

Nuclear Power Plant Incidents

Find out what could happen to you. If there is a nuclear power plant in your area, contact the plant's community relations officials or contact local, state, or federal emergency planners. Ask about specific hazards that could affect people in your area, and find out about your area's warning system.

AWARENESS MESSAGES

Why talk about nuclear power plants?

Nuclear power plants operate in most states in the country and produce about 20 percent of the nation's power. Nearly three million people live within 10 miles (16 kilometers) of an operating nuclear power plant.

Nuclear power plants use the heat generated from nuclear fission in a contained environment to convert water to steam, which powers generators to produce electricity. Nuclear radiation is a by-product of nuclear fission, and radioactive particles released into the air can be harmful to people, animals, crops, and the environment.

Although the construction and operation of nuclear power plants are closely monitored and regulated by the Nuclear Regulatory Commission (NRC), accidents at these plants are possible. An accident at a nuclear power plant could release dangerous levels of radiation that could affect the health and safety of the people living near the plant.

What plans are in place in case of an emergency?

Local and state governments, federal agencies, and electric utility companies have emergency response plans that would be activated in the event of a nuclear power plant emergency. The plans define two "emergency planning zones." The first zone covers the area within a 10-mile (16-kilometer) radius of the plant, where it is possible that people could be harmed by direct radiation exposure. The second zone covers a broader area, usually up to a 50-mile (80-kilometer) radius from the plant, where radioactive materials could contaminate water supplies, food crops, and livestock.

Find out if you live in a nuclear power plant "emergency planning zone," and, if you do, determine if you are in the first or second zone. Learn what actions you should take if there is an accident at the nuclear power plant.

What is radiation?

Radioactive materials are composed of atoms that are unstable. An unstable atom gives off its excess energy until it becomes stable. The energy emitted is radiation.

Each of us is exposed to radiation daily from natural sources, including the sun and earth. Small traces of radiation are present in food and water.

Radiation has a cumulative effect. The longer a person is exposed to radiation, the greater the risk. A high exposure to radiation can cause serious illness or death.

What is the potential danger from a nuclear power plant accident?

The potential danger from an accident at a nuclear power plant is exposure to radiation. This exposure could come from the release of radioactive material from the plant into the environment. The area the radioactive material may affect is determined by the amount released from the plant, wind direction and speed, and weather conditions. The major hazards to people in the vicinity are radiation exposure to the body and inhalation and ingestion of radioactive materials.

How can I protect myself in case of a nuclear power plant accident?

The three basic ways to reduce your exposure are through:

- **Time.** Decrease the amount of time you spend near the source of radiation.
- **Distance.** Increase your distance from a radiation source.
- **Shielding.** Increase the shielding between you and the radiation source. Shielding is anything that creates a barrier between people and the radiation source. Depending on the type of radiation, the shielding can range from something as thin as a plate of window glass or as thick as several feet of concrete. Being inside a building or a vehicle can provide shielding from some kinds of radiation.

What is the best source of information in case of a nuclear power plant accident?

If an accident at a nuclear power plant were to release radiation in your area, local authorities would activate warning sirens or another approved alerting system. They would also use the Emergency Alert System (EAS) on local television and radio stations to advise you about how to protect yourself.

ACTION MESSAGES

Be Prepared for a Nuclear Power Plant Accident

CORE ACTION MESSAGES

- **Determine your risk.**
- **Prepare household members.**
- **Learn the alert system.**
- **Make plans and practice them.**

For general preparedness, every household should create and practice a Family Disaster Plan and assemble and maintain a Disaster Supplies Kit. In addition, every household should make specific plans for what to do in the event of a nuclear power plant accident and practice the plans.

- **Learn the terms used to describe nuclear power plant emergencies** so you will quickly understand what actions you and members of your household should take in case of a nuclear power plant accident. See the box below for a list of important terms.
- **Learn about your community's warning system.** Nuclear power plants are required to install sirens and other warnings (for example, flash warning lights) to cover a 10-mile (16-kilometer) area around the plant. Find out when the warning system in your area will be tested. When it is tested, determine if you can hear the sirens and/or see the flash warning lights from your home. If you cannot, contact plant officials and let them know.

