Sharp Ink

U.S. DEPARTMENT OF DEFENSE, FEDERAL EMERGENCY MANAGEMENT AGENCY

HOW TO SURVIVE A NUCLEAR ATTACK

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Sharp Ink Publishing
2022
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ISBN 978-80-282-1266-7

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Foreword

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A nuclear detonation in the United States is one of the most catastrophic incidents imaginable. While the United States Government is working domestically and with international partners to ensure this scenario never occurs, failing to plan for managing the consequences of such an event would be irresponsible.

Should a nuclear detonation occur, a crucial task for Federal, State, local, tribal and territorial authorities and private-sector organizations will be communicating clear and consistent messages to the public. All levels of government have responsibility for coordinating and communicating information regarding the incident to the public immediately after a nuclear detonation. State, local and tribal authorities retain the primary responsibility for responding to large-scale incidents, such as a nuclear detonation. Effectively communicating health and safety instructions to the population will be a critical factor in building trust, comforting the nation, saving lives and minimizing injury.

This document was developed as a resource for emergency responders and federal, state, and local officials communicating with the public and the media during the immediate aftermath of a nuclear detonation in the United States. An interagency group of communications and radiation technical experts developed the messages in this document, which include key messages for the impacted community and the nation, and anticipated questions and answers for distribution to the public in the immediate aftermath of a nuclear detonation.

Since the 2010 interim use version of the document, the message content was reviewed by state and local

responders and tested for comprehension through a series of public focus groups. The document was also reviewed by the Advisory Team for Environment, Food and Health, which is a radiological emergency response group tasked with providing protective action recommendations to state and local governments on behalf of its member agencies, including the Centers for Disease Control and Prevention (CDC), Food and Drug Administration (FDA), United States Department of Agriculture (USDA) and the Environmental Protection Agency (EPA). FEMA's Federal, State and local Nuclear/Radiological Communications Working Group also participated in the review and update of this document. The final document takes into account all of the feedback received during these reviews.

Ideally, there will never be a need for these messages; however officials at all levels of government have a responsibility to the American people to be prepared to respond and communicate effectively in the event of any type of national emergency, including a nuclear detonation.

Introduction

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The goal of this document is to aid responders in providing information and life-saving instructions to the public in the immediate aftermath of an Improvised Nuclear Device (IND) instructions to the public in the immediate aftermath of an Improvised Nuclear Device (IND) hour period when Federal assistance is expected to arrive and assist the local response forces.

People who receive specific instructions for appropriate actions following an IND attack will be more likely to make effective and prompt decisions to maximize their safety. The underlying mission of this messaging document is to share as much relevant information as possible to maximize public health and safety following a nuclear detonation.

Specifically, this document is designed as a tool for Federal, State, local, tribal and territorial officials and emergency responders who will interact with the media and the public following an IND incident. The pre-scripted key messages and questions and answers included in this document focus on saving lives and minimizing injury as well as addressing the concerns of the nation as a whole. If used across all levels of government, the message consistency and accuracy will also build confidence and trust in the government’s response to the incident.

The anticipated questions are arranged by relevance to preserving health and safety of populations affected by the nuclear explosion. This document also contains several appendices, including 1) Federal jurisdiction following IND explosion, 2) Basic risk communications principles, 3) Example radio and social media templates for use after an IND explosion, 4) Responses to additional emergency response related questions, 5) A list of volunteer

organizations and 6) Acknowledgement of the groups that developed and reviewed this document.

While the details of a nuclear incident will vary by its size and location, the issues addressed in this document are universally applicable to any nuclear detonation. While other official sources of messaging may prove useful in the days and weeks following an IND attack, this document is a key resource for officials at all levels of government communicating with the public or media immediately following an IND incident.

“ Improvised Nuclear Device Response and Recovery: Communicating in the Immediate Aftermath” is meant to be used in combination with the“Planning Guidance for Response to an Improvised Nuclear Detonation” (2nd edition, published in June 2010 by the National Security Staff and Interagency Policy Coordination Subcommittee for Preparedness and Response to Radiological and Nuclear Threats).“Communicating in the Immediate Aftermath” builds from the nuclear incident response recommendations in the“Planning Guidance” and provides life saving instructions that need to be conveyed after an IND detonation.

The information in “Communicating in the Immediate Aftermath” provides messages vitally important to saving lives during a response to a nuclear explosion. While this document does not include instructions for pre-event disaster awareness, the guidance in this document can be used for basic disaster education.

Nuclear Blast

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A nuclear blast is an explosion with intense light and heat, a damaging pressure wave, and widespread radioactive material that can contaminate the air, water, and ground surfaces for miles around. A nuclear device can range from a weapon carried by an intercontinental missile launched by a hostile nation or terrorist organization, to a small portable nuclear devise transported by an individual. 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 the destruction.

Hazards of Nuclear Devices

The extent, nature, and arrival time of these hazards are difficult to predict.The geographical dispersion of hazard effects will be defined by the following:

- Size of the device. A more powerful bomb will produce more distant effects.
- Height above the ground the device was detonated. This will determine the extent of blast effects.
- Nature of the surface beneath the explosion. Some materials are more likely to become radioactive and airborne than others. Flat areas are more susceptible to blast effects.
- Existing meteorological conditions. Wind speed and direction will affect arrival time of fallout; precipitation may wash fallout from the atmosphere.

