

Fact Sheet

Nuclear Blast

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FEMA

A nuclear weapon detonation causes an intense blast, intense light and heat, and direct radiation. The blast causes a damaging wave of air pressure. Detonation at or near ground level creates a large airborne cloud of radioactive particles that can contaminate the air, water, and ground surfaces for miles around as radioactive fallout. The heavier particles fall first, nearer the site of the explosion.

A very high altitude burst can create an electromagnetic pulse (EMP) that can disable electrical and electronic equipment and systems of all kinds. A nuclear device can range from a weapon carried by an intercontinental ballistic missile launched by a hostile nation, to a small portable nuclear device transported by an individual or terrorist organization. All nuclear devices cause deadly effects when exploded, including blinding light, intense heat (thermal radiation), initial nuclear radiation, blast, fires started by the heat pulse, and secondary fires caused by damage to electrical and natural gas lines, stoves and furnaces, and fallout radiation.

Know Your Risk and What to Do

- Contact your local emergency management office to learn about emergency plans.
- Get additional information from the U.S. Department of Homeland Security (www.ready.gov), the American Red Cross (www.redcross.org) and the Centers for Disease Control and Prevention (www.bt.cdc.gov).
- Inquire about emergency plans and procedures at your child's school and at your workplace.
- Make a family disaster plan that includes out-of-town contacts and locations to reunite if you become separated. Be sure everyone knows home, work and cell phone numbers, and how to call 9-1-1.
- Assemble a 3-day disaster supplies kit with food, water, medical supplies, battery-powered radio and NOAA Weather Radio All Hazards, batteries, flashlights, and other items. If you have space and you are concerned about situations that might require lengthy shelter, consider storing food and water supplies for up to a month. For more information about assembling a disaster supplies kit, visit www.fema.gov/areyouready/.
- Gather important documents such as birth and marriage certificates, social security cards, passports, wills, deeds, and financial and insurance records. Store them in a fire and flood safe location or safe deposit box.

Know the Terms

The three factors for protecting oneself from radiation and fallout are distance, shielding, and time.

- **Distance** - the more distance between you and the fallout particles, the better. A floor near the middle of a high-rise may be better, depending on what is nearby at that level on which significant fallout particles would collect. Flat roofs collect fallout particles so the top floor is not a good choice, nor is a floor adjacent to a neighboring flat roof.
- **Shielding** - the heavier and denser the materials - thick walls, concrete, bricks, and banked earth - between you and the fallout particles, the better. An underground area such as a home or office building basement usually offers more protection than the first floor of a building.
- **Time** - fallout radiation loses its intensity fairly rapidly. In time, you will be able to leave the fallout shelter. Radioactive fallout poses the greatest threat to people during the first two weeks. By that time it would decline to about 1 percent of its initial radiation level.

Before a Nuclear Attack

- Find out from officials if any public buildings in your community have been designated as fallout shelters. If none have been designated, make your own list of potential shelters you might use near your home, workplace, and school. These places would include basements or the windowless center area of middle floors in high-rise buildings, as well as subways, tunnels and underground level food courts.

Before a Nuclear Attack (continued)

- If you live in an apartment building or high-rise, talk to the manager about the safest place in the building for sheltering and about providing for building occupants until it is safe to go out.
- During periods of increased threat increase your disaster supplies to be adequate for up to two weeks (or up to one month if you are concerned about situations that might require lengthy shelter).
- Being ready to take shelter immediately during a nuclear attack threat is absolutely necessary.
- There are two kinds of shelters - blast and fallout.
- If you live within 10 or 15 miles of a likely strategic target, consider finding a possible shelter that could be upgraded by blast mitigation steps such as strengthened external doors, several underground floors, earthen berms to deflect blast waves, etc.

During a Nuclear Attack

If an attack warning is issued:

- Take cover as quickly as you can, below ground if possible, and stay there until instructed to do otherwise.
- Listen for official information and follow instructions.

If you are caught outside and unable to get inside immediately:

- Do not look at the flash or fireball—it can blind you.
- Take cover behind anything that might offer protection, such as depressions, behind berms or ridges, or in mines and caves that engineers have declared usable for that purpose. Avoid places that channel wind, for example under overpasses or in subway entrances. They make blast waves more intense, like a wind tunnel.
- Lie flat on the ground, in a low spot if immediately possible, and cover your head. If the explosion is some distance away, it could take 30 seconds or more for the blast wave to hit.
- Take shelter as soon as you can, even if you are many miles from ground zero where the attack occurred - radioactive fallout can be carried by the winds for hundreds of miles and remain aloft for weeks. Remember the three protective factors: distance, shielding, and time.

After a Nuclear Attack

- Decay rates of radioactive fallout are the same for any size nuclear device. However, the amount of fallout will vary based on the size of the device, its proximity to the ground and the nature of the terrain at the point of detonation. Therefore, it might be necessary for those in the areas with highest radiation levels to shelter for up to a month.
- The heaviest fallout would be limited to the area at or downwind from the explosion, and 80 percent of the fallout would occur during the first 24 hours.
- People in most of the areas that would be affected could be allowed to come out of shelter within a few days and, if necessary, evacuate to unaffected areas.

The Recovery Process

- For direct assistance to individuals and families for immediate needs contact the American Red Cross or other local voluntary agencies.
- Check radio, television, internet and newspapers for emergency instructions.
- If you have property damage, contact your insurance company as well as the FEMA Disaster Recovery Center as soon as possible.
- For information on helping children deal with disaster, visit www.fema.gov or get a copy of FEMA 478 **Helping Children Cope with Disaster**. To obtain other fact sheets and publications call the FEMA publications warehouse at 1-800-480-2520.

Dangerous Nuclear Attack Myth!	The Facts:
You can tell what is contaminated by radioactive material because it glows.	Radiation cannot be seen, smelled, or otherwise detected by human senses. Radiation can only be detected by radiation monitoring devices. Listen to radio and television for news about what to do, where to go, and places to avoid.