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Pressure at Damaged Japanese Nuclear Reactor Rising With Fears

Coastal U.S. Nuclear Power Plants Brace for Tsunami After Japanese Quake

BY DEVIN DWYER AND MATTHEW MOSK
March 11, 2011

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Earthquake damage at a Japanese nuclear power plant northeast of Tokyo has stoked fears of radioactive fallout unless the reactor's core can be cooled and renewed concerns about the security of other nuclear facilities in the tsunami's path.



Officials declared a state of emergency today at the Fukushima Daiichi power plant when its cooling system failed to function properly and pressure rose after the nuclear reactor lost power and automatically shut down.

"You have to continue to supply water. If you don't, the fuel will start to overheat and could melt," said Edwin Lyman, a senior staff scientist in the Global Security program at the Union of Concerned Scientists in Washington, D.C.

A meltdown could lead to a breach of the reactor's steel containment vessel and allow radiation to escape into an outer, concrete containment building, or even into the environment.

"Up to 100 percent of the volatile radioactive Cesium-137 content of the pools could go up in flames and smoke, to blow downwind over large distances," said Kevin Kamps, a nuclear waste specialist at Beyond Nuclear, which is an

advocacy group that opposes nuclear weapons and power.

"Given the large quantity of irradiated nuclear fuel in the pool, the radioactivity release could be worse than the Chernobyl nuclear reactor catastrophe of 25 years ago."

"Disaster in the Pacific": Watch "World News" at 6:30 p.m. ET, a special edition of "20/20" at 10 p.m. ET and "Nightline" at 11:35 p.m. ET for special coverage of the Pacific earthquake and tsunami. [CLICK HERE](#) for more.

"We have to take this very seriously," author and physicist Dr. Michio Kaku said. "Every nuclear power plant has two layers of defense, first the brakes; second, you dump cold water on it. And

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that apparently has malfunctioned. That's what causing concern.

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"It does not mean we have a runaway accident, but it is cause for concern because this is not supposed to happen," he said.

U.S. nuclear experts say modern power plants are designed to withstand earthquakes and tsunamis and have several security layers in place in the event of lost power, including diesel fuel generators and battery systems.

"There are multiple redundancies to continue to feed water to the core to take the heat away at most facilities," said an official with the U.S. Nuclear Regulatory Commission, who asked not to be named because he is not familiar with details of the Fukushima plant.

But those back-up power sources may not have worked in this case, a development many international experts called troublesome.

"The Japanese are considered the best in the world," said Mycle Schneider, a nuclear consultant in Paris who is familiar with the facilities in Japan. "They had several generators in place in case one of them doesn't work. This is the first time I've heard of where none of them worked. To me, that is a very deep concern."

Japanese officials said radiation has not leaked from the plant, but ordered 2,800 people living around the facility to evacuate their homes as a precaution.

Secretary of State Hillary Clinton said the U.S. military transported coolant to the Fukushima nuclear plant and will continue to assist as needed. "You know Japan is very reliant on nuclear power and they have very high engineering standards but one of their plants came under a lot of stress with the earthquake and didn't have enough coolant," Clinton said.

Nearby, the turbine building at the Onagawa nuclear power plant burst into flames shortly after the earthquake and has since been extinguished. Another plant at the facility was also reported to be experiencing a water leak, according to Japanese officials.

The International Atomic Energy Agency said it was closely monitoring the situation at the four Japanese nuclear power sites impacted by the earthquake and confirmed that all had been successfully shutdown.

"It's a positive sign," Mitch Singer of the Nuclear Energy Institute, a U.S. industry trade group, said of initial reports of the power plants' performance and durability following the quake. "This industry more than all others depends on the safe operation of the plant, and it appears these robust facilities have operated as they were designed to do."

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