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

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Cancer And Death by Radiation? Not From Fukushima

It's always amazing when a United Nations report that has global ramifications comes out with little fanfare. The latest one states that no one will get cancer or die from radiation released from Fukushima, but the fear and overreaction is harming people ([UNIS](#); [UNSCEAR Fukushima](#); [UNSCEAR A-68-46](#)). This is what we've been saying for almost three years but it's nice to see it officially acknowledged.

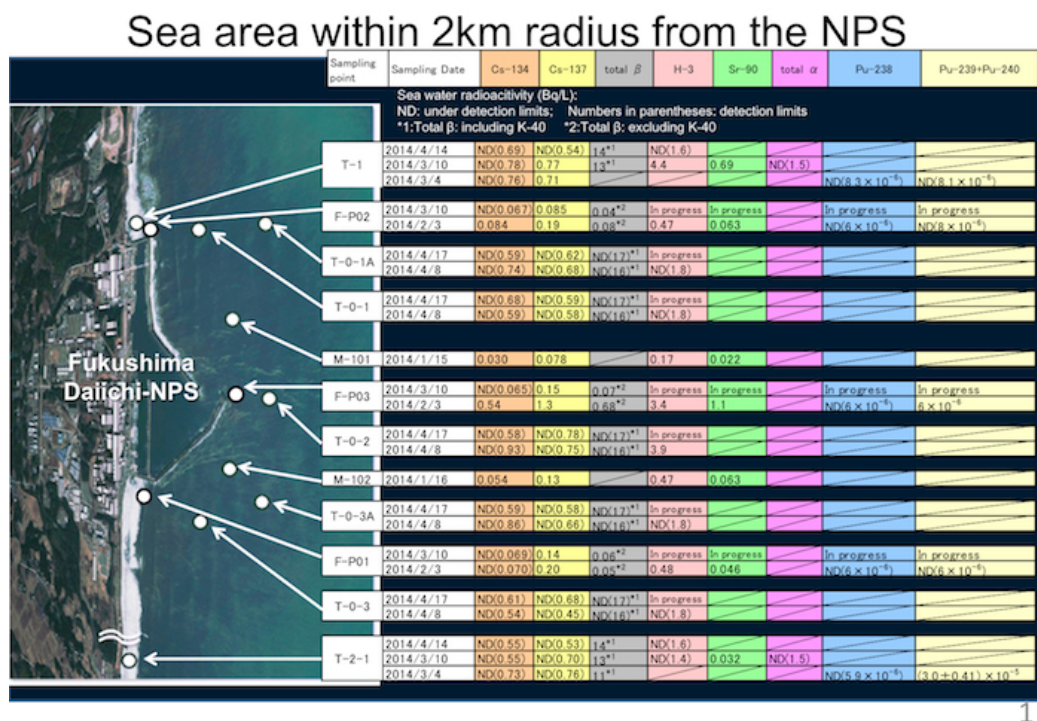
According to the report, drafted last year but only recently finalized by the U.N., "The doses to the general public, both those incurred during the first year and estimated for their lifetimes, are generally low or very low. No discernible increased incidence of radiation-related health effects are expected among exposed members of the public or their descendants. The most important health effect is on mental and social well-being, related to the enormous impact of the earthquake, tsunami and nuclear accident, and the fear and stigma related to the perceived risk of exposure to ionizing radiation. Effects such as depression and post-traumatic stress symptoms have already been reported."

In addition, the report states, "Increased rates of detection of [thyroid] nodules, cysts and cancers have been observed during the first round of screening; however, these are to be expected in view of the high detection efficiency [using modern high-efficiency ultrasonography]. Data from similar screening protocols in areas not affected by the accident imply that the apparent increased rates of detection among children in Fukushima Prefecture are unrelated to radiation exposure."

So the Japanese people can start eating their own food again, and moving back into areas contaminated with radiation levels similar to many areas of the world like Colorado and Brazil, which includes most of the exclusion zone. Only a few places shouldn't be repopulated.

But if you want to continue feeling afraid, and want to make sure others keep being afraid, by all means ignore this report on Fukushima. But then you really can't keep quoting previous UNSCEAR policy and application of LNT (the Linear No-Threshold dose hypothesis) to support more fear.