Radioactive Fallout

Even if individuals are not close enough to the nuclear blast to be affected by the direct impacts, they may be affected by radioactive fallout. Any nuclear blast results in some fallout. Blasts that occur near the earth's surface create much greater amounts of fallout than blasts that occur at higher altitudes. This is because the tremendous heat produced from a nuclear blast causes an up-draft of air that forms the familiar mushroom cloud. When a blast occurs near the earth's surface, millions of vaporized dirt particles also are drawn into the cloud. As the heat diminishes, radioactive materials that have vaporized condense on the particles and fall back to Earth. The phenomenon is called radioactive fallout. This fallout material decays over a long period of time, and is the main source of residual nuclear radiation.

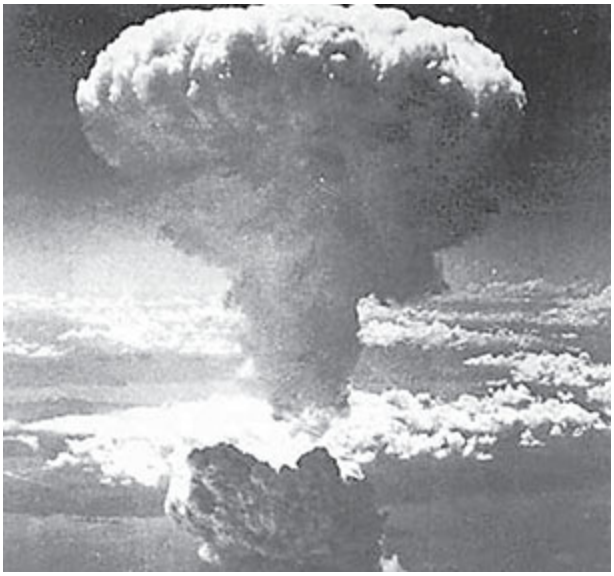
Fallout from a nuclear explosion may be carried by wind currents for hundreds of miles if the right conditions exist. Effects from even a small portable device exploded at ground level can be potentially deadly.

Nuclear radiation cannot be seen, smelled, or otherwise detected by normal senses. Radiation can only be detected by radiation monitoring devices. This makes radiological emergencies different from other types of emergencies, such as floods or hurricanes. Monitoring can project the fallout arrival times, which will be announced through official warning channels. However, any increase in surface build-up of gritty dust and dirt should be a warning for taking protective measures.

Electromagnetic Pulse

In addition to other effects, a nuclear weapon detonated in or above the earth's atmosphere can create an electromagnetic pulse (EMP), a high-density electrical field. An EMP acts like a stroke of lightning but is stronger, faster, and shorter. An EMP can seriously damage electronic

devices connected to power sources or antennas. This includes communication systems, computers, electrical appliances, and automobile or aircraft ignition systems. The damage could range from a minor interruption to actual burnout of components. Most electronic equipment within 1,000 miles of a high-altitude nuclear detonation could be affected. Battery-powered radios with short antennas generally would not be affected. Although an EMP is unlikely to harm most people, it could harm those with pacemakers or other implanted electronic devices.



Protection from a Nuclear Blast

The danger of a massive strategic nuclear attack on the United States is predicted by experts to be less likely today. However, terrorism, by nature, is unpredictable.

If there were threat of an attack, people living near potential targets could be advised to evacuate or they could decide on their own to evacuate to an area not considered a likely target. Protection from radioactive fallout would require taking shelter in an underground area or in the middle of a large building.

In general, potential targets include:

- Strategic missile sites and military bases.
- Centers of government such as Washington, DC, and state capitals.
- Important transportation and communication centers.
- Manufacturing, industrial, technology, and financial centers.
- Petroleum refineries, electrical power plants, and chemical plants.
- Major ports and airfields.

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. An underground area such as a home or office building basement offers more protection than the first floor of a building. 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, books and earth — between you and the fallout particles, the better.
- **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 which time it has declined to about 1 percent of its initial radiation level.

Remember that any protection, however temporary, is better than none at all, and the more shielding, distance, and time you can take advantage of, the better.

Take Protective Measures

To prepare for a nuclear blast, you should do the following:

- 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 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 and tunnels.
- 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.

Taking shelter during a nuclear blast is absolutely necessary. There are two kinds of shelters — blast and fallout. The following describes the two kinds of shelters:

- **Blast shelters** are specifically constructed to offer some protection against blast pressure, initial radiation, heat, and fire. But even a blast shelter cannot withstand a direct hit from a nuclear explosion.
- **Fallout shelters** do not need to be specially constructed for protecting against fallout. They can be any protected space, provided that the walls and roof are thick and dense enough to absorb the radiation given off by fallout particles.

The following are guidelines for what to do in the event of a nuclear explosion.

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.
- Lie flat on the ground 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. Remember the three protective factors: Distance, shielding, and time.

Decay rates of the radioactive fallout are the same for any size nuclear device. However, the amount of fallout will vary based on the size of the device and its proximity to the ground. 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