

Why A National Cancer Study Near U.S. Reactors Must Be Conducted Before Any New Expansion Of Nuclear Power

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significant association between protracted occupational exposures and the risk of dying of cancer, even among those with very low exposure levels — well below those who survived the atomic bombs at Hiroshima and Nagasaki.

Despite these findings, government officials have strongly resisted any evidence that radioactive exposures from nuclear reactors are associated with a higher risk of cancer. As a result, few academic-based researchers — many whose research funding was highly dependent on government grants — addressed the topic, fearful of professional repercussions. These factors denied the public knowledge about the accrued risk of cancer near nuclear power plants, even as more of them started operating.

A single national study — and a cancelled one

One of the few independent research articles that analyzed cases of cancer near a U.S. nuclear plant was published in 1987 by Richard Clapp, a Boston University epidemiologist. The study documented elevated rates of leukemia among persons who lived near or worked at the Pilgrim nuclear power plant in Plymouth, Massachusetts. Results were reported in the media, and word reached Democratic Sen. Ted Kennedy of Massachusetts, who was chairing the Senate Committee on Labor and Human Resources.

In January 1988, Kennedy wrote James Wyngaarden, then-director of the National Institutes of Health (NIH). [2] Citing the 1979 partial reactor core meltdown at the Three Mile Island nuclear plant and Clapp’s recent Pilgrim study, Kennedy urged the NIH “to conduct an appropriate inquiry into this entire question” of whether releases from nuclear plants were a causal factor in cancer. Wyngaarden replied to Kennedy in January, stating the Pilgrim article and other such studies in the United Kingdom:

“has led us to initiate a large-scale evaluation of cancer deaths occurring among persons living near the over 100 reactors operating in the United States ... from the 1950s through the early 1980s with reactor operations.” [3]

Wyngaarden’s assertion that the NIH had already initiated a comprehensive study probably surprised Kennedy, who just days earlier had called for such an effort to begin. Wyngaarden’s response also showed that he was skeptical about the possibility that reactor emissions could raise cancer risk:

“The most serious health impact of the Three Mile Island accident that can be identified with certainty is mental stress to those living closest to the plant, particularly pregnant women and those with teenagers and young children.”

The National Cancer Institute committee of researchers produced a report in July 1990. [4] It included cancer mortality data from 1950-1984 for home and adjacent counties near 10 weapons plants and 52 power plants, covering over 900,000 local cancer deaths.

The report’s introduction mentioned 31 peer-reviewed journal articles that had found elevated cancer rates near nuclear facilities — with only three from the United States: the Clapp study in *The Lancet* scientific journal, a follow-up letter to *Lancet*, and an article on the San Onofre plant in California. The National Cancer Institute committee concluded that “the survey has produced no evidence that an excess occurrence of cancer has resulted from living near nuclear facilities.”

The report, however, noted several limitations.

Many of the 62 plants had only been operating for a relatively small number of years, not enough time for the effects of radiogenic exposure to appear in workers and the nearby population. Moreover, cancer incidence data were only available for four plants, as most states did not have established cancer registries. Some cancers sensitive to radiation — such as childhood leukemia and thyroid cancer — have high survival rates, making incidence data more helpful than mortality.

In May 2009, the U.S. Nuclear Regulatory Commission (NRC) — a successor to the old AEC — issued a public announcement of its intention to conduct an updated analysis of cancer near US nuclear plants. Initially, the NRC selected the Oak Ridge Institute for Science and Education to conduct the study. But after concerns were raised with the selection, led by then-Democratic Rep. Ed Markey of Massachusetts, the NRC reassigned the project to the National Academy of Sciences.



Numerous studies have shown increased risk of cancer and death for those living near reactors. Photo: nuclearfreemississippi.wordpress.com

The Academy held multiple meetings and heard testimony from scientists and citizens. It issued a first report recommending study designs and a feasibility study using seven nuclear plants. A second report addressed pilot planning and execution. But actual results were never produced, and in September 2015, the NRC cancelled the study, citing the \$8 million required in federal funds and claiming that the levels of radioactive emissions were too low to raise cancer risk anyway:

“Continuing the work was impractical, given the significant amount of time and resources needed and the agency’s current budget constraints. The NRC continues to find U.S. nuclear power plants comply with strict requirements that limit radiation releases from routine operations. The NRC and state agencies regularly analyze environmental samples from near the plants. These analyses show the releases, when they occur, are too small to cause observable increases in cancer risk near the facilities.”

