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**CONTACT:** Daniel Hirsch, Committee to Bridge the Gap: (831) 336-8003

## **SAN ONOFRE: STUDY QUESTIONS SAFETY OF RESTARTING EITHER UNIT 2 OR 3** **Hundreds of Times More Damaged Tubes in Either Reactor Than Typical for New Replacement Steam Generators**

**LOS ANGELES, CA, Sept. 12** – An exhaustive analysis of data from nuclear plants nationwide reveals that critical safety components in both reactors at the San Onofre nuclear power plant — the damaged replacement steam generators — are in far worse shape compared to typical U.S. reactors than previously admitted by federal regulators and the plant’s operator.

The [report](#) released today reveals that:

San Onofre’s Unit 2 reactor has about 400 times as many damaged steam generator tubes as the median number at comparable plants over the same operational period, and Unit 3 has more than 450 times as many.

Each San Onofre reactor has greater than 1,000 times as many indications of wear on the tubes than the typical reactor in its first cycle of operation.

Each San Onofre unit has had to plug more tubes than all replacement steam generators nationwide combined.

The newly unearthed data refute claims of the U.S. Nuclear Regulatory Commission that the tube damage in Unit 2 is “similar” to that found at comparable reactors and of plant operator Southern California Edison that the damage was “not unusual,” just a normal “settling in” of the equipment. The data also show that despite Edison’s claims that problems with Unit 2 are not as severe as in Unit 3, both reactors have comparable levels of damage—1595 worn tubes in Unit 2 compared with 1806 in Unit 3.

“San Onofre Unit 2 and 3 are both very ill nuclear plants. They are far, far outside the norm of national experience,” writes Daniel Hirsch, report co-author. “Restarting either San Onofre reactor with crippled steam generators that have not been repaired or replaced would be a questionable undertaking at best.” Hirsch is President of the Committee to Bridge the Gap, the nuclear policy organization that prepared the report, and a Lecturer on nuclear policy at the University of California, Santa Cruz.

The group compiled the data from records for all reactors with similar replacement steam generators after the NRC was unable to provide figures to back up its claim that the damage to tubes at San Onofre Unit 2 is typical of new steam generators. The report also notes that the NRC and Edison have given significantly different answers for the number of damaged tubes at San Onofre and that the agency is even now unable to say which is correct.

Both San Onofre reactors have been shut down since January, after a leak from one of the thousands of thin, tightly packed tubes that transfer heat from radioactive water to produce steam to turn the plant’s electricity turbines. The findings of today’s report are critical because Edison claims that Unit 2 is far less seriously damaged than Unit 3 and should be allowed to restart and operate at reduced power. Edison has acknowledged that Unit 3 may never restart.

“Unit 2 cannot be said to be acceptable for restart, any more than Unit 3,” writes Hirsch. “Unit 2 has hundreds of times more bad tubes and a thousand times more indications of wear on those tubes than the typical reactor in the country with a new steam generator, and nearly five times as many plugged tubes as the rest of the replacement steam generators, over a comparable operating period, in the country combined.”

The report contains a forward by Dale Bridenbaugh, a retired nuclear engineer who resigned from General Electric in the 1970s over reactor design flaws that subsequently contributed to the 2011 Fukushima Daiichi disaster. “As dramatically shown in this report, the San Onofre experience after only two or less years of operation with replacement steam generators lies far outside the bounds of normality when compared to the experience of other nuclear units with such replaced components,” says Bridenbaugh. “Steam generators play a critical role in assuring plant safety and the containment of possible radioactive releases.”

“In spite of Edison’s attempt to assert a different level of risk between Units 2 and 3, it seems clear that similar design and failure challenges are present in both units and that future operation of either unit has not been technically justified. It is my opinion that measures necessary for the future safe operation of either of these units have not been adequately put forth at this time, and that operation with or without reduced power of Unit 2 should not be authorized,” Bridenbaugh concludes.

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