

## **Fukushima Plant Is Releasing 770,000 Tons of Radioactive Water Into the Pacific Ocean**

by Dahr Jamail via jane - Truth-out Saturday, Aug 19 2017, 12:01am

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*The important aspect of this travesty is, TEPCO is releasing this highly toxic waste with approval from international bodies which were formed to protect the planet and human lives, what a laugh!*



When Japan's Fukushima Daiichi nuclear plant suffered a triple-core meltdown in March 2011 as the result of devastating earthquake, most people had no idea this was only the beginning of a nuclear disaster that has arguably become the single worst industrial accident in human history.

Keeping the three core meltdowns cool has been an ongoing challenge that has yet to be met. As fresh water is pumped over the cores, it is then stored on site in massive tanks. The Tokyo Electric Power company (TEPCO), the operator of the plant, then has to figure out what to do with that water.

Recently, TEPCO announced that it would dump 770,000 tons of radioactive tritium water into the Pacific Ocean.

The announcement infuriated local fishermen and environmental groups across Japan. According to Mozghan Savabieasfahani, an environmental toxicologist and winner of the 2015 Rachel Carson prize, their outrage and alarm is not without merit.

"The release of thousands of tons of radioactive tritium by a giant utility company into our aquatic and natural environments is a blood-chilling prospect," Savabieasfahani told Truthout.

She questions why there is not more outrage from those in the Japanese government who are responsible for safeguarding the health and wellbeing of the general public.

"Where are the defenders of our public's health?" she asked. "If they could pull the plug out of their mouth, they could tell us that tritium is a toxic radioactive isotope of hydrogen, and that, once released, tritium cannot be removed from the environment. Let that sink in."

"The Decision Has Already Been Made"

Takashi Kawamura, TEPCO's chairman, when asked about the decision to introduce this vast amount of radioactive water into the ocean, initially responded, "The decision has already been made."

While he quickly softened the statement, he has not stated that the action will not occur.

Meanwhile, the chairman of the Japanese Nuclear Regulation Authority (NRA), Shunichi Tanaka, has claimed that tritium is of little danger to humans and supports TEPCO's plans to dump the water into the ocean.

This claim, however, is vehemently disputed by toxicologists and nuclear experts with more background in toxicology than Tanaka.

M.V. Ramana is the Simons Chair in Disarmament, Global and Human Security at the Liu Institute for Global Issues at the University of British Columbia in Canada, and is also a contributing author to the World Nuclear Industry Status Report for 2016. He is critical of Prime Minister Shinzō Abe's administration's mishandling of Fukushima.

"The proposed release of radioactive, contaminated water from Fukushima against the wishes of the local residents, especially fishermen, represents yet another violation of people's rights to a clean environment and a decent livelihood so as to protect the financial interests of TEPCO," Ramana told Truthout.

Tanaka argued that dumping the radioactive water is safe because that level of tritium is unable to penetrate plastic wrapping. However, Ramana said that justification misses the point.

"NRA Chairman Tanaka is correct when he says that tritium is 'so weak in its radioactivity it won't penetrate plastic wrapping,' but that is irrelevant if the material is ingested," Ramana said. "Because the tritium that is released will be in the form of tritiated water, it can be easily absorbed by the body as it is chemically identical to water."

According to Ramana, a special concern with tritiated water is that, when ingested by pregnant women, it can pass through the placenta and affect the fetus.

"During this stage, the developing organism (the embryo and the fetus) is highly radiosensitive," he added.

And this is only one of the many ways in which tritium is dangerous for humans, at even the lowest levels.

Fukushima Is an "Ongoing Disaster"

Dr. Bruno Chareyron, an expert in radiation effects, won The Nuclear-Free Future Award in 2016. He is the director of the CRIIRAD lab (Commission de Recherche et d'Information Indépendantes sur la RADioactivité), founded in 1986, which not only monitors the environment for radiation contamination, but trains people to investigate radioactivity as well.

Chareyron was blunt with Truthout about what is happening at Fukushima.

"It is important to understand that the Fukushima disaster is actually an ongoing disaster," he said. "The radioactive particles deposited on the ground in March 2011 are still there, and in Japan, millions of people are living on territories that received significant contamination."

According to Chareyron, even territories located more than 200 kilometers away from the damaged nuclear reactors received significant fallout depending on wind direction, rainfall and/or snow.

And it's not just Fukushima prefecture that is affected by radioactive contamination.

"The Japanese authorities have launched a huge program of decontamination on a territory of about 2,400 square kilometers," Chareyron explained. "It is estimated that every day about 15,000 people are involved in this program. The ground and most contaminated tree leaves are removed only in the immediate vicinity of the houses, but a comprehensive decontamination is impossible."

