

# Japan two years after: discovery of a new radioactive water cistern leak at Fukushima nuclear plant

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## **Tepco halts transfer of radioactive seawater after seepage is found in receiving reservoir — Fukushima springs new cistern leak**

Tokyo Electric Power Co. had to halt the transfer of radioactive seawater from one leaking sunken reservoir to another at its stricken Fukushima No. 1 nuclear plant after it found a new cistern leak, the Nuclear Regulation Authority said Tuesday.

Tepco had been moving the tainted water from reservoir No. 2 when water samples taken Tuesday morning from between waterproofing sheets of reservoir No. 1 showed salt concentrations had risen sharply from a day earlier. Tepco was also testing the water for radioactive substances.

The current water level of the No. 1 reservoir was unclear because Tepco had been in the process of transferring water.

There are seven sunken reservoirs at the Fukushima plant, whose surfaces are capped above ground, and three of them so far have been found to be leaky.

On Saturday, Tepco announced that 120 tons of seawater containing about 710 billion becquerels of radioactivity had escaped from reservoir No. 2 and leaked into the ground.

Because of that leak, Tepco had planned to transfer about 9,200 tons of its water to reservoir No. 1. But because of the leak in that cistern, the utility will move 6,200 tons of water that had already been transferred, as well as the remaining water in reservoir No. 1, to above-ground storage tanks.

Tepco said Tuesday it will continue using the remaining four reservoirs that haven't leaked.

The utility has introduced a system to purify contaminated seawater leaking from containment vessels – first by removing radioactive substances and then removing salt – and recycling it as coolant for the crippled reactors.

The reservoirs were used to store water removed in this process that has high salt concentrations. Although cesium is removed, strontium still remains. Tepco has been testing a new purifying system called ALPS, which can remove 62 kinds of radioactive substances – including strontium, since the

end of March.

Tepco built the cisterns as temporary storage for the tainted water by digging ditches and lining them with three waterproof sheets made of polyethylene and bentonite to prevent water from leaking into the ground.

**Jiji Press**, Kyodo News, April 9, 2013

<http://www.japantimes.co.jp/news/2013/04/09/national/fukushima-springs-new-cistern-leak/#.UWSo7fjUpWE>

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## **Japan: Tepco finds second pit leaking in Fukushima — Seepage minor but casts doubt on radioactive storage strategy**

A second underground storage pool is leaking radioactive water at the disaster-stricken Fukushima No. 1 power plant, operator Tokyo Electric Power Co. said Sunday.

The first pool, No. 2, was found to have leaked 120 tons of highly radioactive water on Friday. The size of the leak at the second pool, No. 3, was confirmed at 3 liters late Sunday. The leaks are likely to force Tepco to review its storage strategy for the toxic water, which has become its biggest enemy.

Since the leak is small, there are no plans to drain pool No. 3 into another storage area as is being done with pool No. 2, Tepco said.

The pools are part of a group of seven vast clay-lined storage pits at the plant measuring 60 meters long, 53 meters wide and 6 meters deep. Since each is covered in three layers of protective waterproof lining, how the water escaped will remain a mystery until the faulty pits are drained and examined.

Tepco said Saturday it detected just 0.11 becquerel of radioactive substances emitting beta particles, such as strontium, per cubic centimeter of groundwater found outside the external lining of pit No. 3 the same day. The radiation level was about double that detected Wednesday.

At that time, the utility said the water leaked by pit No. 2 may have seeped into the soil surrounding No. 3, where the second case of leakage was found. But after detecting substances exhibiting 2,200 becquerels of radioactivity in water found between the second and third layers of lining at No. 3 on Sunday, the utility concluded that this pit was leaking as well. The reasons behind the radiation discrepancies were not explained.

The water level inside pool No. 3, however, hasn't fallen, indicating the leak isn't that large, Tepco said.

Tepco is transferring the remaining water in No. 2 to two other pits, but the water escaping from No. 3 is raising questions about the integrity of all of the pools and the subsequent risk to the environment.

