation demands an escalation, you can do that, but I think in most situations, a calm level-headed approach is the best first option. The prepper may have been able to talk to the man in a calmer way if Jason the idiot hadn't opened his mouth, but even after he did I don't think the neighbor did anything to warrant getting a gun pulled on him. He was asking for food and maybe he was being insistent, but I didn't see him crossing the fence or threatening the prepper.

Now, I am not advocating you to invite a crack head back home and make him a bowl of soup and let him sleep on your couch, but if you are trying to avoid confrontation for as long as possible, you should be calm and rational. There is nothing wrong with anyone asking you for something. These two hypothetical people occupied a lot of land away from everyone else in the middle of nowhere. The prepper in my opinion should have tried well before a crisis to get to know his neighbor for just this reason. When the grid goes down you might very well have to rely on your neighbors for safety and you could just as easily be threatened by them as people in the city if they want what you have. A neighbor who is hungry and hates your guts is a bigger threat in my mind than someone who is just hungry.

7 – Have a way to recharge electric devices

The entire show was presented as footage from cell phones and cameras after the power went out. There was one kid who mentioned a solar charger and a young girl who was given a whole box of 1177batteries by her dad before he left to find food for the family.

Now, whether or not you believe that everyone's cell phones would stay on that long much less record days of video the idea of charging your batteries is one that you will be faced with. Make sure you have a way to charge electronics that you could depend on. I have a couple of options. First, I have plenty of Eneloop AA and triple AAA's for the flashlights and radios. We also have an inverter to run off the car battery for electricity and a generator with some fuel. The fall back is a solar charger that will take longer and requires sun, but it is another option. I probably won't be charging a cell phone to take video if we do have a terror attack that takes out our country's power grid, but there are several devices I will depend on that will need recharging.

8 – First aid for minor/medium injuries

One of the characters dies from either dehydration or a cut on his arm. The reason wasn't clear but to me they made it out to be the small cut on his arm and I assume infection. It's hard to believe someone can die from what appeared to be so minor of an injury but first aid is definitely a priority. If the power is out, streets are crowded with abandoned cars and people are looting and robbing every house on your block the last thing you want to do is try to make it to a hospital. The hospitals are already going to be crowded with people injured in all manner of ways and that is if they are even open in the first place.

Part of your prepping supplies should be plenty of level one trauma items in the form of minor pain killers (aspirin), bandages, antibiotic creams and possibly sutures or a surgical stapler. You need to be prepared to handle these minor injuries because you don't want to risk going out. They guy who died was trapped in an elevator, but the lesson still applies for people who are safe in their house.

9 – Having Stuff doesn't make you smartt

Getting back to the Prepper representative of the show, I had high hopes for him. The show started with him loading gear into a nice heavy duty SUV. His gear was pre-staged and it looked like he had planned ahead. His first mistake was bringing along his daughter's boyfriend. My own daughter looked at me and said "there is no way you would do that" and she was right. Not solely for the obvious reasons either.

The prepper on the show had a plan; he had gear and an unbelievably awesome retreat location in the woods of Colorado. He had backup power and tens of thousands of gallons of water, 2 years' worth of food and a fully stocked underground bunker with cameras over the entire property. From all of this, one would assume that he had really thought about SHTF and had planned accordingly.

Yes and no. The prepper would seem to have everything you need to be able to live as comfortably weather the grid-down scenario presented even for up to 2 years. His actions quickly showed that he was taking some things for granted.

For starters, he thought that anyone with him (Jason the boyfriend) would know everything about how security minded they should be. Secondly, he was soundly asleep while his 11 year old son was captured and forced to give up their decoy supply of food. Then when he retreated to the bunker, he foolishly went out to confront a gang of obviously desperate men who were stealing his stored fuel and was quickly captured.

Taking the time to plan for survival is great. Beginning the journey toward learning new skills and acquiring the tools and knowledge you need to be better prepared in a crisis like this is a vital and important step, but you can't be misled into thinking that just because you have some preps, that they can't be taken from you. An underground bunker won't prevent you from making stupid mistakes and just because you tell someone to go away, it doesn't mean they will listen to you.

