

# Senator Presses NRC on Issues at CA Nuke Plant

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LOS ANGELES (AP) — The chair of the U.S. Senate's environment committee pressed federal regulators Tuesday to disclose details about the design of the troubled steam generators at the San Onofre nuclear power plant, where a probe into tube damage has kept the reactors sidelined for months.

In a letter, Sen. Barbara Boxer asked Nuclear Regulatory Commission Chairman Gregory Jaczko for documentation on how the federal agency reviewed generator modifications, which might be the culprit in vibration that has damaged hundreds of tubes inside the complex machines.

At issue is whether operator Southern California Edison sidestepped any federal requirements by conducting extensive design changes, a claim leveled by an environmental group that said the alterations are at the heart of the plant's problems.

The twin reactors, located along the coast between San Diego and Los Angeles, have been shut down for more than three months while investigators try to determine the cause of the unusual tube wear.

"Concerns have been raised that design changes in the steam generators contributed to accelerated wear in tubes carrying radioactive water," Boxer, D-Calif., wrote in a similar letter to SCE parent Edison International that also requested documents from the company on the history of the equipment. "The determination to restart the San Onofre reactors must ensure the safety of the millions of Californians who live and work near the plant."

Boxer chairs the Environment and Public Works Committee.

Edison said in a statement Monday that "the NRC was fully informed that the replacement would be conducted under the same regulations as had been previously applied at other plants."

The 13-page report issued by Friends of the Earth warned that running the nuclear plant at reduced power would not resolve problems with badly worn tubing. Earlier this month the company announced a tentative plan to restart and run the seaside reactors at lower power, at least for several months, because engineers believe that will ease vibration that might be the culprit in heavy tube wear.

The generators function something like a car radiator, which controls heat in a vehicle's engine. The generator tubes circulate hot, radioactive water from the reactors, which heat a bath of non-radioactive water surrounding them. That makes steam, which is used to turn turbines to make electricity.

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The tubes represent a critical safety barrier — if a tube breaks, there is the potential that radioactivity can escape into the atmosphere. Also, serious leaks can drain protective cooling water from a reactor.

The four generators each have nearly 10,000 alloy tubes that carry radioactive water.

The report by Friends of the Earth also expanded an earlier allegation that Southern California Edison misled federal regulators about the modifications, a claim disputed by the Nuclear Regulatory Commission and the company.

The trouble began to unfold in January, when the Unit 3 reactor was shut down as a precaution after a tube break. Traces of radiation escaped at the time, but officials said there was no danger to workers or neighbors. Unit 2 had been taken offline earlier that month for maintenance, but investigators later found unexpected wear on hundreds of tubes in both units.

The NRC has said there is no timetable to restart the reactors, as investigators continue to look for the cause of the unusual tube wear.

The generators were replaced in 2009 and 2010 in a \$670 million overhaul.

The report, written by Vermont-based nuclear consultants Fairewinds Associates, suggested the best alternatives might be scrapping and replacing the costly equipment, or spending as much as \$400 million on an extensive repair.

"Power reductions do not solve underlying and serious degradation problems," the report said. It warned of possible tube breaks that could endanger public health.

It said running at lower power would not prevent damaged tubes and tube supports from vibrating and damaging others nearby. "It will worsen the existing damage," the report concluded.

Gradual wear is common in such tubing, but the rate of erosion at San Onofre alarmed officials since the equipment is relatively new. The company last week said more than 1,300 tubes will be taken out of service, a far higher number than previously disclosed, but that number is well within the margin to allow the generators to keep operating.

Edison has been facing pressure from some nearby communities and anti-nuclear activists who have raised safety concerns, while the company looks for a solution to the tube problem and a path to restarting the plant, an important source of power in Southern California.

State officials have warned of possible power shortages in the region this summer while the plant remains dark.

The generators were designed to meet a federal test to qualify as "in-kind," or essentially identical, replacements, which allowed them to be installed without prior

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approval from federal regulators.

The report said a string of complex modifications involving tubes and supports should have triggered a more extensive review by the government, including public hearings, but did not. The report speculated that the NRC would have identified problems with the design if a thorough review was conducted.

"Edison should never have been allowed to install these fundamentally defective steam generators," Damon Moglen, climate and energy campaign director at Friends of the Earth, said in a statement. "Now Edison is planning to avoid dealing with the underlying problems and instead restart at lower power. Their claims of nuclear safety first ring completely hollow and must be stopped."

In a statement, NRC spokesman Victor Dricks said the company informed the agency of the steam generator design changes "in accordance with NRC requirements," and that portions of the design were reviewed by federal inspectors during the installation. He added that a team of investigators is reviewing those changes as part of its probe into tube wear at the plant.

The agency released a June 2006 document that indicated Edison officials briefed the NRC on a series of generator modifications, though it was not a comprehensive list.

The agency announced Tuesday it was conducting a routine review of "in-kind" repairs at the plant over the prior three years. It was not prompted by the problems with the generators.

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