Aside from the pools, the power plant has been building makeshift tanks to store the tainted

seawater, which is perpetually needed to cool the damaged reactors' melted fuel rods. But capacity is running out quickly.

Masayuki Ono, a senior Tepco official, said at a news conference Sunday that it is difficult for the plant to store all of the radioactive water in the temporary tanks.

On Saturday, Tepco said that around 120 tons of contaminated water with an estimated 710 billion becquerels of radioactivity probably leaked into the ground under the Fukushima No. 1 power plant. No explanation was given about where it might have ended up.

"It is the largest amount of radioactive substances that has been leaked" since the crippled facility's cold shutdown was declared in December 2011, Tepco official Masayuki Ono said.

The utility said the remainder of the water in pool No. 2 - an enormous 13,000 tons - is being pumped into other tanks nearby - a process expected to take days.

**Jiji Press**, April 8, 2013

<http://www.japantimes.co.jp/news/2013/04/08/national/tepco-finds-second-pit-leaking-in-fukushima/#.UWSmuvJUpWE>

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### **Reactor 3 cooling pool stops for three hours**

The system keeping spent fuel cool in the pool for reactor 3 at the Fukushima No. 1 power plant stopped Friday and was restarted three hours later, Tokyo Electric Power Co. said.

In the latest glitch at the crippled facility, an alarm sounded at 2:27 p.m. and technicians soon confirmed that the cooling system was not working, a Tepco spokesman said.

"We have no information at hand about the cause," the spokesman said.

Although the breakdown was not thought to be immediately dangerous, it served as a reminder of the precarious state of the atomic plant more than two years after it was crippled by the giant tsunami of March 2011.

Last month, a power outage at the plant stopped cooling systems for four pools storing spent nuclear fuel after a rat interfered with the electrical flow.

As of 2 p.m. Friday, the temperature inside the reactor 3 pool was 15.1 degrees, indicating the spent fuel was stable and was not posing an immediate danger to the environment, Tepco said.

**AFP-Jiji Press**, Kyodo, April 6, 2013

<http://www.japantimes.co.jp/news/2013/04/06/national/reactor-3-cooling-pool-stops-for-three-hours/#.UWPkLPJUpWE>

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## **Mistake halts Fukushima No. 1 water cleaner**

Tokyo Electric Power Co. said Thursday a system that can substantially reduce radioactive substances in tainted water at the Fukushima No. 1 nuclear plant has been halted because of a worker's operational mistake.

The advanced liquid processing system, or ALPS, had been in continuous operation since it was switched on for a test run starting Saturday.

The equipment was halted at around 5:25 a.m. Thursday after the worker pushed the wrong button.

As no problem was found, the plant started discharging water from the ALPS at around 6:35 a.m.

Tepco is depending on the system to drastically cut the levels of 62 types of radioactive materials in water, excluding tritium.

On Wednesday, Tepco announced that an alarm went off at the crippled plant to warn that a dust monitor near the main gate had detected radioactive materials above an acceptable level in the air.

The utility said the incident was probably the result of an equipment malfunction because there were no major changes in radiation levels around the monitor and no problems with the reactors' water injection and cooling systems.

According to Tepco, the alarm sounded around 3:55 p.m., warning that radioactive materials were detected above the set level of 0.0001 becquerel per cubic centimeter.

Dust monitors in other places and at monitoring posts showed no abnormalities, but Tepco issued a temporary order for workers at the plant to wear full face masks, including in zones where they are allowed to work without a mask.

No abnormal figures were found when radiation levels around the main gate were measured using a portable dust monitor, Tepco said.

Tepco also revealed Wednesday that it did not make public that dust monitor alarms sounded four times at the plant between November 2011 and November 2012. In each case, measuring equipment stopped showing abnormal readings after being reset.

A Tepco official said the company decided to announce the latest alarm activation after the power outage at the plant in March.

**Jiji Press**, April 5, 2013

<http://www.japantimes.co.jp/news/2013/04/05/national/mistake-halts-fukushima-no-1-water-cleaner/#.UWPhsPJUpWE>

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