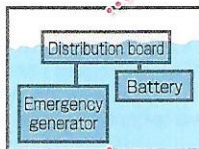
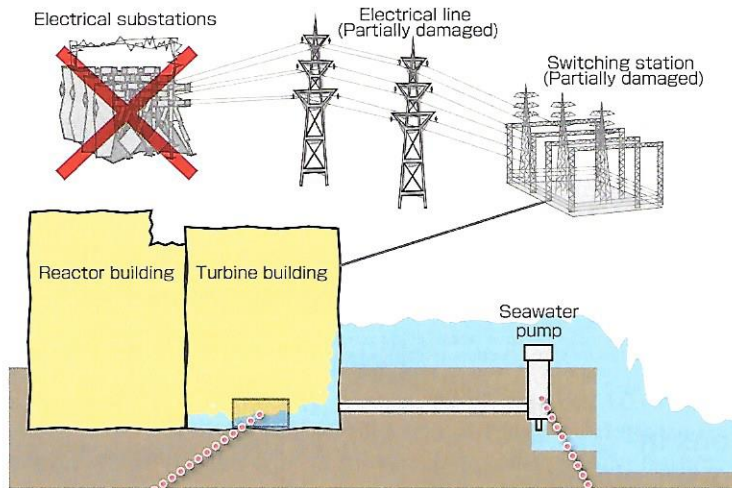


What measures were taken in nuclear power plants after the accident?

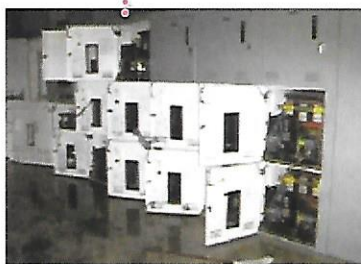
Major causes

At the time of the accident in Fukushima Daiichi Nuclear Power Plant

Facilities including electrical substations were damaged by the earthquake, and the supply of electricity from the outside was discontinued.



Important devices were covered by water due to the tsunami.



Immersed distribution boards

Water entered the buildings and the distribution boards became submerged. The electricity required for the operation of pumps and valves could not be supplied.



Seawater pump damaged by tsunami

The tsunami rushed into the site. The seawater-pump motor was covered by water and became unusable.

Loss of power functions

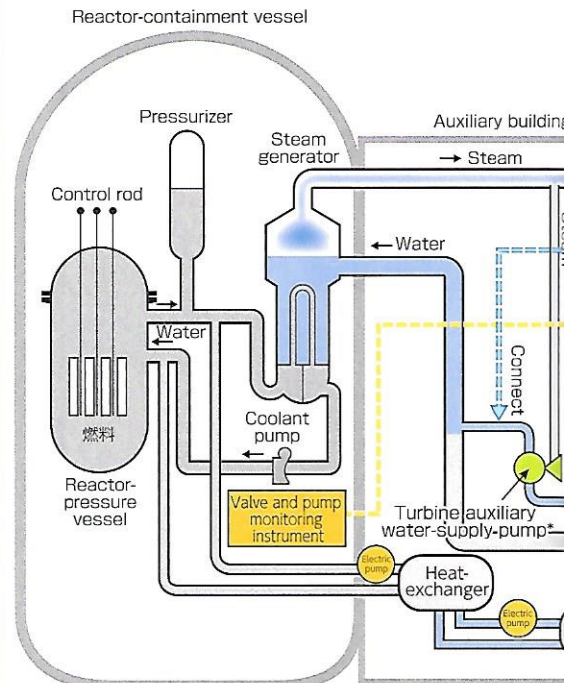
Loss of cooling functions

These conditions made it impossible to cool the reactor.

Countermeasures

Safety measures added to PWRs (Pressurized-water reactors)

(Conceptual drawing)



*Turbine auxiliary water-supply pump = Pump operated by steam from the steam generator that supplies water to the tank

The information and telecommunication network did not function.

Lines were available for connecting with the outside, but communication was not possible. Satellite phones were available, but they could not be fully utilized because operators could not go outside due to the high dose radiation.

- Satellite cell phones have been added. Outdoor antennas were also added to ensure communication even if operators are forced to stay indoors.



Arrangement of satellite-communication system



Outdoor antenna