HOW TO SURVIVE THE NEXT NUCLEAR ATTACK

TABLE OF CONTENTS

THE MYTHS OF NUCLEAR ATTACKS

A nuclear war is indeed a catastrophe, a tragedy so huge it is difficult to envision. Even so, it would be far from the end of human life on earth. The dangers of nuclear weapons have been distorted and exaggerated, for varied reasons. These exaggerations have become demoralizing myths, believed by millions of Americans.

Therefore, before giving detailed instructions on how to survive the next nuclear attack, we will examine the most harmful of the myths about nuclear war dangers, along with some of the grim facts.

Myth: Fallout radiation from a nuclear war would poison the air and all parts of the environment. It would kill everyone.

Facts: When a nuclear weapon explodes near enough to the ground for its fireball to touch the ground, it forms a crater. Thousands of tons of earth from the crater of a large explosion are pulverized into

trillions of particles. These particles are contaminated by radioactive atoms produced by the nuclear explosion.

These particles are carried up into a mushroom-shaped cloud, miles above the earth. These radioactive particles then fall out of the mushroom cloud, or out of the dispersing cloud of particles blown by the winds thus becoming fallout.

Each contaminated particle continuously gives off invisible radiation, much like a tiny X-ray machine while in the mushroom cloud, while descending, and after having fallen to earth. The descending radioactive particles are carried by the wind like the sand and dust particles of a miles-thick sandstorm cloud except that usually they are blown at lower speeds and in many areas the particles are so far apart that no cloud is seen.

The largest, heaviest fallout particles reach the ground first, in locations close to the explosion. Many smaller particles are carried by the winds over tens to thousands of miles before falling to earth.

At any one place where fallout from a single explosion is being deposited on the ground in concentrations high enough to require the use of shelters, deposition will be completed within a few hours.

The smallest fallout particles those tiny enough to be inhaled into a person's lungs are invisible to the naked eye.

Only where such tiny particles are promptly brought to earth by rain- outs or snow-outs in scattered "hot spots," and later dried and blown about by the winds, would these invisible particles constitute a long-term and relatively minor post-attack danger.

The air in properly designed fallout shelters, even those without air filters, is free of radioactive particles and safe to breathe except in a few' rare environments.

Fortunately for all living things, the danger from fallout radiation lessens with time. The radioactive decay, as this lessening is called, is rapid at first and then gets slower and slower. The dose rate (the amount of radiation received per hour) decreases accordingly.

Within two weeks after an attack the occupants of most shelters could safely stop using them, or could work outside the shelters for an increasing number of hours each day. Exceptions would be in areas of extremely heavy fallout such as might occur downwind from important targets attacked with many weapons, especially missile sites and very large cities.

To know when to come out safely, occupants would either need a reliable fallout meter to measure the changing radiation dangers, or on the results of measurements made with a reliable instrument, nearby.

The fatal radiation dose varies considerably from one person to the next. Exposing the body to a dose of fallout radiation of 450 R is often said to be lethal, although studies show even less can be deadly .

Myth: A heavy nuclear attack would set practically everything on fire, causing "firestorms" in cities that would deplete the oxygen in the air. All shelter occupants would be killed by the intense heat.

Facts: On a sunny day, thermal pulses (heat radiation that travels at the speed of light) from an air burst can set fire to flammable materials (such as window curtains, upholstery, dry newspaper, and dry grass) over about as large an area as is damaged by the blast. It can cause second-degree skin burns to people within a ten mile radius from a one-megaton (1 MT) explosion.

If the weather is very clear and dry, the area of fire danger could be considerably larger. On a cloudy or smoggy day, however, particles in the air would absorb and scatter much of the heat radiation, and the area endangered by heat radiation from the fireball would be smaller than the area of severe blast damage.

Myth: Food and water will be poisoned leading to starvation and death even in areas with abundant resources.

Facts: As long as fallout particles do not mix with the food, there is no harm done. Food and water in dust-tight containers are not contaminated by fallout radiation. Peeling fruits and vegetables removes essentially all fallout, as does removing the uppermost several inches of stored grain onto which fallout particles have fallen.

Some water sources -- such as deep wells and covered reservoirs, tanks, and containers -- would not be contaminated. Even water containing dissolved radioactive elements and compounds can be made safe for drinking by simply filtering it through earth.