Note – LNT is a leftover Cold War ideology that states all radiation is bad, even the background radiation we are bathed in every day, even the 3,200 pCi of radiation in a bag of potato chips (yes, potato chips have the most radioactivity of any food, but they taste sooo good!).



Radiation Monitoring in the Ocean around Fukushima, showing extremely low levels, thousands of times less than background, and millions of times less than any EPA limits. Source: Japanese Nuclear Regulation Authority

LNT was pushed through the U.N. by Russia and China in the 1950s to stop America's above-ground nuclear weapons testing. It worked, but caused the unintended side-effect of instituting a worldwide fear of radiation below actual levels that are dangerous, e.g., 10 rem/yr (0.1 Sv/yr). The radsafety people liked it because it seemed so...conservative. But it has become an ideology "ruled by hysteria and fueled by ignorance" (Dr. Kathy Reichs).

However, probably the worst effect of LNT has been to waste over \$500 billion guarding against a phantom menace when those billions could have immunized the entire world against the five most deadly diseases, like pertussis, dysentery and TB, which would have saved at least a hundred million lives ([Low Rad Summit](#)).

As to environmental effects, the U.N. report goes on to say, "Exposures of selected non-human biota in the natural environment were also estimated. The doses and associated effects of radiation on non-human biota following

the accident were evaluated against the Committee's previous evaluations of such effects. Exposures of both marine and terrestrial non-human biota following the accident were, in general, too low for acute effects to be observed, though there may have been some exceptions because of local variability... Any radiation effects would be restricted to a limited area where the deposition of radioactive material was greatest; beyond that area, the potential for effects on biota is insignificant."

This report is another in a series (see [UNSCEAR 2012](#)) that is beginning to backtrack from the unethical adoption of LNT those many years ago ([Did Muller Lie?](#)), and directly stems from the harm it has caused after Fukushima, and even after Chernobyl ([Jaworowski-Chernobyl](#)). In both cases, the forced evacuation and long-term refugee-status of tens to hundreds of thousands of people did more harm than any radiation released from either accident.

UNSCEAR is an independent body of [international](#) radiological and epidemiological experts for the United Nations that has met regularly since 1955 and helped establish radiation as the best understood, though weakest, carcinogenic agent in the world through its studies of atomic bomb survivors, the effects of the Chernobyl accident, industrial radiological accidents, medical radiation treatment and now the Fukushima incident.

It is extremely important that we get this right. The U.N. and experts in the [energy](#) field, including the IPCC, understand that to meet our energy needs in this century, while mitigating the worst of the environmental effects, will take an enormous increase in both renewables and nuclear over the next 30 years ([RT.com](#); [IPCC](#); [U.N. report](#)). Eileen Claussen, President of the nonprofit Center for Climate and Energy Solutions, recently agreed that closing nuclear power plants prematurely could hinder our goals to reduce carbon emissions. She added that the country needs to continue ramping up renewables, but for reliable power 24/7, nuclear is the only baseload source that's carbon-free and exists in abundance ([International Business Times](#)).

