



# NUCLEAR INFORMATION AND RESOURCE SERVICE

6930 Carroll Avenue, Suite 340, Takoma Park, MD 20912

301-270-NIRS (301-270-6477); Fax: 301-270-4291

[nirsnet@nirs.org](mailto:nirsnet@nirs.org); [www.nirs.org](http://www.nirs.org)

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*In its August 18-19 edition, the Wall Street Journal published a lengthy essay by Dr. Richard Muller of the University of California, Berkeley. He is also a faculty senior scientist at the Lawrence Berkeley National Laboratory. Dr. Muller argued that health effects from the Fukushima nuclear disaster have been exaggerated and that “the great tragedy” is that Japan closed its reactors. The article is here.*

*Dr. Muller recently received considerable attention because, as a Koch-Brothers funded climate change skeptic, he has changed his tune and now believes climate change is real and man-made.*

*In response to Dr. Muller’s article, which contained numerous omissions and errors, NIRS sent the following letter to the Wall Street Journal. As of today, we have received no response from the Journal, so we are releasing it publicly now.*

August 20, 2012

Dear editor,

Omissions and errors in Dr. Richard Muller’s article, *The Panic Over Fukushima* (WSJ, August 18-19, 2012) undercut his theses that the reaction to the Fukushima meltdowns has been unjustified and that Fukushima should not be an argument to stem the use of nuclear power.

First, the consequences of Fukushima were greatly mitigated by one simple factor: the wind, which there typically blows due East—over the Pacific Ocean rather than land. And this was indeed the case for most of the period of the largest radiation releases. In fact, about 80% of the airborne radiation emitted from Fukushima went out over the ocean.<sup>1</sup>

Had the wind been blowing south, say towards Tokyo, millions more people would have been exposed than actually were, to much larger amounts of radiation—500% more—with corresponding increases in mortality and illness.

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<sup>1</sup>Atmospheric Chemistry and Physics (ACP), <http://www.atmos-chem-phys-discuss.net/11/28319/2011/acpd-11-28319-2011.pdf>, October 20, 2011

Even so, casualties are undoubtedly higher than Dr. Muller estimates. For one thing, the risks cited by Dr. Muller are for exposure to “the average man.” But buried in the National Academy of Sciences most recent study on radiation risk<sup>2</sup> is the revelation that women are 50% more susceptible to radiation as men<sup>3</sup>. And children are even more susceptible. Basing casualty estimates on exposure to men greatly underestimates actual casualties.

Dr. Muller states that there is a 100% chance of contracting cancer with exposure to 2500 rem of radiation and that the typical way of measuring fatal cancers is to assume one cancer—no matter the size of the population—per 2500 rems. That may be true (except that the risks are higher for women and children as noted above, so the numbers must be adjusted). But it is just as true that the risk of fatality from exposure to 1000 rems is also about 100% (or perhaps 99.5+%). 2500 rems is arbitrary. Simply acknowledging this risk would increase casualty estimates two and a half times.

The Denver analogy (that residents of Denver receive higher radiation exposures than most people near Fukushima did) doesn’t hold water. Residents of Denver are exposed to gamma rays, they are not exposed to nor do they ingest radioactive elements like the Cesium-137 and Strontium-90 massively released at Fukushima (among many other radioisotopes). While the concept of “rems” does attempt to measure effects rather than amounts of radiation, the fact is that different isotopes affect the body in different ways—radiation does not conform to a one-size-fits-all approach.

It will be some years before we know the true toll from Fukushima. But Dr. Muller appears to be deliberately underestimating its effects now in order to promote nuclear power. And, in this case, all Fukushima proves is that nuclear power is safer when the wind is blowing away from people and the effects of radiation on women and children are discounted. Unfortunately, most nuclear reactors are not sited so fortuitously and deadly radiation does not limit itself to showing up only at stag parties.

Michael Mariotte  
Executive Director

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<sup>2</sup> HEALTH RISKS FROM EXPOSURE TO LOW LEVELS OF IONIZING RADIATION, BEIR VII PHASE 2, <http://www.nap.edu/openbook.php?isbn=030909156X>, National Academy of Sciences, 2006

<sup>3</sup> NIRS published a briefing paper on this little-noticed facet of the NAS research in October 2011: <http://www.nirs.org/radiation/radhealth/radiationwomen.pdf>, *Atomic Radiation is More Harmful to Women*.