- **Obtain public emergency information materials** from the power company that operates your local nuclear power plant or from your local emergency services office. If you live within 10 miles of the power plant, you should receive these materials annually from the power company or your state or local government.
- **Learn the emergency plans for the schools, day care centers, nursing facilities, offices, and other places where members of your household spend time.** Find out where people in these places would go in case of evacuation.
- **Stay tuned to local radio and television stations.** Stay aware of events and conditions in your area by tuning to a local radio or television station.
- **Consider your transportation options in case you have to evacuate.** If you do not own or drive a car, ask your local emergency manager about plans for people without private vehicles.
- **Practice your Family Disaster Plan** and practice the steps recommended by the power company to protect yourself from radiation in the event of a nuclear power plant incident.

See “Evacuation and Sheltering, and Post-disaster Safety” for more information.

Terms Used to Describe a Nuclear Power Plant Emergency

- **Notification of Unusual Event**—A problem has occurred at the plant, but no radiation leak is expected. Federal, state, and county officials will be told right away. No action on your part is necessary.
- **Alert**—A problem has occurred at the plant, and small amounts of radiation could leak inside the plant. This will not affect you. No action on your part is necessary.
- **Site Area Emergency**—A more serious problem has occurred at the plant, and small amounts of radiation could leak from the plant. If necessary, state and county officials will act to ensure public safety. Area sirens may sound. Listen to local radio or television stations for information.
- **General Emergency**—A very serious problem has occurred at the plant, and radiation could leak outside the plant and off the plant site. Area sirens will sound. Listen to local radio or television stations for information. State and county officials will act to ensure public safety. Be prepared to follow instructions promptly.

What to Do During a Nuclear Power Plant Emergency

CORE ACTION MESSAGES

- Follow local instructions.
- Evacuate or stay inside as advised.

- **Listen carefully to the warning.** Not all incidents result in the release of radiation. The incident could be contained inside the plant and pose no danger to the public.
 - **Stay tuned to a local radio or television station.** Local authorities will provide specific information and instructions. The advice given will depend on the nature of the emergency, how quickly it is evolving, and how much radiation, if any, is likely to be released.
 - **Be aware that local instructions should take precedence over any advice given on national broadcasts or in books.**
 - **Review the public information materials you received from the power company or government officials.**
 - **Evacuate if you are advised to do so.**
 - Close and lock doors and windows.
 - Keep car windows and vents closed; use re-circulating air.
 - Listen to a local radio station for evacuation routes and other instructions.
 - Keep your pets with you and take them with you if you evacuate. You will not be allowed to return for them until local authorities say that it is safe to return.
- See chapter on “Evacuation and Sheltering, and Post-disaster Safety” for important details.
- **If you are not advised to evacuate, remain indoors.**
 - Shelter livestock and give them stored feed, if time permits.
 - Bring pets indoors with you.
 - Close doors and windows.
 - Turn off the air conditioner, ventilation fans, furnace, and other air intakes.
 - Go to a basement or other underground area if possible.
 - Keep a battery-powered radio with you at all times.
 - Use the telephone only to report life-threatening emergencies. Lines will be needed for emergency calls.
 - Wash uncovered food before eating it.
 - **If you suspect you have come into contact with radioactive particles:**
 - Take a thorough shower.
 - Change your clothes and shoes.
 - Put exposed clothing in a plastic bag.
 - Seal the bag and place it outside.
 - If you suspect that your pets have also come into contact with radioactive materials, shower with your pet if at all possible. If you shower first and then deal with your pet, you may re-contaminate yourself. Be sure to lather fur and rinse thoroughly. Afterward, keep direct control of your pet to control what it contacts.

What to Do After a Nuclear Power Plant Emergency

CORE ACTION MESSAGES

- Stay where you are until local officials say otherwise.
 - Get medical treatment for unusual symptoms.
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- If you were told to evacuate, do not return home until local authorities say it is safe.
 - If you were advised to stay in your home, do not go outside until local authorities say it is safe.
 - Get medical treatment for any unusual symptoms, like nausea, that may be related to radiation exposure.
 - Until local authorities say it is safe, do not return home or, if you are sheltering at home, do not allow your pets to go outdoors for any reason.

Facts and Fiction

Fiction: People exposed to radiation “glow” with radioactivity.

Facts: Radioactive material can burn the human body, but exposed people do not become radioactive themselves. Radiation never causes a person to “glow.”