



Nuclear Power Plant

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Nuclear power plants produce electricity from the heat created by splitting uranium atoms.

- In the event of a nuclear power plant emergency, follow instructions from emergency responders and elected officials.

About Nuclear Power Plants

In the United States, more than 100 nuclear reactors create electricity. Nuclear energy comes from the splitting of uranium atoms in a process called fission. Fission releases energy in the form of heat. This heat creates the steam that is used to turn a turbine, which generates electricity.

Among the radioactive materials found at nuclear power plants, you will find enriched uranium, low-level waste and spent nuclear fuel.

- **Enriched uranium** is the fuel for nuclear power plants. There may be more than 100 tons of fuel pellets (each about 1 inch long) at a single reactor. One pellet can generate about the same amount of electricity as one ton of coal.
- **Low-level radioactive waste** includes items used at the power plant that become contaminated with radioactive material, such as shoe covers and clothing, wiping rags, mops, filters, reactor water and tools. Low-level waste is stored at the nuclear power plant temporarily. The radionuclides in some waste decay away quickly, allowing it to be disposed of as ordinary trash. When the radionuclides are slow to decay, waste is stored until there is enough waste for shipment to a low-level waste disposal site.
- **Spent nuclear fuel** is what is left when the fuel pellets can no longer go through the fission process. Spent nuclear fuel is highly radioactive and stored in specially designed pools or containers.

Public safety is a high priority when nuclear power plants are planned and built. There are no or very low levels of radioactive materials released during normal operations of nuclear power plants. Such releases do not require any protective actions. The reactor buildings are built to contain the radiation from an accident. Nuclear power plants are required to have plans to deal with emergencies and to practice them regularly.

Rules and Guidance

U.S. NUCLEAR REGULATORY COMMISSION (NRC)

NRC issues operating licenses and writes rules for the safe operation of nuclear reactors and the commercial use of radioactive materials. NRC requires nuclear power plants to monitor the air for radiation and prepare emergency plans. NRC also performs inspections and oversees emergency response programs at companies that have licenses to use radioactive materials.

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

EPA uses its authority from the Clean Air Act to limit the amount of radioactive material released into the air from nuclear facilities. EPA sets limits on radioactive emissions from all federal and industrial facilities. EPA also limits the amount of radiation from the disposal of spent nuclear fuel and high-level radioactive waste.

DEPARTMENT OF HOMELAND SECURITY (DHS), FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

The emergency response plans for nuclear power plants must include the 10 miles around the plant. FEMA evaluates state and local emergency response plans for areas around nuclear power plants.

STATE AND LOCAL AUTHORITIES

Each nuclear power plant must have an emergency response plan for incidents within its boundaries. State and local authorities have emergency response plans for incidents outside the plant. These two kinds of emergency response plans are designed to work together. State and local authorities practice their emergency plans every two years at every commercial nuclear power plant.

What you can do

If you live within 10 miles of a nuclear power plant, learn about its emergency response plan. If there ever is an accident, listen to the radio or television for information and follow instructions from local emergency responders and government officials.

Where to learn more

You can learn more about nuclear power plants by visiting the resources available on the following webpage: <http://www.epa.gov/radtown/nuclear-power-plants.html#learn-more>.