I believe that being prepared is the smart thing to do, but you can't stop when you have some stuff. You can use the time you have now to think and learn and plan for events like this so that you will have some time to figure out what you will do if you are faced with a situation that could be life threatening. Life will be even more precious when there are people who have a strong motivation to take yours from you.

HOW CITY FOLK CAN PREPARE FOR THE NEXT BIG BLACKOUT

EMPOCTOBER 9, 2014BY BIO PREPPER

The next big blackout of the power grid is a big concern for all of us. I found this great article about this very topic over at theprepperproject.com. The author of this article, Rayna made a great job. Read the excerpt below, and click through to the full article to learn even more about how you can be prepared when SHTF. How City Folk Can Prepare For the Next Big Blackout

August 14th, 2003 we experienced the largest blackout in the history of the U.S... This event left over 50 million folks without power. As with most events such as this one, it came unexpectedly. Where ever you are when the next blackout occurs chances are, especially if you are in the city, it will be a major inconvenience. Truth is, the electrical grid in the United States is already at its breaking point. Whether it be rodents in the wires or just one more housing development that brings down the grid it will happen again. How city folk can prepare for the next big blackout.

Before it's Lights Out

Regardless if you are a city dweller or living off the land in the country most of us still probably depend on electricity in some way or another. Although it would be easier to cope with a blackout if you were in the country you can still survive if you are stuck in the city. As with any pending disaster preparation is key. The following are some items to consider before the next blackout.

Learn how to keep your food cool to prevent spoiling. Did you know that you can still have milk without refrigeration?

Fill up plastic or cardboard containers with water (leave some room so they don't burst) and stick them in the freezer. This will keep your food cool for a while however, this is just temporary.

Keep medication in the fridge and limit how many times you open the door. This goes for everything that you do in the fridge. The fridge and freezer will keep things cold for a little while providing you don't keep opening the door.

Build an emergency preparedness kit. Have an area of your home where you can keep a bug-out bag with essentials in it such as: medical supplies, food, water, etc.

Have a bag of items that you can use for protection. Depending on how long the grid is down you might have a lot of desperate folks out there wanting what you have? During the blackout of 2003 I noticed that people were seemed happier. They came out of their homes and actually talked to their neighbors. However, this may not be the case if the grid is down for weeks, months or longer. Having weapons is necessary if you want to survive.

Have a family communications plan in place and be sure that everyone is on the same page. Blackouts never occur when it is convenient. Chances are that you will probably be at work, school, shopping, etc. when the lights go out. Make sure that everyone knows where to gather. Landlines will still work without electricity but cell phones likely will not because the towers will be down.

Try to always keep you gas tank on full or close to it. Gas pumps run on electricity.

Make sure that you have the keys to the front door of your home. The garage door runs on electricity.

Keep flashlights and battery operated lights on hand and always ready. You can use candles as well just be sure to keep an eye on them especially if you have children and or pets.

If you are fortunate to have a generator test it regularly. Know how to safely run it and don't run it indoors.

Know how to keep your family cool if it is hot out and warm if it is cold out.

PREPARING FOR AN EMP: THE DANGERS AND PRECAUTIONS

EMPSEPTEMBER 8, 2014BY BIO PREPPER

There are quite a few misconceptions about EMP's and what exactly we need to do to prepare for an event like this. This is also an area of preparedness that most of us are lacking in. With our dependency on technology today coupled with our ailing infrastructure and a power grid that is basically temporary.

EMP-Zones

In this article from FutureScience.com they state the following about the power grid:

The fact that the electric power grid began as a convenience, but has become a necessity for sustaining life, is both one of the most beneficial, and one of the most dangerous, facts of 21st century existence.

We do not know how long the current power grid will last; but if it not replaced by a robust permanent infrastructure in time, hundreds of millions of people will die when the electric power grid collapses simultaneously in many countries.