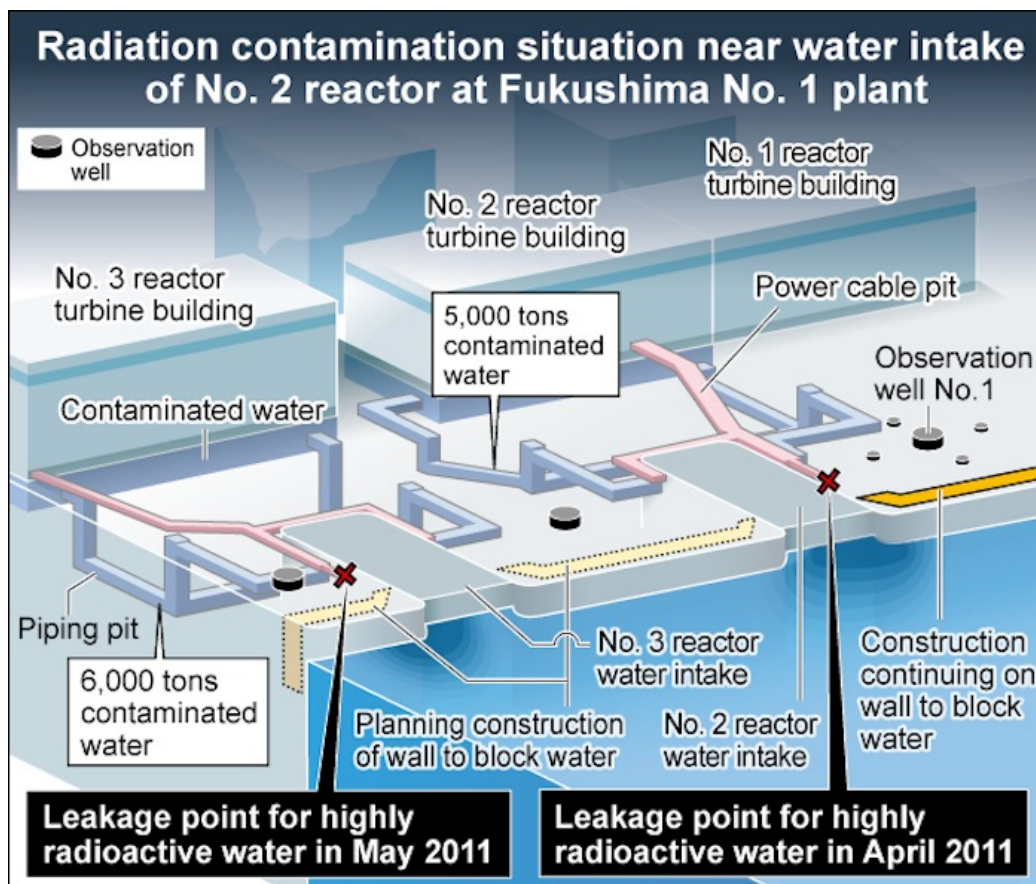
Since we passed the third anniversary in March of the earthquake and tsunami that caused the Fukushima meltdown, it is worth noting a few things in addition to the lack of any health effects from radiation.

- All of the foods produced within Fukushima Prefecture show radioactivity a hundred times less than the low limits set by the Japanese government after the accident, and a thousand times lower than limits in the United States. Only two individual fish caught off of the Japanese coast exceeded these limits ([Japan Times](#)).

- Half of the nuclear fuel has been safely removed from Daiichi Reactor 4. We will safely remove the rest from #4 as well as the others and also the fuel that has melted.

- According to the Nuclear [Regulation](#) Authority, extremely low levels of radiation are being detected in the ocean off-shore of Fukushima, even right next to the reactors, well below a Bq/liter, less than background and much less than EPA drinking water standards ([Sea Area Monitoring](#), see figure). The few points at the outlets of drainage ditches where radioactive cesium has been sporadically detected have been below the 60 Becquerel per liter standard set by the Japanese government. While contaminated water is seeping into the ground at the crippled plants (see figure below), and radioactive material did (and is) getting into the ocean as evidenced by sampling fish showing trace amounts of Cs-134, the effects are minor because the amounts getting into the ocean are small compared to the volume of the ocean immediately off the coast ([Radioactive Fukushima Waters](#); [Hot Tuna](#)).

- In spite of no serious health consequences of the disaster, Japan is still struggling with restarting its nuclear fleet and continues to import huge quantities of fossil fuels to make up for it. Only a few of Japan's other 48 reactors have a tsunami risk, and while it would be reasonable to keep them offline until their tsunami preparedness is addressed, keeping the whole fleet down continues to hurt the economy and is a result of fear.



Note on relative risks in the energy arena – During the writing of this post, five people were killed, a hundred injured and an entire building destroyed in a natural gas explosion in Florida ([Gas Explosion In Jail](#)), continuing the trend of a gas explosion a week in America. In addition, a crude-oil-carrying train derailed and burst into flames in downtown Lynchburg ([Virginia Crude Train Explodes](#)), spilling thousands of gallons of oil and catching the James River on fire. No one was killed, but the crash was the sixth fiery derailment to occur in North America since a runaway train in Quebec derailed and exploded, killing 47 people last July and destroying a major portion of the town.

Yes, we do need to pick our poison carefully.