Myth: Most of the unborn children and grandchildren of people who have been exposed to radiation from nuclear explosions will be

genetically damaged. They will be malformed, collateral victims of nuclear war.

Facts: The authoritative study by the National Academy of Sciences, A Thirty Year Study of the Survivors of Hiroshima and Nagasaki, was published in 1977. It concludes that the incidence of abnormalities is no higher among children of parents exposed to radiation during the attacks on Hiroshima and Nagasaki than that of children born to un-exposed parents.

This is not to say that there would be no genetic consequences. But, in the absence of conclusive scientific findings, fears of radiation damage to future generations are unfounded.

Myth: Blindness and an alarming increase of cancers would be the fate of nuclear war survivors. Nuclear explosions would destroy so much of the protective ozone layer that ultraviolet light reaching the earth's surface would blind even birds or insects. For years thereafter, people would not be able to work outdoors, in the daytime, without dark glasses and protective clothing to prevent incapacitating sunburn. Plants would be badly damaged and food production significantly reduced.

Facts: Large nuclear explosions do inject send out huge amounts of nitrogen oxides (gasses that destroy ozone) into the stratosphere. However, the percent of the stratospheric ozone destroyed by a given amount of nitrogen oxides has been greatly overestimated in almost all theoretical calculations and models. For example, the Soviet and U.S. atmospheric nuclear test explosions of large

weapons in 1952-1962 were calculated by Foley and Ruderman to result in a reduction of more than 10 percent in total ozone.

Yet observations they cited showed no reductions in ozone. Nor did ultraviolet increase. Other theoreticians calculated sizable reductions in total ozone, but interpreted the observational data to indicate either no reduction, or much smaller reductions than their calculated ones.

A realistic simplified estimate of the increased ultraviolet light dangers to American survivors of a large nuclear war equates these hazards to moving from San Francisco to sea level at the equator, where the sea level incidence of skin cancers (seldom fatal) is highest- about 10 times higher than the incidence at San Francisco.

Many additional thousands of American survivors might get skin cancer, but little or no increase in skin cancers might result if in the post-attack world deliberate sun tanning and going around hatless went out of fashion.

Furthermore, almost all warheads today are smaller than those used in the tests mentioned above; most would emit much smaller amounts of ozone-destroying gasses, or no gasses, into the stratosphere, where ozone deficiencies may persist for years.

And nuclear weapons smaller than 500 kilotons result in increases (due to smog reactions) in upper tropospheric ozone. In a nuclear war, these increases would partially compensate for the upper-level tropospheric decreases.

THE BEST THING YOU CAN DO TO SURVIVE

Since the Nagasaki bomb was not all that different from those that might be encountered in a limited war or terrorist operation, you could survive a similar blast even if you're just a mile from ground zero.

Of course the farther you are from ground zero, the better off you'll be. For this reason, **one good survival strategy is to be away from areas that could represent potential targets**.

Washington, DC, New York City, or other big cities may be glamorous, but if street crime isn't enough to turn you away, high nuclear threat should at least make you think twice.

Large harbors, military complexes, or other strategic facilities might also be in danger. Moving as far away as possible is the first and best thing you can do to keep your family safe from the dangers of a nuclear attack.

A good shelter can be the ticket to your survival.

WHAT TO EXPECT AND HOW TO REACT

Extremely bright lights

Advice

Never look toward a nuclear flash. The intense light will burn into your retina creating blind spots. You will begin to see spots similar to those you see when you look at a very bright light, only the damage will be permanent.

Even if you don't look directly at the flash, the intense light reflected from light colored surfaces may still dazzle your eyes. If you're driving or doing anything that absolutely requires that you see, stop immediately; this will keep you from having to "drive by braille" when the bright light goes away and you're left in "snow blindness" for a short time.

Although such blindness will only be temporary, tooling down the road at 55 MPH or running a buzz saw while you're "in the dark" isn't too good of a survival strategy.

If you absolutely must see your way to a safe place, to avoid complete "snow blindness", keep only one eye open and close the other eye to protect it from permanent damage. If possible, however, cover both eyes at the first sign of the flash.

There are two immediate dangers you'll have to face after the initial flash of a nearby nuclear weapon: the pulse of radiation after the bright light and the blast wave travelling behind it.

You will only have a few seconds to look for safety. Fortunately, the light is the first sign of the whole spectrum of radiation after a nuclear explosion. This gives you some time before the more dangerous thermal, gamma, and neutron radiation reach peak levels and start travelling away from the blast.

