

POST EVENT SURVIVAL

Whenever I give a presentation on Weapon's Effects, or Sheltering or anything that suggests a nuclear event, without exception, I always, have someone say, "I'm just going to go stand underneath it". They seem to believe that no one can survive a nuclear exchange and that the dying process would be so horrible as to justify suicide.

I read the end of the book—and I'm sure most of you read the same book,--and life doesn't end that way. If a nuclear event cannot be survived, then it just won't happen. However, if it **IS** survivable, then it just May happen.

What if we do Survive?

Let's assume it happened. What if we do survive? Many people, in particular, those living outside the area of primary targets, will survive the immediate effects of a nuclear weapon, --but then, **because they haven't made the proper preparations**, they'll succumb to the aftermath.

Post event survival is Dependent on Pre-Event Preparations:

People prepared to survive a nuclear attack are prepared for most any other disaster. So, I'm directing this discussion to survival after a nuclear event.

TACDA Academy

All preceding chapter lessons in the TACDA Academy should be rolled into this lesson. The TACDA Academy is free to everyone, and is available on the TACDA.org website.

We are assuming that proper preparations have now been made against nuclear warfare, and that all of you have a basic understanding of:

- sheltering
- survival equipment
- food and water supplies
- emergency sanitation
- winter survival
- cooking
- alternative power sources
- fairly good understanding of survival without power and normal infrastructure capabilities

Principles of Protection: Time Distance Shielding

Remember that time, distance, and shielding are concepts that work in our favor. **Shielding** takes precedence during the first two weeks; while

Time is progressing.

7/10 rule slide

We should remain in our shelters for at least two weeks. That is because a seven fold increase in time results in a 10 fold decrease in radiation levels. After 7 hours from the time of detonation, 90% of the gamma radiation has decayed. After 2 days there is another decay of 90%, and after 2 weeks there is an additional decay of 90%.

Gamma Radiation

We know that this decay is for gamma radiation, only. Not alpha and beta. Alpha and beta persist for a much longer time. We'll discuss alpha and beta later in this presentation. Gamma will only be an issue if there are "ground bursts".

Fallout from airbursts is minimal. Steel shelters with arched roofs can easily survive 50 psi. We would expect that blast levels (even at ground zero from an air burst) would not exceed 50 psi. In a 1½ mile radius from ground zero, radiation from neutron activation may persist beyond the 2 week period. If you are within that area, you can either choose to remain in your shelter until further decay takes place, or, when it's safe to do so, you can travel to a safer **distance** from the contaminated area. If you are that near to a primary target, make sure that you have prepared a secure, safe destination with shelter and supplies to facilitate all members of your group.

Decontamination:

Radiological defense manuals, published by FEMA suggest that after leaving the sheltered area, we can begin the process of reconstructing our lives and decontaminating our living spaces.

- hosing down or sweeping driveways and sidewalks
- plowing and scraping radiation from the garden areas
- vacuuming carpets
- washing clothing in a washing machine
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Reality Check

We, at TACDA, question this logic.

These procedures may be possible in a limited exchange and if there has been no loss of power by EMP. However, it seems much more likely that there will be no water in our water hydrants, no gasoline for our cars or tractors, and no power or water for our vacuums and washing machines. If there's a limited exchange, or a small terrorist attack, after leaving our shelters we should **evacuate the area and leave the decontamination efforts to the trained military experts.** In a full-scale exchange, we'll be left on our own. We'll need to do the best we can with what we have.

Make sure that you were a mask, and protective clothing, before making any

decontamination efforts. Beta contamination can cause burns like a sun burn. Inhaling the dust will cause internal damage from both beta and alpha. Before re-entering your shelter or home, brush the dust off your equipment and clothing and wash exposed areas of your skin with soap and water.

Radiation Sickness penalty chart

We've previously talked about the levels of radiation that are survivable without hospitalization. A level under 150 Rads in a one week period is said to be survivable without hospitalization.

10 rads/hr

If the hourly rate does not exceed 10 R/hr at any time during that week, the weekly accumulation will most likely not reach the 150 R level. If the radiation level in your shelter exceeds 10 R/hr, add additional shielding, or move to a safer place of the shelter.

Heavier doses of radiation can be survived as well, depending on the person's physical condition prior to the incident. Areas of the body most at risk are the bone marrow cells and the lining of the intestinal tract.

Symptoms

Some of the symptoms of radiation sickness are:

- nausea,
- vomiting
- diarrhea
- headache
- dizziness
- fatigue.

Anxiety

These symptoms are **also** the symptoms of anxiety, fear, and grief. Don't assume radiation sickness if these symptoms persist for a while as they may just be the result of emotional trauma.

Treat the symptoms as you would other gastrointestinal disturbances and seek medical help if it is available.

Housing:

It would seem likely that there would be mass evacuations from areas of high fallout accumulation. Homes in low blast regions could still be used.

- Plastic and staple guns should be used to repair windows and doors.

