



One of the 70,000 workers involved in cleanup efforts after the Fukushima disaster indicates bag placement of radioactive waste from Fukushima.

## Contamination & Radioactive “Hot Spots” in Fukushima Endanger Returnees, Olympic Games

A March report by Greenpeace Japan, “Radioactivity on the Move 2020,” is a stark reminder of the daunting and endless radiation hazards caused by the triple reactor meltdown of 2011 at the Fukushima-Daiichi complex.

In Fukushima Prefecture, spring snow melt and heavy rains remobilize stocks of radio-caesium in forests, hill slopes, and floodplains that were heavily contaminated by the radiation disaster, and that then contaminate areas downstream—frustratingly, even areas that were already decontaminated. “... as a result of the contamination in 2011, these uphill forests serve as a long-term source of radioactivity for the areas below. The principle radioactive source, cesium-137, has a half-life of 30 years, and therefore will remain a hazard for around ten half-lives, or 300 years.

Conducted soon after the October 2019 Typhoon Hagibis, which was one of the most powerful typhoons in 100 years, the group’s survey “observed concentrated radiation levels throughout Fukushima Prefecture, including significant radiation hotspots...” Building on its 2016 report “Radiation Reloaded,” Greenpeace’s extensive radiation survey raises alarms about the re-contamination caused by Hagibis, “which released radioactive cesium [downhill] from the forested mountains of Fukushima prefecture which make up 70% of the region, and which cannot feasibly be decontaminated.”

The report paints an accusatory picture of Japan’s government, “Which continues to push its propaganda of normalization in Fukushima,” in order to convince the public in general and evacuees in particular that it is safe to return to their houses. The report notes that “the Japanese government remains committed to policies which aim to pressure tens of thousands of Japanese Internally Displaced Persons to return to their former homes.”

The government’s resettlement push is also motivated by the huge economic investment in hosting the postponed summer Olympics. The games have been put off until July 23, 2020, not because of the radioactive dangers documented and presented to the government by Greenpeace Japan, but because of the coronavirus pandemic.

One example of the government’s recklessness, is its arbitrary setting of radiation exposure allowances. Global standards for radiation exposure are set by the International Commission on Radiation Protection, and the maximum exposure for the general public in Japan was one (1) milliSievert per year (mSv/y) until 2012.

But in April 2012, the government increased the maximum annual exposure twenty-fold, to 20 milliSieverts per year (20 mSv/y). This eye-popping increase of allowable exposure applies across-the-board to infants and children, while girls and women are all known to be more vulnerable to the harmful effects of radiation than adult men. Greenpeace says this was done “as part of its strategy to lift evacuations orders.”

The typhoon’s recontamination and resulting levels of potential radiation exposure have caused a “... radiological situation in Fukushima prefecture, specifically in both the open and exclusion zones of Namie, Iitate, and Okuma, [that] leads Greenpeace Japan to conclude that levels remain too high for the safe return of thousands of evacuees to these areas,” the report says. “Namie, Iitate, Okuma and Futaba remain highly contaminated.”

In its consideration of areas where evacuation orders have already been lifted, the report is highly critical. “Japanese government maintains that exposure to 20 mSv/y is acceptable in these lifted evacuation order areas. This is despite clear scientific evidence of the cancer risks from low dose radiation exposure in the 1-5 mSv/y range, which the Japanese government continues to disregard.”

Decontamination efforts have been a large part of the government’s strategy of returning people to areas hit with radioactive fallout. Yet decontamination has been less effective around houses located close to hillside forests, “where decontamination is not possible.” Unfortunately, the report notes, “radioactivity from the non-decontaminated forest might re-contaminate the already decontaminated area below and closer to houses.”

In addition, radioactive particles and organic matter carried down from forests and fields with heavy rains and typhoons “will create continuing, subsequent influxes of radio-caesium in lakes and coastal ecosystems for years and decades to come,” the report notes. “In particular, typhoons cause significant increases in cesium discharges into the Pacific Ocean.”

