

Fukushima: “Contaminated water is suspected of leaking into reactor-housing buildings and facilities nearby”

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TEPCO fears leaks after level of contaminated water in disposal facility drops

Tokyo Electric Power Co. (TEPCO) said on May 26 that it had discovered a drop in the level of contaminated water kept in the basement of a building near troubled nuclear reactors at the Fukushima No. 1 Nuclear Power Plant, but the utility said the possibility was low of the toxic water leaking out of the facility.

TEPCO, the operator of the crippled nuclear power plant, said the level of contaminated water kept in the basement of a building within the central waste disposal facility near the crippled nuclear reactors had dropped by about five centimeters in one day. The water was transported to the building from the No. 3 nuclear reactor. TEPCO said its analysis showed no change in ground water on the premises, and therefore it said, “The possibility is low of the water leaking out of the facility.”

The contaminated water in the No. 3 reactor had been transported to the building in the waste disposal facility since May 17, but TEPCO stopped transferring the water to the building because the volume of the water approached the building’s capacity soon after 9 a.m. on May 25.

The water level dropped about 48 millimeters during the period between 11 a.m. on May 25 and 7 a.m. on May 26. The quantity of the water is believed to be about 50 cubic meters.

TEPCO said, “It is possible that the water is leaking from part of the second basement of the building that is not fully watertight into the access way to another building.”

If the water leaked out the facility, TEPCO has to transport the contaminated water to another place. But another building within the central waste disposal facility is almost filled up with radioactive water from the No. 2 reactor, and therefore it is difficult to secure extra space for the water.

About 22,000 cubic meters of radioactive water was found in the turbine building of the No. 3 reactor. A facility to receive the water from the No. 3 reactor is capable of taking up to about 4,000 cubic meters of water, but it stopped accepting any more water after taking in a total of 3,660 cubic meters of radioactive water.

TEPCO's analysis released on May 25 showed the possibility of piping that is used to supply coolant water to the reactor core in emergencies being damaged. The cooling system involving the piping is called a "high pressure coolant injection" system. It is highly possible that tremblers caused damage to the piping because it is housed inside the reactor building, making it less vulnerable to tsunamis.

Mainichi , May 26, 2011

<http://mdn.mainichi.jp/mdnnews/news/20110526p2a00m0na014000c.html>

TEPCO says it continued seawater injection at reactor without interruption

TOKYO (Kyodo) — Tokyo Electric Power Co. said Thursday it had continued injecting seawater into its No. 1 reactor at its crisis-stricken nuclear plant in Fukushima Prefecture, reversing its earlier story that it had suspended the work after receiving information that the prime minister's office was concerned about it.

The utility, known as TEPCO, said it learned of the move after questioning the head of the Fukushima Daiichi nuclear power plant, who told company officials this week that he had gone ahead in continuing seawater injection into the No. 1 reactor despite the firm's decision to suspend the work.

TEPCO had earlier said it began injecting seawater to cool nuclear fuel inside the reactor on the evening of March 12, one day after the magnitude 9.0 earthquake and tsunami, but that it suspended the work 21 minutes later before resuming it another 55 minutes afterward.

A crisis management office consisting of government and TEPCO officials had said the initial injection was suspended after the prime minister's office conveyed its concern that seawater injection could cause fuel rods to resume fission, a phenomenon otherwise called "recriticality." The work was resumed after Prime Minister Naoto Kan gave a directive for the seawater injection, according to the office.

TEPCO said the plant chief, Masao Yoshida, had thought it safer to continue injecting the seawater to prevent the crisis from worsening, adding that the latest finding came to light during its questioning of him between Tuesday and Wednesday. TEPCO conducted the questioning after the issue became a focus of attention in Diet deliberations, it said.

"I decided to report the facts because of a probe conducted by the International Atomic Energy Agency and because various international appraisals are forthcoming," Yoshida was quoted by a TEPCO official as telling the company.

While defending Yoshida's decision to continue injecting seawater as "technically reasonable," TEPCO's Vice President Sakae Muto said at a news conference that his company is considering punishing Yoshida for not promptly reporting the facts.

Chief Cabinet Secretary Yukio Edano criticized TEPCO for the latest turn of events, telling a separate news conference, "The public will harbor mistrust unless facts are reported accurately."

Seawater injection was deemed necessary to cool fuel inside the reactor after the injection of fresh

water stopped in the aftermath of the quake and tsunami, which knocked out key cooling systems at the plant.

Earlier Thursday, TEPCO said the level of highly radioactive water at a temporary water storage building had dropped by around 5 centimeters after the liquid was diverted from elsewhere at the plant.

The utility then found that the water appears to have seeped into a corridor that connects the building and another at the plant's same nuclear waste disposal facility, it said, adding the water was about 2 meters deep.

