

# Japan: TEPCO dumps radioactive water in sea

Mike Head  
6 April 2011

Concerns about the levels of contamination from the crippled Fukushima Daiichi complex mounted yesterday after the Tokyo Electric Power Company (TEPCO) announced that, with the Japanese government's approval, it was pumping 11,500 metric tonnes of "low-level" contaminated water into the ocean from the plant.

In their latest ad hoc response to the ongoing disaster, TEPCO and the government stated that the action was essential to clear space for the storage of more highly contaminated water. Chief Cabinet Secretary Yukio Edano told a media briefing in Tokyo on Monday: "There was no choice but to take this step to prevent highly radioactive water from spreading into the sea. The fact that radioactive water is being deliberately dumped into the sea is very regrettable, and one we are very sorry about."

The water that TEPCO began releasing that night has radioactive iodine-131 contamination around 100 times, and as much as 500 times, what is considered safe, and cesium-134 and cesium-137 of some 50-70 times. Iodine-131 has a half-life of eight days and can accumulate in the thyroid in humans, possibly raising the risk of thyroid cancer. Cesium-137 has a much longer half-life of 30 years.

TEPCO is undertaking two releases. The first involves 10,000 tonnes of water that had flooded a radioactive waste processing facility, which TEPCO intends to use as storage for the highly radioactive water that has pooled in parts of the reactor complex. The waste facility is not designed to hold water, but it is reportedly not leaking, so the company decided to empty it in order to pump in the more-radioactive water.

The second release is of 1,500 tonnes of water that has been collecting in drainage pits around reactors

Nos. 5-6. Authorities are concerned that the water may eventually flood the rooms holding the recirculating pumps that have prevented those two units from dangerously overheating.

The water storage crisis has arisen because TEPCO has been forced to rely on makeshift methods of bringing down temperatures by pumping water into the reactors. "We must keep putting water into the reactors to cool to prevent further fuel damage, even though we know that there is a side effect, which is the leakage," NISA spokesman Hidehiko Nishiyama said.

Some of the most dangerous water has already seeped from the plant, although it remains unclear how much. That water, thought to be coming from reactor 2, is giving off radioactivity of 1,000 millisieverts an hour. Just 15 minutes exposure to this water would result in emergency workers at Daiichi reaching their permitted annual limit of 250 millisieverts.

The potential dangers from that leakage were underscored yesterday when TEPCO revealed that a water sample taken near the No. 2 unit had showed the level of radioactive iodine-131 at 7.5 million times the allowable limit.

Also yesterday, Japanese authorities said they had discovered fish off the Pacific coast carrying high levels of radioactive materials. One sample of *konago*—or young lance fish—caught Friday contained twice the permissible level of radioactive iodine. Another *konago* sample, caught Monday, had just over the permissible limit for cesium.

Officials from TEPCO, the government and the official Nuclear Industry Safety Agency (NISA) have said repeatedly that the level of radiation that has entered the sea over the past two weeks posed no major immediate threat to humans or to the environment, because the water disperses quickly into the Pacific

Ocean. But the contaminated fish were caught about 80 kilometres south of the reactors.

These developments are further indications of the dominant features of TEPCO's officially-backed response to the nuclear disaster triggered by the March 11 earthquake and tsunami: cover-ups of the seriousness of the crisis and improvisations to stem the unforeseen or previously unacknowledged damage.

The company has also been using untried methods to try to stop the more highly radioactive water escaping into the sea. Engineers thought the leakage was coming from a crack in a maintenance pit they discovered on Saturday, but several attempts to seal the crack failed. TEPCO reported today that the injection of a "liquid glass" gel around a damaged pipe had managed to halt the flow. Previously, unsuccessful efforts had been made to use trace dye to determine the route of the leaked water.

With the Japanese government warning that it could take months to stop the release of radioactive materials, fresh concerns have been expressed by scientists, neighbouring countries and fishermen. "We're seeing the levels of radioactive materials in the water increase, which means this problem is going to continue to get worse and worse," Kenya Mizuguchi, emeritus professor of maritime science and technology at Tokyo University, told the *New York Times*. He noted that long-lasting radioactive isotopes like cesium 137 collected in larger fish as they consumed smaller fish, which meant the health dangers could grow over time.

South Korea's embassy in Tokyo on Monday said the dumping of radioactive water could breach international laws, which require consultation. "For now, we have no clear standards to determine how much is how bad for us," one Korean foreign ministry official told the Yonhap news agency. "We're working with scientific and legal experts to come up with a clear guideline."

Fishing communities, already devastated by the tsunami, are being badly affected by TEPCO's water dumping, with the prices for some fish dropping by half or more in recent days. Seizaburo Tsuruoka, deputy chief of the Isumi-East Fisheries Cooperatives in Chiba Prefecture, south of Fukushima, told the *New York Times*: "While the government says, 'Don't worry,' the company says it will release water from the plant. I'm sure the general public feels very uncomfortable,

and we get hurt."

Many thousands of people depended on fishing and associated industries in now-destroyed towns and villages dotted along the Pacific coast. An April 1 United Nations report said 18,500 fishing vessels had been damaged or lost in northern Japan. According to the Japan Fisheries Agency, 5.3 million tons of fish were produced nationally in 2009, worth 1.47 trillion yen (\$US17.44 billion), with the tsunami-affected coastline accounting for about 25 percent of the total.

Local anger at TEPCO has increased since Sunday when a Fukushima newspaper reported that on March 26, two weeks after the tsunami, the company informed Fukushima prefecture of plans to start building two new reactors—Nos. 7 and 8—at the Daiichi plant as early as next year. Despite objections by Fukushima authorities, the proposal was also submitted to the Ministry of Economy, Trade and Industry in Tokyo on March 31 as part of an annual process designed to assess Japan's future electricity supply.

Hiroshi Aizawa, a TEPCO official in Fukushima, told the *Washington Post* on Monday his office had been bombarded with calls from outraged residents, particularly farmers. The company was now so reviled that it had covered up its name on some buildings to spare employees abuse.

TEPCO had made no mention of its plans last week, when it announced that four reactors at Daiichi would never go back into service. After the outcry, TEPCO said it would withdraw the proposal, at least for now. "At this point, it is impossible to talk about adding No.7 and No.8 (reactors)," executive vice-president Takashi Fujimoto told TBS News TV on Monday evening.



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