It’s time to take cover. Quick reactions will be very effective in minimizing radiation exposure and burns from the thermal pulse.

Advice

Stay down for two minutes. If the blast wave is going to be dangerous, in two minutes it will pass. (Of course, if there are multiple explosions, wait two minutes after the last flash.)

The blast wave poses multiple threats. Indoors, even at a distance from the blast glass shattering is the worst concern. Closer to ground zero, flying debris like plaster or chunks of wood are equally dangerous. The blast itself can send YOU flying if you don't have the

sense to get down. Take cover behind something strong enough to protect you from thermal radiation or blast-hurled missiles.

Advice

If you're out in the open when a flash alerts you to a nuclear attack, you might still have a chance. Dive into a ditch or other depression and if that's not possible, **cover your head and lie down, your feet pointing toward the blast**; this position will keep you from being blown away and your shoes will protect your feet (which are less vulnerable than your head to begin with).

Advice

After the "two minute wait", get up and head for permanent cover. Turn the radio on and listen for further information while you pack to head for the nearest shelter.

Avoid the windows at all times. A multi-megaton explosion even a hundred miles away, has enough force to shatter glass and send it flying through the air.

The sound of explosions - The thunderous booms of the initial explosions would be heard over almost all parts of the United States. Persons one hundred miles away from a nuclear explosion may receive their first warning by hearing it about 7 $^{1/2}$ minutes later.

Loss of electric power and communications - If the lights go out and you find that many radio and TV stations are suddenly off the air, continue to dial if you have a battery-powered radio, and try to find a station that is still broadcasting.

RADIOACTIVE FALLOUT: A REAL DANGER

If a nuclear weapon is detonated near the ground, fallout will be raining down into your area. In such a case you're probably better off hunkering down and waiting until the levels of radiation outside have dropped.

This is especially true if you have a large stock of supplies and perhaps a fallout shelter (even if it's only improvised in a corner of your basement); if so, you might want to consider ignoring official orders to evacuate and going it alone. Staying put you can protect your home from looters, who may try to take advantage of the confusion.

What is fallout?

Radioactive fallout is created when the suction wave of the blast carries matter upward with the vacuum created by the nuclear fireball as it rises. If the explosion is close to the ground, the matter

sucked from the surface of the earth moves into the fireball and is incinerated by the intense heat. (This dust is the "stem" that gives ground bursts their mushroom shape.)

As the debris is pulled up into the nuclear explosion, it's exposed to the radiation produced by the chain reaction; this exposure induces radioactivity in the debris. As this molten, now radioactive debris continues upward, it cools off and solidifies into small particles, which gradually fall back to earth. These particles are radioactive fallout.

Fallout travels upward a long way; it takes quite a while for it to fall back down. Even close to ground zero, it will take at least 15 minutes for large sand- to pea-sized pieces of fallout to return to the earth.

Smaller pieces, falling farther downwind from ground zero, will take longer with the very smallest of particles remaining airborne for days, weeks, months, or even years as they are blown farther and farther by high altitude winds.

The lag time it takes for the fallout to arrive on the ground is a big plus which many are unaware of. Because of the time needed before fallout can reach the ground, areas down range which will eventually receive dangerous levels of fallout will remain free of radioactive particles for up to several hours following a nuclear blast.

This gives you time to make last minute preparations ,travel to a safer location if you're caught away from home during the attack or even pick up the children from school if they are close by. You'll have at least 15-20 minutes and more likely an hour or more.

Because large particles of fallout will arrive before the smaller ones, you'll not have trouble spotting fallout unless you're so far down wind that only small particles will be arriving many hours or even days later.

Fallout can come in a variety of forms and colors (due to its composition and depending on the material at ground zero): white, gray, black ash or popcorn like particles will shower down after an explosion. You'll be able to recognize it for what it is. When the fallout starts to arrive, you must take cover as soon as possible (ideally, you should be inside well before fallout starts).

FALLOUT PROTECTION

1. If you are forced to be in the open, keep radioactive fallout off your skin and clothing by brushing it off. Cover your head and wear a wet handkerchief over your face to keep from inhaling the dust. **Remember**: any time spent in the fallout will greatly lower your chances of survival. Find any kind of shelter as soon as you can.

2. During the critical time before fallout arrives, since you don't know how much time you really have, stay focused. Do first things first. Remember communication will be disrupted, buildings may be destroyed, many people will be panicked and/or injured.

