

■ How does Fukushima differ from Chernobyl?

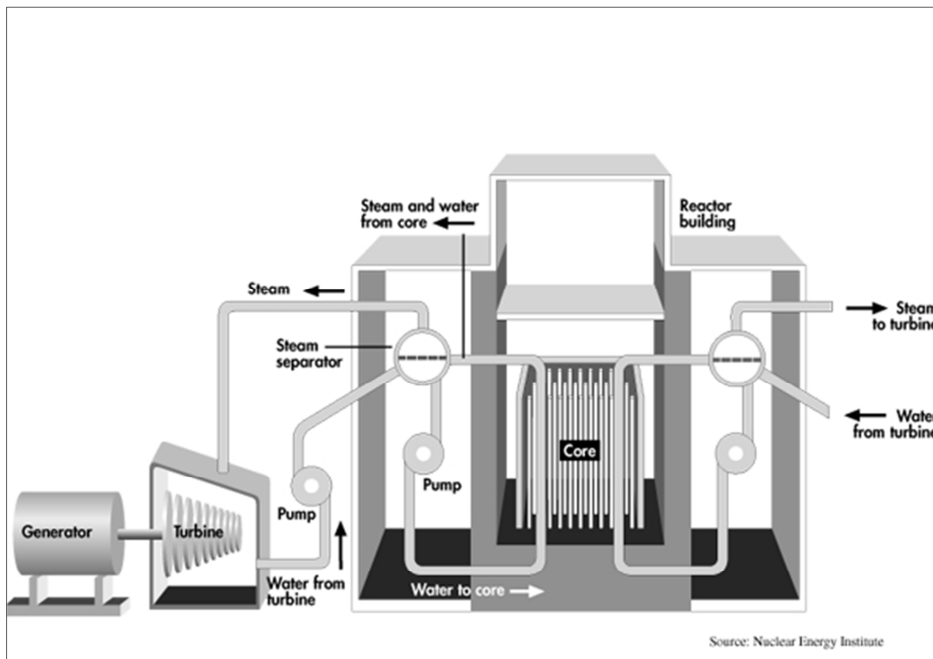
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Category	Fukushima Daiichi accident	Chernobyl accident
Date of accident	11 March 2011	26 April 1986
Main cause	Natural disaster	Human error and design flaws
Accident details	A magnitude 9.0 earthquake and resulting tsunami damaged the plant's power systems and the ultimate heat sink, causing cooling systems to fail. A series of gas explosions followed and the spent fuel pools ran low of water.	Unconventional reactor operations at Chernobyl resulted in a runaway power surge followed by steam and hydrogen explosions and a sustained fire in the reactor. The explosions propelled radioactive material from the reactor core high into the atmosphere and across eastern and western Europe for at least 10 days.*
INES rating	Level 7 - major accident	Level 7 - major accident
Number of reactors	Six; but only three affected, plus spent fuel pools	Four; but only one reactor affected
Type of reactors	Boiling-water reactors (BWR-3 and -4). Unlike Chernobyl, the Fukushima plant has containment structures that prevented dispersal of most of the radioactivity. Also, the reactors at Fukushima do not have a combustible graphite core.	Old Soviet graphite-moderated reactor (RBMK). The graphite made it highly combustible. The reactor also had no robust containment structures and nothing stopped the trajectory of radioactive materials into the air.
Radiation released	Around 15% (770,000 terabecquerels) of radiation released at Chernobyl (as of 7 June) according to Japan's Nuclear and Industrial Safety Agency (NISA)**	12 million terabecquerels***
Emergency response	The Japanese authorities took early steps to evacuate people, distribute potassium iodide, and restrict the transport and sale of food from the region.*	The Soviet authorities failed to take immediate action to protect surrounding populations: no early and wide spread use of protection measures such as the distribution of potassium iodine and the control of food supply in affected areas.*

Evacuation zone	20km; 20-30km voluntary zone. Five communities beyond the existing evacuation zone will be evacuated by mid-May.***	30km
People evacuated	Over 80,000	The authorities evacuated, in 1986, about 116,000 people from areas surrounding the reactor and subsequently relocated, after 1986, about 220,000 people from Belarus, the Russian Federation and Ukraine.****
Related deaths	No deaths so far due to radiation	The total deaths reliably attributable to the radiation produced by the accident stands at 62. ****
Long-term health damage	Not yet known, but risks to human health are thought to be low	Among the residents of Belarus, the Russian Federation and Ukraine, there had been up to the year 2008 more than 6,000 cases of thyroid cancer reported in children and adolescents who were exposed at the time of the accident.(by 2005, 15 cases had proved fatal)****
Current status	Officials say radiation leaks are continuing. The priority is restoring adequate coolant to the fuel ponds and the reactors themselves.	The damaged reactor is now encased in a concrete shell. A new containment structure is due to be completed by 2014

*Source: [Nuclear Energy Industry](#) (NEI)
 **Source: [International Atomic Energy Agency](#) (IAEA)
 ***World Health Organisation (WHO)
 ****Source: United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) 2008 report, [Health effects due to radiation from the Chernobyl accident](#)

Chernobyl RBMK design



Contrary to the Fukushima Daiichi plant, RBMK reactors at Chernobyl had no robust containment structures and had a highly combustible graphite core.