

# RADIATION EMERGENCIES

Although rare, radiation emergencies are possible. It is important for the public to prepare in advance, which can help alleviate fear and panic. Follow these steps to protect yourself during a radiation emergency.

## DIRTY BOMB OR RADIOLOGICAL DISPERSAL DEVICE

**Radiological Dispersal Device (RDD):** a device that spreads radioactive contamination.

**Dirty Bomb:** when explosives are used to spread radioactive powder or pellets.

A dirty bomb is not the same as a nuclear weapon and does not have the force and destruction of a nuclear blast. The main danger from a dirty bomb is from the explosion, which may cause serious injuries and property damage.

Immediate serious illness from radiation exposure is very unlikely unless people are extremely close to the blast. Contamination, inhalation, or ingestion of radioactive dust may create an increased risk of illness.

## IMPROVISED NUCLEAR DEVICE OR NUCLEAR WEAPON

**Improvised Nuclear Device (IND):** an explosive nuclear weapon.

While not as powerful as Cold War-era nuclear weapons, improvised nuclear devices can cause significant injury and damage.

A nuclear explosion involves a large blast that produces an intense wave of heat, light, air, and radiation. Anything immediately near the explosion, including buildings, roads, and cars, will be destroyed.

The resulting radioactive dust and debris cloud, known as **fallout**, can be carried long distances before falling to the ground. This can expose many individuals to high levels of radiation.

## INDUSTRIAL ACCIDENT

Industrial incidents involving radiological materials may be accidental or intentional. Radioactive material used for commercial, industrial or medical purposes could be released from its protective container. The radiation risk to individuals who are not immediately close to the accident is low.

## NUCLEAR POWER PLANT ACCIDENT OR INCIDENT

Nuclear power plants have protections in place to prevent the release of radiation. However, a serious incident could allow some radiation to escape, most likely as a plume of steam carried by the wind.

The risk to residents would depend on plume size, direction, and wind speed. Parts of Maryland lie within a 10-mile radius of two nuclear power plants: the Calvert Cliffs Nuclear Power Plant in Calvert County and the Peach Bottom Atomic Power Station in southern Pennsylvania. These areas are known as **plume exposure zones** and could be affected if a plume of radiation were released during an accident or attack.

Additionally, parts of the state are less than 50 miles from four other plants in Pennsylvania, New Jersey, and Virginia. These areas, known as **ingestion pathway zones**, could be affected by contaminated food or water in a radiation emergency.



# RADIATION EMERGENCIES

## RADIOLOGICAL EXPOSURE DEVICE

**Radiological Exposure Device (RED):** a terrorist threat intended to expose people to significant radiation without their knowledge. Also called a hidden sealed source.

A Radiological Exposure Device is constructed from an unprotected radioactive material. It could be hidden in a public place, exposing those who sit or pass close by to potentially harmful levels of radiation.

If the radioactive contents are released from the container, the device could be capable of causing radiological contamination.

## WHAT ARE THE HEALTH EFFECTS OF RADIATION?

The health impact of radiation exposure depends upon the type of radiation, length of exposure time, and protection provided by surrounding materials.

**Short-term effects:** could impact the brain, skin, intestines, and blood system.

**Long-term effects:** could include an increased risk of cancer.

Any emergency, including those involving radiation, can cause emotional and psychological distress. Many more people will experience the mental health effects than the physical effects during a radiation emergency.

## WHAT PROTECTIVE ACTION CAN I TAKE?

- **Follow the directions of local and state authorities**
- **Stay together if you are with family, friends, or pets.** Notify authorities of your location, names of yourself and those you are with, and serious injuries or medical problems
- **Reduce the amount of time you are exposed to or contaminated by radioactive dust**
- **Seek safe shelter to protect yourself from radiation exposure**
  - *In a building:* stay there as long as it is not damaged. Seek an interior room and close all windows and doors. Turn off fan systems (heating, air conditioning)
  - *Outside:* Seek a safe building for shelter
  - *Do not leave safe shelter until advised by first responders and authorities*
- **Reduce radioactive contamination**
  - *Cover your nose and mouth with a cloth* to avoid inhaling radioactive dust. Only remove the face cover once you are in a safe place and have thrown away contaminated clothes
  - *Throw out clothing which may be contaminated.* Place the clothing in a plastic bag and store away from others
  - *Seek a safe internal room* in a building after discarding your outer clothing
  - *Avoid eating and drinking food or fluids which could have been contaminated.* Eating or drinking from sealed containers is okay if the outer surfaces have been cleaned of contamination
  - *Wash exposed skin* or shower to reduce external contamination of your body

## MORE INFORMATION

 [preparedness.health.maryland.gov](http://preparedness.health.maryland.gov)

 [facebook.com/MarylandOPR](https://facebook.com/MarylandOPR)

 [twitter.com/MarylandOPR](https://twitter.com/MarylandOPR)

 [health.maryland.gov](http://health.maryland.gov)

 [facebook.com/MarylandDHMH](https://facebook.com/MarylandDHMH)

 [twitter.com/MDHealthDept](https://twitter.com/MDHealthDept)



MARYLAND DEPARTMENT OF HEALTH  
Office of Preparedness  
and Response