

Japan Two Years After : Dumping water from Fukushima nuclear plant into ocean while study turns up cesium in wildlife?

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TEPCO considers dumping water from Fukushima nuclear plant into ocean

Tokyo Electric Power Co. (TEPCO) has started to consider dumping massive amounts of water from the crippled Fukushima No. 1 Nuclear Power Plant into the Pacific Ocean after treating the radiation-tainted water.

The utility is considering taking the measure because space on the premises of the nuclear power station for storage tanks for contaminated water is nearing its limit. Before releasing the contaminated water into the ocean, TEPCO plans to introduce new purification equipment to remove radioactive substances from the contaminated water as early as the end of March and conduct a test operation. But with the local fisheries industry standing firmly against any move to release the water into the ocean, the situation remains far from resolved.

At an expert meeting of the Nuclear Regulation Authority (NRA) held in Tokyo on March 1, a TEPCO official commented on how to deal with the ever-increasing contaminated water, saying, "We will treat it with new purification equipment. If we were to release the water into the ocean, we would like to obtain the understanding of the people concerned." Responding to this, Prime Minister Shinzo Abe told a plenary session of the House of Representatives on March 5, "The water will not be released into the ocean easily."

There is about 360,000 cubic meters of contaminated water on the premises of the Fukushima No. 1 Nuclear Power Plant. Of the total volume of the water, about 80,000 cubic meters is in reactor buildings at the No. 1 to No. 4 reactors and about 40,000 cubic meters is in other reactor buildings and elsewhere, leaving storage tanks that can hold only about 240,000 cubic meters available.

TEPCO is currently using cesium absorption equipment to remove radioactive substances such as cesium from the contaminated water. The utility then separates it into pure water and condensed salt water, and reuses the pure water to cool molten fuel and store the condensed salt water in tanks.

There is apparently an influx of about 400 cubic meters of groundwater per day beneath the reactor buildings, but the influx routes have not been confirmed. TEPCO plans to build more storage tanks by September 2015 to boost the capacity to a total of 700,000 cubic meters. But space on the premises of the plant for such storage tanks is nearing its limit.

Furthermore, the condensed salt water in storage tanks and the pure water to be used as coolant still contain not only cesium but also many other radioactive substances such as strontium. A senior NRA official voiced concern, saying, "There is always a danger of radioactive substances being released from storage tanks into the general environment." Problems have emerged one after another, hampering efforts to decommission the nuclear power station.

This led TEPCO Managing Director Akio Komori to declare the need to consider the release of water into the ocean as an option. Hoping to make the option a reality, the utility introduced a water purification system called "ALPS." On Feb. 21, an NRA expert panel endorsed TEPCO's plan to conduct a test run on ALPS, saying, "The risk involved in the problem of contaminated water can be reduced by introducing ALPS." TEPCO plans to test the new system soon.

However, while the new system is capable of removing a total of 62 of the 63 radioactive substances so far detected, it cannot remove radioactive tritium for technical reasons. The concentration of tritium contained in contaminated water and other areas is about 1,300 becquerels per 1 cubic centimeter, exceeding the government-imposed limit of 60 becquerels per 1 cubic centimeter. Therefore, the NRA demanded TEPCO store condensed salt water on the premises of the nuclear plant even after treating it using ALPS.

University of Tokyo professor Satoru Tanaka, who is knowledgeable on tritium, said, "Tritium removal equipment is operating in Canada, but a huge device is needed to remove the substance from such a large amount of contaminated water as that from the Fukushima plant. It is unrealistic. Even if the water were to be released into the ocean, it would have to be diluted to push the levels of tritium below the prescribed standard." On how to treat the tritium, TEPCO said, "It is under consideration at present."

Shoichi Abe, a senior official of the Soma Futaba fisheries association, angrily said, "Even if tritium is diluted, it cannot be removed 100 percent. If it is released into the ocean, consumers will look at Fukushima's seas with suspicion."

On April 2, 2011 — shortly after the outbreak of the nuclear disaster — highly radioactive water that leaked from the No. 2 reactor flowed into the ocean. Shortly after that, TEPCO intentionally released low-level radioactive water into the ocean without consulting with local residents in advance. Because of this, the fisheries industry was forced to stop operations to catch fish temporarily in waters off Fukushima.

The issue of releasing the contaminated water into the ocean has emerged at a time when the local fisheries industry has just begun to rebuild itself. Therefore, the Fukushima Prefectural Federation of Fisheries Cooperative Associations has been urging TEPCO to pledge never to release contaminated water into the ocean.

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<http://mainichi.jp/english/english/newsselect/news/20130306p2a00m0na019000c.html>

Study turns up cesium in wildlife

Animals and insects in the vicinity of the Fukushima No. 1 plant contain high concentrations of

radioactive cesium, providing a clue to how radioactivity accumulates in the food chain, a study has shown.

More than 6,700 becquerels per kilogram of cesium 137 were detected in a frog captured in Nihonmatsu, Fukushima Prefecture, 40 km west of the crippled nuclear facility, according to a survey published Saturday by Tokyo University of Agriculture and Technology and Hokkaido University.

The finding suggests animals relatively high up the food chain tend to accumulate more radioactive substances, the team of scientists said. There has been little research data on radioactive contamination of wildlife so far other than a few birds and animals caught by hunters.

The study also found 2,843 becquerels per kilogram of cesium 137 in a freshwater crab. As for insects, a reading in excess of 4,313 becquerels was detected in a camel cricket while 957 becquerels were recorded in a beetle, it said.

In Midori, Gunma Prefecture, around 180 km southwest of the Fukushima No. 1 plant, up to 903 becquerels were detected in frogs and 403 becquerels in a camel cricket.

Concentration levels appear to vary depending on how animals ingest food contaminated with radioactive materials, and geographical traits may also cause differences in how contamination occurs, the team concluded.

Kyodo News, March 4, 2013

<http://www.japantimes.co.jp/news/2013/03/04/national/study-turns-up-cesium-in-wildlife/#.UTVNbDfA55s>