   Be prepared to look out only for yourself and your family. If you really care about people who fail to prepare, tell them NOW how to survive, because during a nuclear attack it will be impossible to save everyone; During such a time of panic and confusion, you'll need to be careful whose ideas you listen to. This includes many "authorities" who are completely ignorant of what a nuclear attack would be like. School officials, your boss, policemen, national guard troops, etc., may all be giving orders and instructions which lead to your death or the death of your loved ones. Ignore the chaos and go about your business of surviving as quickly as possible.

3. If you're away from home and can't get back to your family shelter, don't seek shelter someplace packed with people. This includes all US "public fallout shelters" which, as most readers know, are at present only signs on public buildings (the exception to this rule are shelters created for Congress which have been and continue to be fully stocked). To put it bluntly, public shelters are potential death traps.
4. If you travel a lot, or work some distance from your home, then a bugout bag of essentials would greatly improve your chances

as well. This bag can be kept in a closet or locker at your place of work or in the trunk of your car.

5. If you prepare ahead of time, you can minimize potential thermal pulse and blast damage to your home. One important point is to choose a home with a light colored roof and exterior paint (both are especially important on wood frame houses); light colors reflect both light and heat making your home more fire resistant to the thermal pulse of a nuclear weapon.

   Avoid a weathered wood exterior on your home and don't paint it a dark color. Brick or stone facings are first choice both for the added shielding they give from radiation as well as their resistance to thermal damage.

PROTECTION AGAINST OTHER NUCLEAR WEAPONS EFFECTS

1. **Flash burns** are caused by the intense rays of heat emitted from the fireball within the first minute following an explosion. This thermal radiation travels at the speed of light and burns everything in its path before the arrival of the blast wave.

Thermal radiation is reduced but not eliminated if it passes through rain, dense clouds, or thick smoke. On a clear day, a 20-megaton explosion 25 miles away can cause serious flash burns to a person's exposed skin.

A covering of clothing preferably of white cloth that reflects light can reduce or prevent flash burns on those who are in a large part of an area in which thermal radiation is a hazard. However, in areas close enough toground zero for severe blast damage, the clothing of exposed people could be set on fire and their bodies badly burned.

2. Fires ignited by thermal radiation and those resulting from blast and other causes especially would endanger people pinned down by fallout while in or near flammable buildings.

3. Flash blindness can be caused by the intense light from an explosion tens of miles away in clear weather. Although very disturbing, the blindness is not permanent; most victims recover within seconds to minutes.

Flash blindness may be produced by scattered light; the victim of this temporary affliction usually has not looked directly at the fireball. Flash blindness would be more severe at night, when the pupils are larger.

Retinal burns, a permanent injury, can result at great distances if the eye is focused on the fireball. People inside any shelter with no openings through which light can shine directly would be protected from flash burns and eye damage. Persons in the open with adequate warning of a nuclear explosion can protect

themselves from both flash blindness and retinal burns by closing or shielding their eyes. They should get behind anything casting a shadow quickly.

THE POPCORNING EFFECT

When exposed grains of sand and particles of earth are heated very rapidly by intense thermal radiation, they explode like popcorn and pop up into the air. While this dust is airborne, the continuing thermal radiation heats it to temperatures that may be as high as several thousand degrees Fahrenheit on a clear day in areas of severe blast.

Then the shock wave and blast winds arrive and can carry the burning-hot air and dust into an open shelter. Animals inside open shelters have been scarred and seriously burned in some of the nuclear air-burst tests in Nevada.

Japanese working inside an open tunnel- shelter at Nagasaki within about 100 yards of ground zero were burned on the portion of their skin that was exposed to the entering blast wind, even though they were protected by one or two turns in the tunnel. (None of these Japanese workers who survived the blast-wave effects had fatal burns or suffered serious radiation injuries, which they certainly would have suffered had they been outside and subjected to the thermal pulse and the intense initial nuclear radiation from the fireball.)

Experiments conducted during several nuclear test explosions established the amount of thermal radiation that must be delivered to exposed earth to produce the pop corning effect. Large air bursts

of hot dust and heated air produced at overpressure ranges as low as 3 or 4 psi will burn the skin.

However, calculations indicate it would take higher pressures to affect those in small, open shelters, so Americans are less likely to suffer surface bursts.

