NRC: Quake shake exceeded Va. nuclear plant design

MATTHEW DALY - Associated Press - Associated Press

A 5.8-magnitude earthquake in the eastern U.S. caused the ground to shake much more than a Virginia nuclear plant was designed to withstand, federal officials said Thursday.

The Nuclear Regulatory Commission said preliminary data from the U.S. Geological Survey shows the Aug. 23 earthquake caused peak ground movement about twice the level for which the North Anna nuclear plant northwest of Richmond was designed. The plant is located about 11 miles from the quake's epicenter in Mineral, Va., and has been shut since the earthquake.

NRC officials and the plant's operator, Dominion Resources, said it did not appear to sustain serious damage.

Dominion officials told the NRC that ground movement under the plant exceeded its "design basis" — the first time that has occurred at an operating U.S. nuclear plant. But Dominion said its seismic data from the site showed shaking at much lower levels than those reported by the USGS.

Inspections conducted after the earthquake show there is a safety margin that exceeds the design basis, Dominion said. With few exceptions, safety components evaluated at the plant could withstand shaking even greater than that recorded by the Virginia earthquake, said Eric Hendrixson, Dominion's director of nuclear engineering.

NRC spokesman Scott Burnell said nuclear plants include a safety margin in their design.

"That margin was certainly enough for North Anna this time," he said.

Edwin Lyman, a senior scientist for the Union of Concerned Scientists, said regulators and the nuclear industry should not count on being so fortunate in a future earthquake.

"We think the earthquake should be a wake-up call to the NRC and the industry that they need to reassess the level of risk at every nuclear plant from earthquakes and other natural phenomena and make sure the plants will adequately protect the public," he said.

"The size of the North Anna earthquake was a surprise, and nuclear regulations should not be based on surprises," Lyman said.

The NRC has said it plans to order all U.S. plants later this year to update their earthquake risk analyses, a complex exercise that could take two years for some plants to complete.

The NRC review, launched well before the East Coast quake and the Japan nuclear disaster in March, marks the first complete update to seismic risk in years for the nation's 104 existing reactors, despite research showing greater hazards.

The two North Anna reactors are among 27 in the eastern and central U.S. that may need upgrades, according to a preliminary NRC review. The plants are more likely to get hit with an earthquake larger than they were designed to handle, the NRC says.

The NRC, using preliminary data from the USGS, said the earthquake caused peak ground movement of about 0.26 g, which is a unit of gravity that measures the impact of shaking on buildings. The North Anna plant was designed to withstand ground movement ranging from 0.12 g to 0.18 g. Tests conducted by Dominion indicate the plant could withstand movement of 0.3 g or higher.

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