- Heavy canvas tents, such as are used by the military, would be useful, as they will allow for the use of wood stoves.
- People who camp and have the needed camping supplies would be much more likely to survive. Most underground shelters would not need much additional heating or cooling.
- Shelters, as described in Chapter 3 of the TACDA Academy, could be lived in indefinitely.
- Building materials could be scavenged from damaged homes. Construction will only be possible if tools (not power tools) had been stored in a safe place from the blast.

Vitamins & Minerals:

Thyroid Blocking Agents (TBA) tablets should be started as soon after the nuclear attack as possible and taken for 90 days. Purchase the TBA and consult your physician now, for proper dosages for you and your family. People with thyroid problems may not be able to take TBA, therefore make sure your physician is aware of any thyroid irregularities you may have. The thyroid is always 'looking' for iodine and cannot distinguish between pure iodine and the radioactive isotope. TBA fills the thyroid with healthy iodine and prevents the uptake of radioactive form of the isotope. The thyroid will only accept iodine in certain forms. TBA is formulated with potassium and the proper isotope of iodine. **Don't take iodine internally in any other form.** TBA is a medicine, and has some side affects. TBA should only be taken in the event of a nuclear disaster.

A deficiency of vitamin C could cause symptoms of scurvy within 4 to 6 weeks. Store a year's supply of vitamin C as well as other multi vitamins and minerals. Purchase vitamin C in the crystalline form for long-term storage. Use sprouted seeds or beans as an expedient method in providing this vitamin. Instructions are given in the book, Nuclear War Survival Skills.

Note the list of medical pharmaceuticals and "over the counter" supplies suggested in the TACDA Academy.

Gardening & Farming:

People in low fallout areas that have received no blast may have opportunity to cover small plots with plastic before the fallout begins to arrive. If you intend to garden, store large rolls of plastic. People living in areas of low fallout accumulation may be able to plant crops the next season.

Fallout does not penetrate the top layers of the soil unless there has been heavy rain during the first two weeks. Small plots of land could be

scraped of the upper few inches of contaminated soil and planted. The contaminated soil containing the fallout should be moved away from the garden area. It seems unlikely that there would be any large farming activities for some time.

Storage of non-hybrid seeds is extremely important. Hybrid seeds will not reproduce quality fruit. Seeds last several years if stored covered in airtight containers in a cool, dry area.

Don't Plant

Some plants producing calcium (such as broccoli and cauliflower) will take up radioactive strontium 90 because of its chemical similarities to calcium. If we eat the food containing the radioactive strontium, the strontium will be deposited in our bones. Liming of acid soil will reduce this uptake.

Do Plant

If possible, in areas of significant fallout deposition, plant foods with low calcium content such as

- potatoes,
- cereal,
- apples,
- tomatoes,
- peppers,
- sweet corn,
- squash and cucumbers.

Farming implements should be stored in a safe place and protected from blast.

Crops, which are in the early stages of growth in heavy fallout areas, may absorb radioactive materials through their **leaves or roots** and would be difficult to decontaminate.

Animals

If possible, animals should be put under cover before fallout arrives and should not be fed contaminated food and water. Stack hay on the sides of the barn, leaving space for the animals on the interior. Farm animals can be slaughtered if they don't appear to be sick. **The bones and internal organs**, however, should be removed and disposed of before cooking the meat. The animal may have been foraging on plants and grasses contaminated with Strontium 90. Strontium 90 looks chemically much like calcium. The bone cannot differentiate between Strontium and

Calcium and will deposit the Strontium into the bone. If we cook the meat with the bones, the strontium will then be deposited into our bones. Eggs from poultry can be eaten. If the bird does not look sick, poultry can be eaten but remove the bones. Strontium will persist in the bones.

Hunting and Foraging:

Deer, elk, and other wild animals can be eaten if they do not appear to be sick. Discard the organs and bones of all animals before cooking. Fish from streams and lakes, such as trout and perch can be eaten. Bottom feeders such as carp and catfish should **not** be consumed.

Many people are confused about the kinds of food that can be eaten after a nuclear event.

Fallout from a nuclear explosion consists of tiny particles of dirt and debris fused with fission products. Alpha and Beta particles in the fallout can persist for long periods of time and will contaminate all food to which it comes in contact. On the other hand, gamma radiation from the fallout is not a particle and does not contaminate food. Gamma radiation is actually used to purify food. Our challenge will be in differentiating between foods that can and cannot be cleansed and decontaminated of alpha and beta particles. Most gamma radiation will not persist beyond two weeks after the nuclear event.

Foods to eat

Fruits and vegetables harvested from fallout zones in the first month post-attack may need to be decontaminated before consuming. Foods can be decontaminated by washing exposed parts, removing outer leaves and then peeling. FEMA material has stated that most vegetables and fruits that can be washed and peeled can safely be eaten. If the nuclear event were to occur at harvest time, you could still harvest smooth, hard skinned vegetables and fruits such as apples, potatoes, carrots, squashes, and any other fruits and vegetables you could both wash and peel.