Cesium 137 is a radioactive isotope that is one of the more common byproducts from the formation of Uranium-235 in nuclear reactors.

"Six years later, the radioactive Cesium 137 has decreased by only 14 percent," Chareyron said.

Chareyron said the powerful gamma rays emitted by Cesium 137 could travel dozens of meters in the air. Therefore, the contaminated soil and trees located around the houses, which have not been removed, are still irradiating the inhabitants.

To underscore these points, his lab produced a video that shows the power of gamma radiation emitted from outside a building in Fukushima city in May 2011. That video can be viewed here, as can another clip showing the contamination inside Fukushima city in June 2012.

"In the contaminated territories, people are also exposed to an internal contamination through the ingestion of food and inhalation of radioactive dust suspended by the wind," Chareyron said. "For example the forest fire that lasted several days in April and May 2017 in the contaminated forest of Mont Jûman has dispersed radioactive dust all around."

He also reminded us not to forget the workers in the nuclear plant who were exposed to radiation. This occurred even while managing the radioactive waste that continues to be generated by the disaster, as well as the management of the Fukushima Daiichi damaged reactors.

Chareyron said that, according to TEPCO, in May 2017, 8,862 workers were monitored for radiation exposure at the nuclear plant (of which 7,899 are contractors).

The most elevated individual external dose was 7.36 milliSievert in one month.

By comparison, the annual dose limit for a member of the public is 1 milliSievert per year.

"A Carcinogen, a Teratogen and a Mutagen All Rolled Into One"

Hydrogen is the most abundant element in living cells.

"Once toxic tritium makes it into the environment, it will bind anywhere hydrogen binds," Savabieasfahani said. "Imagine a toxic particle that can freely travel through our cells and bind to every molecule of life in our bodies and cause damage. Tritium is a carcinogen, a teratogen and a mutagen all rolled into one."

According to Savabieasfahani, there is no safe threshold level for tritium, as it can harm living organisms no matter how low its concentrations.

"Tritium can cause tumors, cancer, genetic defects, developmental abnormalities and adverse reproductive effects," she explained. "Tritiated water is associated with significantly decreased weight of brain and genital tract organs in mice and can cause irreversible loss of female germ cells -- eggs -- in both mice and monkeys even at low concentrations. This we know."

Even at very low concentrations, tritium causes cell death, mutations and chromosome breaks. Per dose, it is twice as damaging to our genetic makeup as x-rays and gamma rays

"Once tritium travels up the food chain it becomes even more dangerous to life," Savabieasfahani said. "When incorporated into animal or plant tissue and digested by humans, tritium can stay in the body for 10 years or more. Internally exposed individuals can expect to be chronically exposed to the toxic impacts of this carcinogen for years to come."

And for infants and growing children, tritium exposure is even more dangerous.

Savabieasfahani explained that qualitative, quantitative, physiological and epidemiological evidence show that the internal uptake of tritium is 10 times more likely to cause cancer and neurological deficit in infants and children than in adults.

"Infants' and children's higher vulnerability to tritium is attributed to their increased gut absorption and their smaller body mass, as well as their heightened sensitivity to radioactive exposures," she added. "We have already observed that childhood cancers and leukemia are 22 percent higher near nuclear reactors, and where tritium has leaked into the environment."

Citing numerous studies -- including research from the University of Florida and the journal Radiation Protection Dosimetry -- Savabieasfahani stated emphatically that it is not enough to store that knowledge in "dusty library stacks."

"That knowledge must be taken down from the shelf and broadcast now, before 777,000 tons of radioactive water hit us in the face," she said.

Surfing in Tritium?

Truthout recently reported on how the Japanese government, by allowing TEPCO to dump tritium and then encouraging people who fled the Fukushima contamination zone to return to their homes, is essentially planning to expose both its own people and 2020 Tokyo Olympians to Fukushima radiation.

Furthermore, the International Olympic Commission is also working to paint conditions as "normal" - it even has plans for the 2020 Tokyo Olympics to hold baseball and softball games at Fukushima.

Why are so many powerful entities engaging in this bizarre and harmful attempt at normalization?

Chareyron believes that a nuclear disaster like the one affecting the TEPCO nuclear reactors at the Fukushima Daiichi site simply cannot be "handled properly," because highly radioactive material that should usually be kept confined inside the core of nuclear reactors has been dispersed in the environment.