While the utility has not detected unusual levels of radioactive substances in nearby groundwater, it will increase the number of sampling spots for groundwater and beef up its surveillance, because the water leakage into the environment could affect the company's overall plan to remove contaminated water from reactor-related facilities to enable work inside them.

The operator stopped transferring the contaminated water from the No. 3 reactor's turbine building to the storage building at 9 a.m. Wednesday as the total amount of water came close to a planned limit.

It stopped transferring similar water to another building at the same facility from an underground tunnel near the plant's No. 2 reactor on Thursday for the same reason.

While the amount of diverted water from the two spots has already reached the planned limit of around 14,000 tons, TEPCO said Wednesday that an additional 5,000 tons of contaminated water could be transferred there.

At the power plant, water has been pumped into reactors to cool the fuel inside them since their cooling systems were disabled. The water is suspected of leaking into reactor-housing buildings and facilities nearby due to ruptures in reactor pressure vessels and the containment vessels encasing them.

Also Thursday, TEPCO said fuel inside the Nos. 1 to 3 reactors at the plant is expected to continue producing total heat equivalent to roughly 3,000 kilowatts of thermal output even six months after the quake.

The operator estimates that each of the three reactors produced between 1,000 and 2,000 kilowatts of heat on May 20, indicating the need to swiftly establish a stable cooling system to bring them into a stable condition called "cold shutdown."

Even if reactors are suspended, nuclear fuel inside them continues to emit heat as radioactive elements decay, and the rate at which the level of heat decreases becomes more gradual over time.

Kyodo, May 26, 2011

<http://mdn.mainichi.jp/mdnnews/news/20110526p2g00m0dm079000c.html>

Fukushima No. 1 eyed as site for nuke fuel graveyard

The Atomic Energy Society of Japan is discussing a plan to make the Fukushima No. 1 nuclear plant a storage site for radioactive waste from the crippled station.

Building a repository would cost several trillion yen, Muneo Morokuzu, a professor of energy and environmental public policy at the University of Tokyo, said in an interview Wednesday. The society comprises more than 7,000 nuclear researchers and engineers and makes recommendations to the government on atomic energy policy.

"We are involved in intense talks on the cleanup of the Fukushima plant and construction of nuclear waste storage facilities at the site is one option," said Morokuzu, one of 50 people on a cleanup panel that includes observers from Tokyo Electric Power Co. and the Ministry of Economy, Trade and Industry.

While there has been no reactor explosion at Fukushima, as happened in the 1986 Chernobyl disaster, radiation leaks from the meltdown in three reactors have ranked the accident on the same scale as the Ukraine plant. The 20-km exclusion zone around the No. 1 complex since the March 11 earthquake and tsunami has forced the evacuation of 50,000 households, extermination of livestock and disposal of crops.

Areas up to 30 km from Chernobyl remain "a dead zone," Mykola Kulinich, Ukraine's ambassador to Japan, said in Tokyo on April 26, the 25th anniversary of the disaster.

Local authorities in Fukushima, 220 km north of Tokyo, aren't aware of a proposal to make the Fukushima station a nuclear waste storage site, said Hisashi Katayose, an official at the prefectural government's disaster task force. He declined further comment.

Building storage for radioactive waste at Fukushima could take at least 10 years, the University of Tokyo's Morokuzu said. Tepco would need five years to complete decontamination work at the reactors, which includes the removal of hydrogen to prevent explosions.

Japan's three storage facilities for highly radioactive waste are at the northern tip of Honshu at Rokkasho and Sekinehama, both in Aomori Prefecture. The third site is at Tokai, Ibaraki Prefecture.

As the sites are for intermediary use, the nation is still searching for a deep underground storage site for the waste, according to the World Nuclear Association. The selection is due to be completed by 2025 and become operational from 2035, the London-based association said.

About 90 percent of the world's 270,000 tons of used nuclear fuel is stored at reactor sites, mostly in 7-meter deep pools, such as those exposed at the Fukushima site when hydrogen explosions blew the roofs off reactor buildings.

"Intensive discussion is needed before reaching any conclusion on what to do with the Fukushima site," said Tetsuo Ito, head of the Atomic Energy Research Institute at Kinki University. "This is one that the government should take responsibility for and make the final decision."

In the past two weeks, Tepco has said fuel rods in reactors 1, 2 and 3 are likely to have had almost complete meltdowns. That matches U.S. assessments in the early days of the crisis that indicated damage to the station from the March 11 disaster was more severe than the utility's officials suggested.

“Most of the fuel rods melted and damage to the cores is most severe in the No. 1 reactor, followed by No. 3 and then No. 2,” Tepco spokesman Junichi Matsumoto said Tuesday in Tokyo.

Bloomberg, May 27, 2011

<http://search.japantimes.co.jp/cgi-bin/nn20110527n1.html>