It's simple to protect yourself from the heated dust and very hot air that may be blown into an open shelter by the blast. When in a shelter, expecting an attack, keep towels or other cloths in hand. When you see the bright light from an explosion, cover your heads and exposed skin. If time and materials are available, make expedient blast doors.

When occupants see the very bright light from a large explosion miles away, they can close and secure such doors before the arrival of the blast wave several seconds later.

SHOULD YOU STAY OR SHOULD YOU GO?

Evacuate if:

- You live in a highest-risk or high-risk area.
- You have means of transportation (a car and enough gasoline), and the roads to a considerably lower-risk area are open.
- You are in fairly good health or have someone capable of taking care of you.

- Your community does not depend on you doing your job (such as a policeman, fireman, or telephone operator).
- You have some tools with which to build or improve a fallout shelter. You also have water containers, food, clothing, etc. adequate to live elsewhere.

Stay if:

- You live outside a risk area and can build or improvise a fallout shelter.
- You have no means of transportation or the roads will likely be blocked by the time you decide.
- You are sick, decrepit, or lack the will to try to survive if things get tough.
- Your community depends on you.
- You lack the tools and skills for a successful evacuation

The Evacuation

Loading Procedure - Load the car with some items from each category, taking only what you can safely carry. Remember to leave room for all passengers.

Survival Information: Shelter building and other nuclear survival instructions, maps, all available small battery-powered radios and extra batteries, a fallout meter and writing materials.

Tools: Shovel, pick, saw (a bow-saw is best), ax or hatchet, file, knife, pliers, and any other tools useful for building a fallout shelter. Remember to have work gloves.

Shelter-Building Materials: Rain-proofing materials (plastic, shower curtains, cloth, etc.) as specified in the instructions for the type of shelter planned. Also, unless the weather is very cold, a homemade shelter-ventilating pump or the materials to build one.

Water: Small, filled containers plus all available large polyethylene trash bags, smaller plastic bags and pillow cases, water-purifying material such as Clorox, and a teaspoon for measuring.

WATER PURIFICATION METHODS

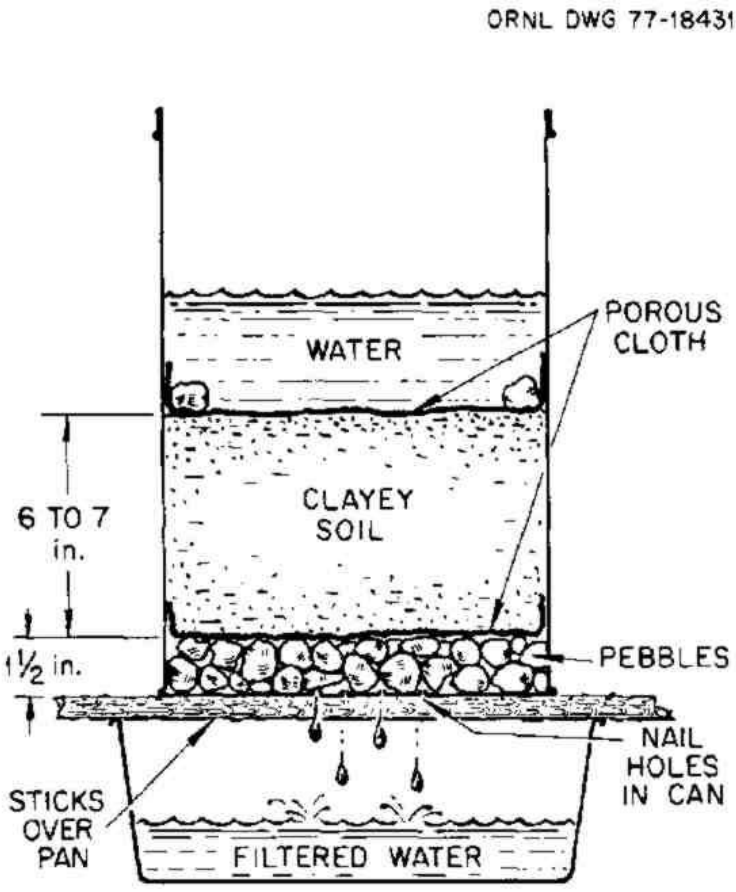
The dangers of drinking fallout contaminated water could be greatly lessened filtering fallout particles and dissolved radioactive material.