The abrupt halt of the study drew numerous comments opposing the move. A *Boston Globe* editorial stated that in killing the nuclear cancer study, the NRC acted “more like an industry booster than a watchdog.”

Studies on individual plants: Few in number, opposed by government.

Other than the 1990 National Cancer Institute study, little research on cancer near nuclear reactors has been published in scientific journals, and those studies that have been published often focused on a single plant. The most-studied plant was Three Mile Island, the site of a partial meltdown in 1979. But many journal articles on the meltdown’s health effects addressed stress-related illness and psychological suffering — not radiation-induced cancer.

It was not until 1990 that a peer-reviewed journal article was published on cancer near Three Mile Island. A Columbia University team reported that newly diagnosed cancer cases in the 10-mile radius around the plant had increased by 64 percent (1,722 to 2,831) in the five years after the meltdown. But the authors concluded there was no connection between these accrued cases of cancer and radioactive releases.

In 1997, a team from the University of North Carolina reanalyzed the data from the Columbia University study and did find an association between the meltdown’s releases and increased cancer risk. The Columbia University team blasted the University of North Carolina reanalysis, calling it “poor science ... advocacy parading as science... full of misconceptions, misinterpretations, mistaken logic, and simple error.” Since the late 1980s, the Radiation and Public Health Project research group — a New York-based non-profit educational and scientific organization directed

by one of the authors (Joseph Mangano) — published several dozen journal articles on radiation exposure and cancer, including trends and patterns in thyroid cancer near the Indian Point plant in New York, all cancers near the Salem plant in New Jersey, and childhood cancer near 14 plants in the Eastern United States. The research group also found a link between trends in child cancer and strontium-90 (a radioactive isotope produced during the fission of uranium-235 in reactors) in baby teeth near the Indian Point and Oyster Creek (New Jersey) plants. This is the only study to ever analyze in-body radioactivity levels in the population living near U.S. nuclear power plants.

In early 2024, Harvard University professor Petros Koutrakis and his research team launched two studies. The first study examined associations between cancer incidence in Massachusetts and proximity to nuclear power plants in New England. The second study involved collecting indoor dust particles and outdoor soil near the Pilgrim nuclear plant, where radioactive particles emitted by the facility were identified.

National study of cancer near reactors needed

Many plans for expanding U.S. nuclear power are now being proposed. The NRC has started granting life extension licenses for aging reactors for up to 80 years. Expansion plans also include restarting permanently closed reactors and building new reactors, including so-called “small modular” and “advanced” reactors. After the 2023 UN climate summit in Dubai, the United States and 21 other countries pledged to triple the global nuclear energy capacity by 2050. The federal government and some states have pledged billions of dollars in assistance to help achieve this goal.

These ambitious expansion plans are being proposed with little to no regard for the risks to human health from living and working near nuclear reactors. Many industry leaders and government officials proudly claim nuclear power to be an “emission-free” energy source, but they ignore the health risks that routine radioactive emissions from reactors pose to the public, including cancer and other diseases. To address these claims, a new national study of cancer trends around the 94 existing nuclear reactors (nearly half of which are now 45 years old or more) must be conducted before any further expansion of nuclear power in the United States.

Such a national study of the health risks posed by existing reactors should:

- At a minimum, update the findings from the 1990 National Cancer Institute study;
- Estimate the time and resources needed to produce the first findings in less than two years.
- Maximize the use of existing publicly available data sets; for instance, the Centers for Disease Control and Prevention website includes county-specific mortality data from 1968 to 2024.
- Make results available to independent reviewers so they can reproduce the study;
- Be funded by the federal government, which regulates nuclear power reactors;
- Include only researchers who have no ties with the nuclear industry or the federal government, and are experts on the health effects of reactor emissions, having published in peer-reviewed journals already;
- Make the results public by publishing them in peer-reviewed scientific journals and presenting them in public events alongside proposed plans for the expansion of nuclear power in the United States.

There can be no safe and publicly accepted expansion of nuclear power without an informed and transparent discussion over past and current health risks from U.S. reactors to the population.

For footnotes see <https://thebulletin.org/2025/09/why-a-national-cancer-study-near-us-reactors-must-be-conducted-before-any-new-expansion-of-nuclear-power/>