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I cover the underlying drivers of energy, technology and society.

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## Do Nuclear Power Plants Cause Cancer?

No. They don't.

Adverse health and environmental effects, if any, are so small they can't be observed, measured or determined in any way.

Not that this has stopped some people from pretending they do. The sad thing is when otherwise reputable journals and news outlets take them seriously. The latest example of this ruse is a paper by Joseph Mangano and Janette [Sherman](#), to be published in the [Biomedicine International Journal](#).



Nuclear reactors do not release enough radiation to even register with respect to background levels, certainly not enough to cause cancer. Source: NREL Rancho Seco

In it, Mangano implies that closing of the Rancho Seco nuclear reactor in [California](#) in 1989 resulted in lower cancer rates in the region, over 4,000 cases specifically, suggesting that nuclear power causes cancer. Mangano initially states that 28 cancer types out of 31 decreased over this time period, then admits only 14 were statistically significant, which means 14 out of 31 decreased since these types of comparisons are all about statistics. Most damning is that even his own tables show that those cancers associated with radiation did not decrease at all.

Even though he admits his results may have nothing to do with the nuclear plant, the guilt by association is clear and intentional.

So the whole premise is false. The average dose received by the public from nuclear power is less than 0.0002 mSv/yr, which is about 10,000 times smaller than the total yearly dose received by the public from other background radiation ([WNO](#)). Any health effects from the more abundant and diverse background radiation would completely swamp anything from reactors. But even these levels produce no observable effects.

Eating a bag of potato chips a day gives you 100 times this level, but no one cares since the fat and salt will kill you a lot faster than any radiation.

Washout by rain of radionuclides attached to particulates in the atmosphere is the main cause of dose to the public from nuclear reactors. The amount is extremely small and less than 1% of all other natural sources of radiation.

Since the particulates travel great distances before they are washed out, even this small dose is not a function of distance from the power plant, but is randomized geographically.

This is why no serious study of cancer rates in relation to proximity to power plants has ever shown any correlation ([Jason Harris, Idaho State University](#)), as hard as many anti-nuclear activists have tried.

And this is real reason for the type of “study” that Mangano published, to be able to cite a journal article about something that doesn’t exist, to lend credence to something needed for an ideological stand, to keep the fear and alarm fresh and useful. To say he is being disingenuous would be nice.

Of course, other things lead to decreases in cancer, and a coincidental closing of a nuclear power plant means nothing. During this time period, coal plants shut as well. Mining operations ceased. Smoking decreased. Oncological improvements soared. Nuclear medicine procedures rocketed.

But probably the most important factor for decreases in cancer rates of the types Mangano cites was immense improvements in California air, water and food quality during that time frame. During the 1970’s, air quality in California and in Rancho Seco was so bad that parents were advised to keep their kids indoors because of common smog alerts. Twenty years later, such alerts were pretty much a thing of the past.

As EPA and the WHO point out, the Clean Air Act has been the most important environmental legislation *ever*, and has saved more lives since it’s passage than any other environmental regulation ([Clean Air Act Turns 40](#)).

To be fair, no one has ever accused Mangano of committing real science. You might remember Mangano as the guy in 2011 who maintained that people in America were dying in droves from Fukushima emissions, prompting general outrage and ridicule from the scientific community, much to his delight. [Michael Moyer of Scientific American](#) basically said Mangano cherry picked data to suit his claim or completely made it up. Barbara Ostrov from [Reporting on Health](#), sponsored by [USC Annenberg](#), warned journalists to fact check before believing his assertions, or at least find a reputable third party.

But people like Mangano continue to flourish in this new world of [Google](#) graduates, and stoke the general distrust of science fostered by ideologues. It is dangerous and sensational. It keeps our country, and the world, from moving forward into a safer, more environmentally sustainable future.

But for people like Mangano, it’s job security.

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