Unfortunately, in areas of heavy fallout, just under 2% of the radioactivity of the fallout particles contained in the water is dissolved in water. If the remaining radioactive fallout particles could be removed through filtering or settling methods, fewer casualties would result from using fallout-contaminated water.

Filtering

Filtering through earth removes essentially all of the fallout particles and more of the dissolved radioactive material than does boiling-water distillation, a generally impractical purification method that does not eliminate dangerous radioactive iodines.

Earth filters are also more effective in removing radioactive iodines than are ordinary ion-exchange water softeners or charcoal filters. In areas of heavy fallout, about 99% of the radioactivity in water is removed by filtering it through ordinary earth.



EXPEDIENT FILTRATION

To make a simple, effective filter as the one shown above, the only materials needed are those found in and around the home. To build this filter follow the steps below:

1. Perforate the bottom of a 5-gallon can, a large bucket, a watertight wastebasket, or a similar container with about a dozen nail holes. Punch the holes from the bottom upward, within 2 inches of the center.

2. Place a layer about 1 inch-thick washed pebbles or small stones on the bottom of the can. If pebbles are not available, twisted coat-hanger wires or small sticks can be used.

3. Cover the pebbles with a terrycloth towel, burlap sackcloth, or something similar. Cut the cloth in a roughly circular shape about 3 inches larger than the diameter of the can.

4. Take soil containing some clay - almost any soil will do - from at least 4 inches below the surface of the ground. (Nearly all fallout particles remain near the surface except after falling on sand or gravel.)

5. Scatter the soil, then gently press it in layers over the cloth that covers the pebbles, so that the cloth is held snugly against the sides of the can. Do not use pure clay (not porous enough) or sand (too porous). The soil in the can should be 6 to 7 inches thick.

6. Completely cover it with fabric as porous as a bath towel. This is to keep the soil from being eroded as water is poured into the filtering can. The cloth will also remove some of the particles from

the water. A dozen small stones placed on the cloth near its edges will adequately secure it in place.

7. Support the filter can on rods or sticks placed across the top of a container that is larger in diameter than the filter can. (A dishpan will do.)

Pour the contaminated water into the filter can, preferably after allowing it to settle as described below. The filtered water should be disinfected as shown later in this chapter.

If the 6 or 7 inches of filtering soil is a sandy clay loam, the filter initially will deliver about 6 quarts of clear water per hour. (If the filtration rate is faster than about 1 quart in 10 minutes, remove the upper fabric and recompress the soil.) After several hours, the rate will be reduced to about 2 quarts per hour.

When the filtering rate becomes too slow, remove and rinse the surface fabric, remove about 1 inch of soil, and replacing the fabric. To increase efficiency and make the most of your filter, let muddy water settle in a different container. After about 50 quarts have been filtered, replace the used soil with fresh soil.

Settling

Settling is one of the easiest methods to remove most fallout particles from water. If the water is muddy or murky, settling it before filtering will extend the life of the filter. Follow these steps:

1. Fill three quarters of a bucket or other deep container with contaminated water.

2. Dig pulverized clay or clayey soil from a depth of four or more inches below ground surface, and mix it into the water. Use about a 1-inch depth of dry clay or dry clayey soil for every 4-inch depth of water. Stir until practically all the clay particles are afloat.

3. Let the clay settle for at least 6 hours. The settling clay particles will carry most of the suspended fallout particles to the bottom and cover them.

4. Carefully dip out or siphon the clear water, and disinfect it.

Settling and Filtering

Although dissolved radioactive material is usually only a minor danger in fallout-contaminated water, if you have an earth filter, it would be safe to additionally filter it. Finally, the water should be disinfected.

Disinfecting water

Water-borne diseases would probably kill more survivors of a nuclear attack than would fallout-contaminated water. If, before an attack, you store water from a municipal source in potentially unclean containers, disinfect it before using it.

For long storage, it is best to disinfect all water, since even a few organisms may multiply rapidly and give stored water a bad taste or odor. Properly disinfected water remains safe for many years if stored in thick plastic or glass containers sealed, airtight. For multi-year storage, do not use thin plastic containers, such as milk jugs, because with time they often leak.

Any household bleach solution, such as Clorox, that contains sodium hypochlorite as the only active ingredient, may be used as a source of chlorine for disinfecting. The amount of sodium hypochlorite, usually 5.25%, is printed on the label. Add 1 scant teaspoonful to each 10 gallons of clear water, and stir. Add 2 scant teaspoonful if the water is muddy or colored. Wait at least 30 minutes before drinking, to allow enough time for the chlorine to kill all the microorganisms.