The survey also discovered high levels of radiation and multiple radiation “hotspots” in Fukushima City, the J-Village sports complex and along the route of the Olympic Torch run. These findings directly challenge the government’s “propaganda narrative” leading up to the Olympic Games, and endanger athletes and everyone else involved with the games. —*JL*

## Over a Million Tons

In August 2018, Tokyo Electric Power Company (Tepco), admitted that the “Advanced Liquid Processing System” or ALPS filters had failed to remove deadly radioactive materials from waste cooling water, putting the lie to its repeated assurances that ALPS would remove everything but tritium—the radioactive form of hydrogen.

News services noted, “The tritium-tainted water piling up at the crippled Fukushima No. 1 nuclear [reactor site] has been found to contain other radioactive substances, defying the defunct plant’s special treatment system, Kyodo News has learned.”

Nine years since the disaster began, tons of cooling water are still constantly poured over the amassed (melted) uranium fuel underneath destroyed reactors 1, 2, and 3 at Fukushima. Three mounds of thousands of tons hot, molten uranium fuel wreckage have to be cooled constantly to prevent new fires, explosions and major radiation releases.

Tepco told the public that iodine-129, ruthenium-106 and technetium-99 failed to be filtered by ALPS. Unlike the cesium-137 and strontium-90 that have reportedly been captured by the system and which have radioactive half-lives of roughly 30 years, iodine-129 has a half-life of 15.7 million years and persists in the environment for 15.7 million years (ten half-lives). Ruthenium-106 has a half-life of 373 days and persists for 10 years; technetium-99’s half-life is 211,000 years and it persists for 2.11 million years.

Tepco said in 2018 it had not checked the levels of radioactive materials in each tank. As of Jan. 23, 2020, there were over 680 tanks on site holding 1,184,858 cubic meters—over a million tonnes—of the liquid radioactive waste.

—*JL*

— Citizen’s Nuclear Information Center (Tokyo), “Current State of Post-Accident Operations,” April 3, 2020; BBC, “Fukushima: Radioactive water may be dumped in Pacific,” Sept. 10, 2019; Water Technology.com, “Fukushima Plant’s ALPS Treatment System in Trouble,” Aug. 27, 2018; and *Japan Times*, “ALPS System at Fukushima No. 1 Plant Failing to Remove More Than Tritium from Toxic Cooling Water,” Aug. 19, 2018

## Reactors at War

*Defense News* reports that US military planners are seeking design ideas for small nuclear reactors that can supply electricity to combat operations in war zones. The Pentagon has given contracts to BWX tech, Westinghouse GS, and X-energy, launching a two-year design competition for a small reactor made to be “forward deployed with forces outside the United States.” Lt. Col. Robert Carver, a Pentagon spokesman told *Defense News* the reactor(s) would serve “a variety of [military] missions such as generating power for remote operating bases.”

The competition is for a small, portable prototype reactor potentially used in the midst of combat-riddled wars of occupation. The Pentagon’s spokespersons refer repeatedly to the plan’s “safety.” Carver told *Defense News* the plan “involves the development of a safe, mobile and advanced nuclear micro-reactor.” And program manager Jeff Waksman said in a Pentagon statement, that the plan’s “uniqueness lies in the reactor’s mobility and safety.”

While a more dangerous wartime target can hardly be imagined, the poison-powered war plan is only one of two. Pentagon and Department of Energy workers are currently running a pilot scheme for a small reactor, testing it at the DOE’s civilian Idaho National Laboratory, according to Pentagon spokesman Lt. Col. Mike Andrews.

Edwin Lyman, director of the Nuclear Safety Project at the Union of Concerned Scientists, believes that the Pentagon has “consistently underestimated” the “spectrum of mission risks posed by these micro-reactors,” especially in war zones. Reactors could be attacked or radioactive fuel material could be stolen and used in potential “dirty bombs.”

—*Defense News*, March 9, 2020