

# PG&E confirms Diablo Canyon can withstand major earthquake

**David Sneed, San Luis Obispo Tribune, 3-10-15**

Pacific Gas & Electric Co. has confirmed earlier findings that the Diablo Canyon nuclear power plant can withstand a worst-case-scenario earthquake on multiple faults surrounding the plant.

The utility will formally present its findings Thursday to the Nuclear Regulatory Commission, but it released the highlights Monday.

The findings are the result of a four-year study mandated by the NRC following the 2011 nuclear disaster at the Fukushima Daiichi power plant in Japan that looked at the danger posed by earthquakes, tsunamis and floods.

The study concluded that the plant and its key safety equipment can withstand an earthquake that delivers a G-force movement of 0.8. A quake of that magnitude would require multiple earthquake faults rupturing simultaneously within a 200-mile radius of the plant, said Jearl Strickland, the plant's director of nuclear projects.

G-force measures the amount of ground motion caused by an earthquake. The plant was designed to withstand a magnitude 7.5 quake on the Hosgri fault that is three miles offshore of the plant.

Key findings of the study concluded that there is 1 in 10,000 chance of a G-force quake of 0.8 in a given year and that the plant's design exceeds the 0.8 G threshold by at least 35 percent.

The only vulnerability found in the study is that some equipment could not withstand very low frequency vibrations in the 1.33 hertz range. However, no structures, systems or components needed to operate or safely shut the plant down are sensitive to ground motions below 2.7 hertz, Strickland said. A hertz is a measurement of how many times a second the earth moves in a quake.

In September, PG&E released the results of seismic analysis it performed for the California Public Utilities Commission, and that information was used in the study submitted to the NRC. PG&E submitted the study to be peer-reviewed by two independent scientific panels: one appointed by the CPUC and the other appointed by the NRC.

The panel appointed by the NRC is called the Senior Seismic Hazard Analysis Committee. The study was done under a process developed by the committee.

Panel member Bill Lettis, a geologist with Lettis Consultants International of Walnut Creek, said in a news release the study was the first earthquake model developed for a nuclear plant that analyzed multi-fault linked ruptures to produce a large earthquake.

"In my opinion, the model developed for Diablo Canyon will set the standard for how future earthquake source models are developed," he said.

San Luis Obispo County Supervisor Bruce Gibson is a seismologist who serves on the Independent Peer Review Panel, a group of scientists convened by the CPUC to do an independent assessment of the study.

The group has given PG&E feedback on three occasions but the utility has not responded when it raised

questions about some of the findings, Gibson said. The group will give feedback on the final report after they have had a chance to study it.

“I am disappointed on their approach on this,” he said. “Once again PG&E has done an end around the IPRP.”

Jane Swanson, spokeswoman for the antinuclear group Mothers for Peace said PG&E used new and untested methodology for calculating effects on safety and amazingly "discovered" that the plant is even safer than previously thought, despite increased potential for ground motion.

“Magical thinking is charming when it comes from a 3-year-old child,” she said. “But it can be deadly from a nuclear plant operator.”

Also at the behest of the NRC, PG&E analyzed Diablo Canyon’s tsunami and flooding hazards. The study determined that an underwater landslide is a possible source of a tsunami as well as distant earthquakes.

A 30-foot-tall wave is considered the largest tsunami that could strike the plant. All of the plant’s crucial safety equipment is 85 feet above the ocean, and equipment for the plant’s seawater intake structure is 45.5 feet above sea level, Strickland said.

The study also looked at the possibility of the plant receiving six inches of rain in six hours. The most rain the plant has gotten in three hours is 3 inches and in a day is 8.5 inches.

The study found that heavy rain could cause ponding around some of the buildings at the plant. PG&E responded by purchasing additional sandbags and plans to modify or build curbs to direct water elsewhere.