To disinfect small quantities of water, put 2 drops of household bleach containing 5.25% sodium hypochlorite in each quart of clear water. Use 4 drops if the water is muddy or colored. If a dropper is not available, use a spoon and a square-ended strip of paper or thin cloth about ¼ inch wide by 2 inches long.

Put the strip in the spoon with an end hanging down about 2 inch beyond the end of the spoon. Then, when bleach is placed in the spoon and the spoon is carefully tipped, drops the size of those from a medicine dropper will drip off the end of the strip.

As a second choice, 2% tincture of iodine can be used. Add 5 drops to each quart of clear water, and let stand 30 minutes. If the water is cloudy, add 10 drops to each quart. Commercial water purification tablets should be used as directed.

If neither safe water nor chemicals for disinfecting it are available during a crisis, store plenty of the best water at hand, even muddy river water - mud settles in a few days. Even in a crowded shelter you can find ways to boil water. Boiling it for even one minute kills

all types of disease-causing bacteria. Boiling for 10 to 20 minutes is required to kill some rarer infective organisms.

Peacetime valuables: Money, credit cards, negotiable securities, valuable jewelry, checkbooks, and the most important documents kept at home. (Evacuation may be followed not by nuclear war, but by continuing unstable nuclear peace.)

Light: Flashlights, candles, materials to improvise cooking-oil lamps (2 clear glass jars of about 1-pint size, cooking oil, cotton string for wicks, kitchen matches, and a moisture-proof jar for storing matches).

Clothing: Cold-weather boots, overshoes, and warm outdoor clothing (even in summer, since after an attack these would be unobtainable), raincoats and ponchos. Wear work clothes and work shoes.

Sleeping Gear: A compact sleeping bag or two blankets per person.

Food: Food for babies (including milk powder, cooking oil, and sugar) is the highest priority. Choose compact foods that require no cooking. Include at least one pound of salt, available vitamins, a can and bottle opener, a knife, and 2 cooking pots with lids (4-qt size preferred). For each person: one cup, bowl, and large spoon. Also, a bucket stove, or minimum materials for making a bucket stove: a

metal bucket, 10 all-wire coat hangers, nails, and a cold chisel or screwdriver.

Sanitation Items: Plastic film or plastic bags in which to collect and contain excrement; a bucket or plastic container for urine; toilet paper, tampons, diapers, and soap.

Medical Items: Aspirin, a first-aid kit, all available antibiotics and disinfectants, special prescription medicines (if essential to a member of the family), potassium iodide, pare eyeglasses, and contact lenses.

Miscellaneous: Two square yards of mosquito netting, insect screen, or insect repellents; just in case you might have to hide out for a while, consider bringing a favorite book or other pass-time materials.

ESSENTIAL LIFE-SUPPORT EQUIPMENT

Shelters can give excellent protection against all nuclear weapon effects, except in places within or very close to cratered areas. But most shelters would be of little use in areas of heavy fallout unless ocupants have enough life-support equipment to stay in the shelters until it's safe outside.

In heavy fallout areas, most reliable shelters would be crowded; except in cold weather, most would need a ventilating pump to remove warmed air and bring in enough cooler outdoor air to maintain survivable temperature-humidity conditions.

HOW TO TURN YOUR HOME INTO AN ADEQUATE SHELTER

Terracing around your home can add a lot of shielding to a basement - creating a potential make-do shelter in the process. Such work can be very attractive and can even improve the value of your home if you sell it.

Some types of trees, shrubs, and grass are more resistant to fire and can be planted around your house. Evergreens tend to be more flammable than deciduous trees and are best avoided in areas very close to targets (where a thermal pulse could set the trees on fire).

Your lawn shouldn't turn brown in the fall (Bermuda grass is especially bad about this). And be sure to keep dead bushes, piles of leaves, etc., well away from your house so that they can't catch fire from a thermal pulse. For the same reason, don't stack firewood next to your home and keep the garage free of stacks of old newspapers and cardboard boxes.

Since a nuclear blast can turn windows into jagged daggers, it's wise to take some steps to minimize this danger. One way to prevent this is to tape an "X" across each window pane.