"Therefore, the Japanese government authorities and TEPCO both try to influence the general public and the workers so that a situation of exposure to radiation that would usually be considered as unacceptable becomes progressively 'accepted,'" he said. "For example, the annual dose limit of 1

milliSievert for the public has been changed into 20 milliSievert, the annual dose limit for the workers has been increased to 100 milliSievert for those exposed to 'especially high radiation,' contaminated water is still leaking into the sea, and the authorities are planning to re-use contaminated material for road construction in order to lower the cost of radioactive solid waste management."

Chareyron also said that corium, a highly radioactive material, accumulated at the bottom of reactors one and three and is still to this day has not been precisely located, and nobody yet knows when it will even be possible to dismantle the reactors.

Chareyron believes both the Japanese government and TEPCO face enormous difficulties, because of the fact that it is impossible to properly decontaminate the affected territories. Furthermore, Fukushima prefecture residents are more or less "forced" to come back to their houses while the radiation is still high, since the government announced it will cut housing subsidies that were being provided to any of them not under mandatory evacuation orders.

He also shed light on how this massive dumping of radioactive tritium water is not likely to be the last time this occurs. Chareyron said that TEPCO still must pump out on a daily basis massive amounts of heavily contaminated water that is used to cool the reactor cores, and this water is also already contaminating the water table with radiation. He also expressed concerns around the lack of monitoring of how the general population in the region is being affected by the contaminated water.

Chareyron emphasizes that both the Japanese government and TEPCO have been fundamentally dishonest with the public.

"Since the beginning of the crisis, the Japanese authorities and TEPCO have been lying to the people about the adverse impact of radiation on health and the extension of the disaster," he said.

Savabieasfahani noted that TEPCO has been rewarded with trillions of yen in government subsidies since the 2011 nuclear disaster began. That disaster was preceded by TEPCO's false reporting of technical data to authorities on hundreds of occasions, and by the 2008 shutdown of one of its nuclear power plants following an earthquake.

Instead of doling out future subsidies, Savabieasfahani said, the government should be holding the company accountable.

"A far better outcome would be to force TEPCO's shareholders, starting with the largest, to pay for cleaning up the damage their company has caused," she said. "Let it be a warning to everyone trying to make similar profits, worldwide, from similar nuclear power ventures. The insane alternative of dumping all that radiation into the seas, and letting TEPCO shareholders keep the trillions of yen they have made from poisoning and lying to the public, is simply unspeakable."

Savabieasfahani wonders why so many academics and universities are silent on these matters.

"From Los Angeles to Tokyo, the universities are loaded with environmental scientists, public health researchers, epidemiologists, medical school professors, and soon they will be drinking tritium along with everyone else," she said.

On July 27, the journal *Science of the Total Environment* published a peer-reviewed article about radioactively hot particles being detected in soil and dust across northern Japan.

The article details the analysis of radioactively hot particles collected in Japan following the Fukushima Daiichi meltdowns.

Based on 415 samples of radioactive dust from Japan, the USA and Canada, the study identified a statistically meaningful number of samples that were considerably more radioactive than current radiation models anticipated. If ingested, these more radioactive particles increase the risk of suffering a future health problem.

However, despite substantial scientific research that demonstrates the ongoing radioactive danger created by the Fukushima disaster, Savabieasfahani notes that -- much like the government and the industry -- most academics have chosen not to speak out about the contamination.

"Don't these academics have anything to teach us, before their fish, seaweed, plants, crops and children are poisoned with 770,000 tons of radioactive water?" Savabieasfahani asked. "The silence of the entire academic world, as these proposals to dump tritium in our laps are being favorably discussed in the media, teaches a very different lesson: to just drink it up and let the shareholders make another buck."

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*[Seafood lovers world wide should be alarmed over this travesty of justice and sanity. It may take a decade for this lethal waste to reach the southern hemisphere, however, it will. So eat seafood in future at your own risk. The world today is run by corporations and financial institutions which engineered this outcome as they are responsible for the initial tragedy. Japan floats on three tectonic plates which create the many earthquakes and other geological disturbances on Japanese lands, it should never have been allowed to use atomic energy, which was initially installed by the American General Electric company, but as we are all aware the bottom line overrules ALL other considerations today. Surely it's high time to take back our nations/governments and regulate these nefarious commercial interests through the floor, but of course the opposite is occurring so who is ultimately responsible for these ongoing injustices and major pollution travesties -- WE ARE, so lump it!]*

<http://www.truth-out.org/news/item/41564-fukushima-plant-is-releasing-tons-of-radioactive-water-int-o-the-pacific-ocean>

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Jungle Drum Prose/Poetry. <http://jungledrum.lingama.net/news/story-2827.html>