How such a collapse occurs is very well known, and the methods to either prevent it, or to have spare transformers in place to fairly quickly repair it, are also well known. Although these preventive measures would not be terribly expensive, they would take some time to put into place; and those things have never been done.

This is a great article and I will be siting it periodically in this article, it is pretty long so you might want to bookmark it, but it's worth the read and has everything that you need to know about preparing for an EMP, the dangers and the Precautions you can take.

As you're sitting there watching your favorite news program your TV suddenly shuts off along with the lights and everything else in the house. You grab your phone to check if you forgot to pay the bill, and that doesn't work either.

You head outside and see that there is no power anywhere, the street lights are out, your neighbors are walking around looking confused and even the cars in the streets are not moving.

At this point you know that some sort of EMP caused this and you decide to check your car to see if it will start…Will it?

What is your plan? You're not sure what caused the EMP but you know everything is about to get way out of hand and time is of the essence.

I recently posed this question to our Facebook group and the answers were fantastic and very enlightening. They ranges from going out and buying everything you can as quickly as possible to bugging in and finding out who is going to be with you, and who you should protect yourself against.

I will go into more detail about these responses in the next podcast, but for now let's talk about the difference between an EMP and a CME.

Nuclear EMP vs CME

It's important to understand that there is a difference between an EMP (Electric magnetic Pulse) and a CME (Coronal Mass Ejection) or solar flare. Both can do massive damage, but what they will damage is different.

A Nuclear EMP device is designed to deliver 100 to 200 Kilovolts per meter. This is a massive and destructive blast of energy but is more localized than a CME. The Maximum Electronic Destruction (MED) is shaped like a smiley face.

The geographic size of the MED is determined by the altitude of a NEMP (Near Earth Magnetic Pulse) detonation, and if you happen to be in the not so funny smiley face (Maximum Electronic Destruction zone) there is not much if anything you can do about it. From surge protectors to faraday cages, nothing will prevent total destruction of all electrical devices, your phone and your toaster will be toast.

Because most of us (hopefully) will live outside the MED zone Faraday cages and surge protectors are good to have to protect some of your more important electrical devices. The article from Future Science also goes through what makes a good faraday cage and other techniques to protect your electronics.

A coronal Mass Ejection (CME) despite popular opinion will not render your car useless because the electrical system is fried, but it could be rendered useless because the gas stations will not have power. How much fuel do you have stored?

The dangers of a CME are the affects it will have on the power grid, and everything that will happen because of our dependence on the grid. Everything we do requires electricity in some way or another, from food getting to the grocery store, to fuel getting to the gas station.

The last (large) CME to hit the earth was the Carrington event back in 1859, Scientist estimate that this happens every 150 to 200 years. The Carrington event happened 155 years ago which puts us right in the danger zone, although in 1921 a large solar storm, of briefer duration than the 1859 event, occurred which affected a much smaller area of the planet.

EMP Precautions

Equipment Protection: Whether or not your electronics become fried really depends on the severity of the situation and whether it was a CME or an EPM. It's always a good idea to at the very least have surge protectors installed and even you're most important electronics stored in a faraday cage or electromagnetic shield.

Faraday cages are not absolutely necessary for solar flares, but it never hurts to be safe and store some smaller items like a shortwave radio, a tablet, phone or even an old laptop you have digital information stored on protected.

Check all Vehicles and Electronics: Check everything, Cars, phones, computers, lights, generators and anything you have that could be useful in the coming months and possibly more.

Take an inventory of your equipment including everything you have that is not electronic. What you actually have and what you think you have could be two different things. What you don't have you will need to go out and get as quickly as possible.

Spend your money: This is a major reason for having cash on hand. The ATM's will be out of order and everything you have in the bank will be gone for all intents and purposes.

Money will lose its value very quickly, and available supplies will disappear even quicker. It's time to take advantage of being a prepper, you know more than the average person how this is going to turn out so get what you can while you can.

Your security Plan: Just about everyone who commented on the Prep Drill said they would bug in because there was really no benefit to bugging out. I tend to agree unless you have you bug out location ready to go.

