

Attacks on Nuclear Facilities

What kind of damage would this type of attack cause?

Most reactors are encased in concrete shells several feet thick. While not designed to withstand a hit from a modern large (jumbo) airliner, most were designed with aircraft crashes in mind. The crash impact will be considerably lessened before anything can get through to the interior. Reactors have emergency cooling systems that are designed to work even in case of accidents that cut off electric power, and they would greatly reduce the risk of the radioactive central core melting and possible subsequent spreading radioactivity.

What is a “meltdown”?

A meltdown occurs when the water that keeps a nuclear reactor core cooled is lost for an extended time, allowing the ceramic fuel pellets and metal fuel pins that help prevent the accidental release of radioactive material to overheat. To prevent this, nuclear power plants in the United States are designed with the concept of "defense in depth"—that is, several independent backup and redundant systems that operate automatically if there is a loss of coolant from any one of the systems.

What should I do in the event of an attack?

Persons living in the vicinity of a nuclear power plant are advised annually regarding how they should respond and the procedures that they should follow in the event of a nuclear emergency. In general, a system of sirens will be activated to advise citizens to listen to local radio or television announcements for information and safety instructions. The plans also delineate evacuation routes, reception centers for those seeking radiological monitoring, and location of congregate care centers for temporary lodging.

What action is the government taking to prepare for this type of attack?

State and local governments, with support from the federal government and utilities, develop plans that include a plume emergency planning zone within a radius of 10 miles from the plant and an ingestion planning zone within a radius of 50 miles from the plant. Residents within the 10-mile emergency planning zone are regularly disseminated emergency information materials (via brochures, the phone book, calendars, utility bills, etc.). These materials contain educational information on radiation, instructions for evacuation and sheltering, special arrangements for the handicapped, contacts for additional information, etc. Residents should be familiar with these emergency information materials.

What can I do to prepare for this type of emergency?

Special plans must be made to assist and care for persons who are medically disabled or handicapped. If you or someone you know lives within 10 miles of a nuclear facility, please notify and register with your local emergency management agency. Adequate assistance will be provided during an emergency.

Additionally, for those who live near nuclear facilities, the Federal Emergency Management Agency (FEMA) recommends:

- Attend public information meetings. You may also want to attend the meetings that are held after FEMA has conducted a mock emergency exercise, which include the media and the public.
- Contact local emergency management officials, who can provide information about radioactivity, safety precautions, and state, local, industry, and federal plans. Ask about the hazards radiation may pose to your family, especially with respect to young children, pregnant women, and the elderly.
- Learn your community's warning systems.
- Learn emergency plans for schools, daycare centers, nursing homes—anywhere family members might be.
- Be familiar with emergency information materials that are regularly disseminated to your home (via brochures, the phone book, calendars, utility bills, etc.). These materials contain educational information on radiation, instructions for evacuation and sheltering, special arrangements for the handicapped, contacts for additional information, etc.

Sources:

Federal Emergency Management Agency
Environmental Protection Agency

More information on nuclear terrorism including additional fact sheets, backgrounders and reports is available on the CISAC website, <http://cisac.stanford.edu>.