

Fukushima: Disaster Response is to Spread Radioactive Waste to the Commons

By John LaForge

Fourteen-million cubic meters of radioactive “fill” could be spread to the commons

Japan has doubled down on the nuclear industry’s historical practice of spreading radioactive pollutants to public air space and to common waterways.

In addition to the often-reported pumping of thousands of tons of radioactively contaminated cooling water to the Pacific Ocean from the Fukushima-Daiichi reactor complex, the government has announced its intention to spread around the country as much as 14 million cubic meters of radioactively contaminated soil, reportedly for road-building, construction projects, and even agricultural underlayment. Last September the International Atomic Energy Agency in Vienna — which promotes the nuclear reactor industry around the world — declared that the plan to disperse the waste “is consistent with international safety standards.”

The federal government in Tokyo announced a cabinet-level meeting set for December to discuss its plans to disperse the contaminated soil in public works projects. In 2016, a government study group outlined the plan to allow 14 million cubic meters of contaminated soil generated from decontamination in Fukushima prefecture, to be used for public works projects and agricultural land development nationwide, if it emits less than 8,000 becquerels-per-kilo of cesium-137. The becquerel is a measure of radioactivity, and vast areas were contaminated with wildly varying amounts of cesium-137 and other radio-isotopes which spewed from Fukushima’s three out-of-control reactors.

The contaminated soil was scraped up and removed from farms, school yards, public parks, and other green spaces during the government’s attempt to “decontaminate” thousands of square kilometers around the Fukushima-Daiichi site. These millions of bags have been kept in the open air for years at over 1,000 “temporary storage sites” in Fukushima prefecture.

The *Japan Times* reported in 2015 that there were then 22 million cubic meters of the poisoned soil in bags. Four years ago, the Indian daily *The Hindu* said that there were 20 million cubic meters, and that by early 2019 its collection and bagging had cost the government \$27 billion.

Fukushima’s cesium fallout contaminated over 9,000 square kilometers (3,474 sq. miles) of forests, farmland, and residential areas, according to a 2019 European Geosciences Union (EGU) assessment of the decontamination work, that was published in the journal *Soil*. The *Hindu* reported in January 2020 that the EGU authors warned, “No decontamination activities are planned for the majority of forested areas, which cover about 75 per cent of the main contaminated area,” and that “outdoor workers in the special decontamination zone [a 1,117 sq. km area] may, as a group, be exposed to more than the government’s long-term suggested limit of radiation.”

The cesium-contaminated waste should be containerized and kept out of the environment for up to 300 years (after the cesium has decayed to other elements). But the government has arbitrarily decided that a certain amount of cesium-137 contamination will be permitted in “fill” for highway construction and other projects.

To make way for the public’s contamination with the radioactivity in public works and agriculture, the government has increased by 80 times the “allowable” cesium contamination in the collected soil. Hajime Matsukubo, with the Nuclear Information Centre in Tokyo, has warned that the standard for soil contamination was previously just 100 becquerels per kilogram. The new 8,000 Bq/kg limit goes “against their own recommendations,” according to Matsukubo, who said, “My fear is that once they relax this rule, they can then go on and ease all sorts of other rules.” (In a related case of weakening radiation standards, in 2023 the government shortened the list of radioactive materials it will measure in seawater near the Fukushima contaminated wastewater release site from 64 to 30. The new list removed 39 nuclides and added five.)

The daily *Yomiuri Shimbun* reported December 5, that the ministers will consider using soil “as a base for asphalt in road construction, after taking measures to prevent the radiation from spreading.” The paper noted that Tokyo actually tested the use of the contaminated soil in farm fields, “harvesting cucumbers and daikon radishes in fields where the [contaminated] soil has been covered with normal soil and using it to raise the ground level.”

Rain moving through the cesium-contaminated soil will of course move the long-lived radioactive material into groundwater.

Melted fuel: Under 1 gram removed, only 880 million grams to go

The first tiny morsel of melted reactor fuel has been removed by a remote-controlled robotic arm from inside unit #2 of the Fukushima-Daiichi triple disaster (earthquake, tsunami, meltdowns) in Japan. It could take up to a year to analyze the 0.7 grams (1/40th of an ounce) of lethally radioactive debris that was grasped by the 72-foot long robot, according to a Nov. 21, 2024 announcement by Fukushima’s owner/operator Tokyo Electric Power Co. (Tepco). Reactor #2 holds an estimated 237 tons of melted reactor fuel wreckage.



Some of the 14-to-22-million cubic meter bags of radioactive waste, collected from contaminated areas after Japan’s 2011 triple reactor disaster, are piled up at a temporary storage site in Tomioka, Fukushima prefecture. Photo from 2015 by Kyodo.

Tepco also said that studying this bit of waste — about one raisin worth — will “shed light” on the chemical structure of the estimated total 880 tonnes of ruined, radioactive, and hot reactor fuel now lost somewhere below the site’s three rubbished reactors. For perspective, there are 1 million grams in 1 metric tonne, so the 880 tonnes of melted reactor fuel amounts to 880 million grams.

In March of 2011, the three units lost all cooling capacity which caused their uranium fuel rods to overheat beyond control and melt. Some experts speak of the possibility of a “melt through,” in which the extreme temperature of the molten core causes it to burn through the bottom of the steel reactor vessel. This possibility has not been ruled out at Fukushima.

Fukushima-Daiichi’s first-ever triple-reactor meltdown followed the 2011 earthquake, the largest in Japan’s recorded history — which smashed the reactors’ foundations and wrecked off-site transmission lines, and produced the biggest tsunami in Japan’s recorded history, which then destroyed the site’s emergency diesel generators causing a “station

blackout.” The catastrophic March 11 earthquake killed or disappeared an estimated 20,000 people, and the resulting tsunami and meltdowns amounted to an astonishing and unheard-of triple terror of wide-spread earthquake destruction, devastating floodwaters, and vast plumes of radioactive gases and liquids spread around the Northern Hemisphere by the wind and throughout the Pacific Ocean by currents.

Now, 13 years since the events began, the Japanese government, Tepco, and Japan’s reactor industry need to convince the public that some 880 tonnes of reactor fuel inside or under the devastated reactors can be cooled, captured, and contained for hundreds of thousands of years — the period that the fuel remains lethally radioactive. Finding, removing, and packaging the melted uranium and plutonium fuel (6 per cent of the fuel in reactor #3 was plutonium) is likely an impossible mission, but officially remains a part of the government’s disaster response and decontamination process.

The time and expense of managing this volume of lethally radioactive waste will be so enormous that Japan will eventually decide instead to cover the deadly wreckage with a giant Quonset hut, like the Soviet Union and later Russia did at Chernobyl. At the site of the 1986 single-reactor disaster in Chernobyl, the then USSR simply abandoned the fuel wreckage and rubble and built a covering to keep rain off of the highly radioactive materials. This first concrete cover degraded rapidly and was famously replaced in 2019 with a giant sliding cover at a cost of 1.5 billion Euros. — ***For more information: A detailed evaluation of Japan’s deceptive plan to use contaminated soil in public works projects is now available from the Citizens’ Nuclear Information Center (Tokyo), at <https://cnic.jp/english/?p=7917>.***



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