If you do choose to bug in have a plan in place if things go from bad to worse. Having windows and doors locked and barricaded might seem like overkill in the beginning, but eventually the supplies will run out and so will everyone patience.

Make sure everyone in your home knows the plan and how to react to certain situations. If you have family in different areas have a plan for everyone to be in one place.

Fill Everything With Water: Take every opportunity you can to collect water, even if it means just the residual water you can get out of the pipes. Having water already stored is a good head start, but that water will only last so long.

This is an area we are lacking, we have water stored, but I still haven't installed a manual well pump. I am currently saving the money to get an Earth Straw and I am hoping nothing like this happens before I get the opportunity.

Communications: Depending on the situation and the severity of the damage you will want to get information about the situation as quickly as possible. An NOAA Radio that has been stored in a faraday cage or is unaffected could give you information about how wide spread the problem is.

A short wave radio could help if the entire United States grid was down and you needed to get information from other countries that were not affected.

HAM radio could be affective if you know the right channels and your equipment is unaffected. This is another area I am lacking in, I have my technician's license, but I haven't done enough to make this a valuable tool…I'm getting there.

Consider Hygiene issues: As the weeks and months go on trash and waste will become an issue. Consider what you are going to do with human waste, consider what you will do with the trash that piles up and consider what everyone else is doing with their waste and trash.

Bad hygiene and unsanitary conditions can lead to sickness and death, most people won't even give this a second though until the smell becomes too unbearable to handle.

Work with your neighbors: I have read conflicting ideas on this, but it's my opinion that if you can prepare your neighbors, they become less of a threat to you.

There is power in numbers and while you should not disclose everything you have, you should try to get a better perspective about what skills and resources your neighbors have and try to pull them to your side, rather than the dark side.

Don't underestimate the situation

Most people will be scurrying around dazed and confused about the situation. These people will be waiting for the power to magically come back on. Underestimating the situation will be dangerous because it gives a false sense of security and the more action we take initially will help us down the road.

There are a lot of things we can try to be 100% prepared for, and a lot of things that regardless how much we prepare times are going to be rough. An electric grid failure is one of these things. The failure of the grid from an EMP or a solar flare will only be the first domino to fall, the events following will be chaotic and dangerous to say the least…but this is why we prepare right?

Make sure and read the article from FutureScience.com and also this one from HappyPreppers.com Both have a ton of information and will give you a better idea how to prepare for an EMP or CME.

What would you do?

Leave us a comment below about what your plan of action would be.

THE MOST COMMONLY FORGETTEN ITEM FOR EMP PROTECTION…LIGHTS!

EMPMARCH 27, 2014BY TRAVIS

Many preppers protect their critical electronic devices from Electromagnetic Pulse (EMP) using a variety of sealed metal containers to serve as Faraday cages. An EMP is a strong radio wave pulse that results from a high altitude nuclear detonation or specialized EMP weapons, known as ebombs. This EMP would destroy nearly every piece of modern electrical equipment, such as two-way radios, computers, and the complex electrical power grid. Placing critical electronics inside sealed metal containers, such as metal trash cans with tight fitting metal lids, is the only way to fully protect electronics. However, many preppers forget that one of the most important force multipliers is very susceptible to an EMP…lights! Lighting is a force multiplier because a prepper equipped with proper lighting post SHTF will be able to provide enhanced security and conduct more work at obscure times. The following are two critical forms of lights that must be included in any Faraday cage for EMP protection:

Compact Fluorescent Lamps (CFL) Bulbs – These low wattage, high output bulbs would be critical for preppers if the electric grid goes down because they could easily be powered with power inverters (another item for the Faraday cage) to provide light for security and inside the home. Unfortunately, CFL bulbs have a ballast that contains a number of sensitive electronic componentsCompact-Fluorescent-Bulb-272x300 susceptible to an EMP.

Light Emitting Diode (LED) Flashlights – These flashlights are superior for the prepper because they last for a very long time on a single set of batteries and

The bulbs themselves last nearly forever without burning out. However, the bulbs themselves are a semiconductor, a very sensitive electrical component that would be fried by an EMP.