Foods not to eat

You should not harvest 'fuzzy' fruits such as raspberries, strawberries, or peaches. Cauliflower and broccoli should not be eaten from the garden because of the uneven nature of their outer layers.

If fallout contamination is suspected, the package or can should be wiped or washed before opening. Meats and dairy products that are wrapped or kept within closed showcases or refrigerators will most likely be free from contamination. Refrigerated foods should be eaten first, then food from the freezer as it thaws, and then packaged or canned foods.

Water is the most important element of survival. Once the short term storage has been depleted, we will need to forage for water.

Water can be found in hot water heaters and wells. Hand pumps which will pump from as deep as 200 feet are available through Amish catalogs. Emergency water clarification, filtration and purification methods were discussed in a previous lesson. Take particular note in that lesson, of the expedient water clarification method utilizing clay, terry cloth and gravel for the filter. The clay acts to bind the radioactive particles, leaving the clarified water ready for purification. Use your imagination and be creative when foraging for water. Purchase a good water filter.

We cannot overly express the importance of storing a year's supply of food. The basic storage items, as suggested by Dr. Robinson, are easily and inexpensively purchased. Use that method as a basis for your storage.

Emergency Sanitation

During times of emergency, when normal sanitation methods of food, water, garbage, trash, and sewage may be disrupted, it is critical that rules and procedures be established to safeguard proper health or disastrous results may be experienced.

Proper management of toilet facilities during times of emergency may have a greater affect on your health than any other single element of sanitation. Bacterial infections such as typhoid and dysentery can be just as devastating as the earthquake or flood that caused the emergency. Refer to lesson #7 (Water & Sanitation) for further details.

Garbage may sour, decompose, breed bacteria, or attract insects and small animals, --rubbish (trash) will not. Garbage, or any mixed refuse containing garbage, must be carefully stored and handled if odor and insect nuisances are to be prevented. Since rubbish (trash) alone is fairly easy to dispose of, garbage should be kept separate from trash.

Please review lesson #7 (Water and Sanitation) for further information on garbage, trash and sanitation methods.

Communications

It is likely that most, if not all, of the radio stations would be off the air. Blast and EMP would damage many radios, and power most probably would not be restored for long periods of time. Some small communities (in particular those on hydro power) could restore their power earlier than others.

Amateur radio capabilities would be limited to high frequencies in the 40 to 80 meter range. High frequency radios are not dependent upon relay stations. Relay stations are vulnerable to EMP and would not be functional for relaying information. The very high frequency (VHF), two-meter and FM radios would be limited to 'line of sight' until relay stations

could be restored. Hams typically keep spare parts and would have knowledge of EMP protection, which would put them on the air long before commercial units.

Several days after an EMP, interference will be minimal, and radios featuring AM frequencies should pick up stations as far away as Europe.

Underground steel shelters offer good (not perfect) EMP protection, and most radios require outside antennas to receive properly from inside steel shelters. Assuming your shelter is connected to the grid, however, you should receive a signal by holding a transistor radio (AM stations, only) near a power cord, even after the power grid has failed.

Many people have CB capabilities. Some of our chapters currently exercise a monthly exercise for CB and amateur radio operators. Radiation levels and other important information could then be transmitted to other TACDA chapter members.

Heat and light

Diesel generators would be useful until the fuel has been depleted. A battery system with solar panels for recharging, or a small hydro generator would be a more practical solution for long-term recovery. Wood or coal burning stoves and fuel storage should be part of every home's emergency systems. Coal stores well if placed between a straw blanket and covered with dirt. Please note that wood-burning stoves may not withstand the heat generated from coal. If your stove can withstand coal fuel it will be printed in the stove documentation material.

Transportation (cars)

Fuel would be difficult to replenish. Vehicles with computerized ignitions could be damaged by the electro magnetic pulse (EMP). EMP simulations have indicated that older cars manufactured before 1965, and newer cars manufactured after the year 2000 may remain functional. If your vehicle does not start, try removing the battery cables for a few minutes, and then reattaching them. This may re-set the computerized ignition (you may want to store a wrench of the correct size in your car). Bicycles, wagons, horses, and carts would become very valuable. Please refer to the chapter lesson on '*Alternative Energy Sources*' for further information.

Dogs Security:

Not enough can be said about security. Cities may release their prisoners from jails and prisons to fend for themselves. Dogs may form roaming packs, looking for food and livestock. Your security systems will most likely not function. A family dog may be your best alert system. Be prepared to guard your homes and supplies. There's safety in numbers.

Good neighbors(who have made proper preparations) would be a great source of comfort and protection.

Survival Skills

Our latest Journal of Civil Defense has been dedicated to emergency Alternative Shelter Systems. We hope you will read it carefully. A wonderful source of information on survival skills is found in the before mentioned book, '*Nuclear War Survival Skills*'. Instructions for six different expedient shelters are included along with directions for the construction of an inexpensive fallout radiation meter.

Conculsion

It will take some time, but our greatest goal must be to bring back a feeling of community. There must, somehow, be an organized effort to bring back constitutional law. A civil society can only be restored if we develop feelings of fellowship and service to others.