Cloth tape is best for this, but multiple layers of scotch tape, clear packing tape, or contact "paper" (which is actually plastic) over glass panes will also help if you're worried about how your windows look to the neighbors. Best bet is to replace glass with plastic in bedrooms or other areas where you may not be able to react quickly to an oncoming blast. Most hardware stores stock clear plastic that can be used in windows.

White reflects light; that means white drapes, curtains, or shades are better than darker colored window coverings when it comes to reflecting a nuclear thermal pulse. These light colors will reflect much of the light and thermal pulse back out your windows and might even save you from a potential fire indoors.

After the nuclear blasts have occurred, take the following steps to prevent further damage to your home, while you're in your shelter. If there is danger of freezing temperatures, it's a good idea to drain the water from the pipes pipes to keep them from rupturing and damaging the inside of your house.

Repair any light damage to your house after a nuclear blast is also a good idea if it can be done quickly before fallout enters your area. Windows and doors can be sealed with large strips of plastic or duct tape to minimize the entrance of fallout dust.

Shutters or large sheets of plywood might be used to close up windows and keep out looters. Doors and windows can even be nailed shut but be sure to leave an escape from your home quickly should there be a house fire or similar disaster.

SAVE YOURSELF AND OTHERS

Stay inside

Curiosity and ignorance will probably cause many people to come out of shelters a few hours after an attack warning, if no blast or obvious fallout has endangered their area. This is dangerous because several hours after all missiles have been launched the first enemy bombers may strike.

To ensure no targets are spared, nuclear bombs could be dropped during the first several days after the first attack. **Most people should stay inside their shelters for at least two or three days**, even if they are far from a probable target and even if fallout meter readings show there is no danger. The only exception to this rule applies for people who find themselves in substandard shelters and need to move or improve their surroundings.

Information received from distant radio stations regarding changing fallout dangers, advising when and for how long to leave the shelter can be unreliable. Weather conditions such as wind speed would cause fallout dangers to vary with distance. If not forced by thirst or hunger to leave shelter, they should depend on their own fallout meter readings or on radiation measurements made by neighbors or local civil defense workers.

PSYCHOLOGICAL PREPARATIONS

The more one knows about the dangers of nuclear weapons, the strengths and weaknesses of human beings, the better the chance of survival. Terror, a self-destructive emotion, is almost always the result of unexpected danger.

Some people would think the end of the world was upon them if they happened to be in an area downwind from surface bursts of nuclear weapons that sucked millions of tons of pulverized earth into the air.

They might give up all hope if they did not understand what they were seeing. People are more likely to survive if they learn in advance that such huge dust clouds, particularly if combined with smoke from great fires, may turn day into night, as have some volcanic eruptions and the largest forest fires.

People also should expect thunder to crash in strange clouds, and the earth to shake. The sky may be lit with the flickering purples and greens of "artificial auroras" caused by nuclear explosions, especially those that are miles above the earth.

FEAR

Fear is often a life-saving emotion. When we believe death is close at hand, fear can increase our ability to work harder and longer. Driven by fear, we can accomplish the impossible. Trembling hands, weak legs, and cold sweat do not mean that a person has become ineffective.

Doing hard, necessary work is one of the best ways to keep one's fears under control. Brave men and women who are self-confident admit their fears, even when the threat of death is remote. Then they plan and work to lessen the causes of their fears.

TERROR

If the danger is unexpected or great enough, people sometimes experience terror as well as fear. Terror prevents the mind from evaluating dangers and thinking logically. It develops in two stages. The first stage is apathy: people become indifferent to their own safety and are unable to even try to save themselves or their families. The second stage is a compulsion to flee.

Anxiety, fear, and terror can result in symptoms very similar to those caused by radiation injury: nausea, vomiting, extreme trembling and diarrhea.

However, people who understand their reactions and control their behavior are less likely to become ineffective in the event of a nuclear attack.

GETTING HELP

The atomic explosions that destroyed most of Hiroshima and Nagasaki were air bursts and therefore produced no deadly local fallout. Therefore, we cannot know for sure how people behave in areas subjected to both blast and fallout from surface bursts.

However, the reactions of the Japanese survivors are encouraging, especially since among them the relative number of severely burnt victims was greater than is likely to be found among a population that expects a nuclear attack and takes any sort of shelter.

FINAL THOUGHTS

This guide is not intended to scare or convince you of an immediate danger of nuclear attack. Instead, it is destined to prepare and advise you in case such a disaster might occur. It is always better to be prepared today, than to regret being caught off-guard tomorrow.