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Work under way to prevent explosion at Fukushima reactor

TOKYO, April 6, Kyodo

Tokyo Electric Power Co. on Wednesday started work to inject nitrogen into one of the reactors at the crippled Fukushima Daiichi nuclear power complex to reduce the potential risk of a hydrogen explosion, while it succeeded in stopping highly radioactive water leaking into the Pacific Ocean from the plant earlier in the day.

Nitrogen, an inert gas, will be injected into the No. 1 reactor's containment vessel from around 1 a.m. Thursday, a process that could take several days. Hidehiko Nishiyama, a spokesman for the government's Nuclear and Industrial Safety Agency, denied during a morning press conference that there is an "immediate danger" of explosion.

In addition to the task of maintaining the relative stability of all six reactors at the nuclear complex in Fukushima Prefecture, the utility firm known as TEPCO has also been engaged in efforts to stop highly radioactive water from leaking into the sea and cleaning up contaminated water within the plant.

At 5:38 a.m. Wednesday, highly contaminated water, which had been confirmed as leaking into the sea from around a cracked pit located near the No. 2 reactor water intake on Saturday, stopped flowing after TEPCO injected around 6,000 liters of chemical agents including sodium silicate, known as "water glass."

Nishiyama told a press conference in the afternoon that so far no further leakage has been detected from the pit. But there is a possibility that the water, which has lost an outlet, could show up from other areas of the plant.

The highly radioactive water is believed to have come from the No. 2 reactor core, where fuel rods have partially melted, and ended up in the pit. The pit is connected to the No. 2 reactor turbine building and an underground trench connected to the building, both of which were found to be filled with highly contaminated water.

To make room to store the highly radioactive water that is hampering the plant's restoration work, TEPCO continued to dump into the sea massive amounts of low-level contaminated water from inside a nuclear

waste disposal facility at the site as well as contaminated groundwater found from around the Nos. 5 and 6 unit buildings.

TEPCO is aiming to dispose of a total of about 10,000 tons of low-level contaminated water into the sea by this weekend, a move which has sparked concern among neighboring countries and strong protests from the domestic fishing industry.

After opening up the disposal facility, which can accommodate 30,000 tons of liquid, some repair work is expected to take place for about a week to ensure that the facility can retain highly radioactive water safely without fear of the stored liquid leaking outside.

The plant's power grid and most of the emergency diesel generators were knocked out by the magnitude 9.0 earthquake and ensuing tsunami on March 11, resulting in the loss of many of the reactors' key cooling functions, partial melting of reactor cores and hydrogen explosions.

According to estimates by TEPCO announced Wednesday, 25 percent of the nuclear fuel rods have been damaged at the No. 3 reactor. The company earlier said that 70 percent of the No. 1 reactor's fuel rods and 30 percent of the No. 2 reactor's fuel rods have been damaged.

Nishiyama said past hydrogen explosions have likely occurred due to hydrogen accumulation caused by the reaction of melted fuel rods' zirconium with steam from the coolant water. But now there is concern that hydrogen could accumulate in the No. 1 reactor under a different process involving radiation-induced decomposition of water into hydrogen and oxygen.

In announcing TEPCO's decision to inject nitrogen into the reactor's containment vessel, an operation approved by the government, the nuclear agency said that radioactive leaks are "unlikely to significantly rise" even if the pressure inside the vessel increases as a result of the injection.

Nishiyama said that he also expects nitrogen to be injected into the Nos. 2 and 3 reactors in the future.

The utility has been pouring massive amounts of water into the reactors and their spent nuclear fuel pools as a stopgap measure to cool them down. But the measure is causing "side effects," such as the detection of contaminated water in various parts of the nuclear complex and some leakage into the sea.

A seawater sample taken near the No. 2 reactor water intake on Saturday showed a radioactive iodine-131 concentration of 7.5 million times the maximum level permitted under law, or about 300,000 becquerels per cubic centimeter.

In the first case of contamination levels in seafood exceeding the maximum legal limit, radioactive cesium in excess of the set limit was detected in young sand lance caught Monday in the sea off the northern part of Ibaraki Prefecture.

The National Federation of Fisheries Cooperatives Associations lodged a protest with TEPCO and the Ministry of Economy, Trade and Industry on Wednesday, saying the dumping of contaminated water into the sea without any prior consultation with fishermen was an "outrage."

The group also called for the dumping of contaminated water and the leakage of highly polluted water from the plant to be halted so as to prevent Japan's fishing industry from "perishing."

To prevent the already seriously contaminated seawater close to the plant from spreading further, TEPCO is planning to install "silt fence" barriers in the sea, such as near the No. 2 reactor water intake.

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