Fukushima: Water treatment delayed again

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Problem with pump stalls vital link in the effort to cool down reactors at Fukushima No. 1: Water treatment delayed again

FUKUSHIMA – Tokyo Electric Power Co. said Tuesday that a pump on its new radioactive water treatment system at the Fukushima No. 1 plant halted automatically during an early morning trial run, freezing up the entire apparatus.

Tepco said it believes the pump, a component developed by France's Areva SA to inject chemicals into the key system to decontaminate radioactive materials, stopped because it was overburdened by excessive liquid flow.

Tepco said it restarted the trial run in the afternoon after adjusting the liquid flow.

Smooth operation of the treatment system, which is designed to remove highly radioactive materials from the massive amount of water accumulating at the power station, is essential to containing the crisis; Tepco plans to eventually recycle the water to cool the plant's damaged reactors.

The new system was also halted Saturday, a day after becoming fully operational, because the radiation level of a cesium-absorbing component developed by Kurion Inc. of the U.S. had reached its limit earlier than expected, the utility said.

Aiming to resume full-scale operation as fast as possible, Tepco conducted a trial run of the system early Tuesday.

The contaminated water accumulating at the reactor facilities, including coolant liquid leaking from damaged reactors, has been diverted elsewhere at the plant to prevent it from overflowing, but the storage locations are nearing full capacity.

Kyodo, June 22, 2011
http://search.japantimes.co.jp/cgi-bin/nn20110622a2.html

TEPCO cuts back on water due to expected rains

Tokyo Electric Power Co. has launched efforts to reduce the amount of radioactive water being generated at its crippled Fukushima No. 1 nuclear power plant, given that its water decontamination system has not been functioning properly and the rainy season has officially arrived in the area.

The efforts began following the Meteorological Agency's announcement Tuesday that the rainy season has begun in the Tohoku region, which includes Fukushima Prefecture, where the plant is located.

TEPCO workers are covering the roofs of reactor buildings that were blown off in hydrogen explosions after the March 11 disaster to keep rainwater out, and the utility has cut back on the amount of cooling water being injected into the reactors.

The highly radioactive water accumulated at the Fukushima power station after leaking from damaged reactors. If it cannot be disposed of smoothly, it is feared it may overflow trenches and storage tanks before the end of the month.

But reducing the water being poured into the damaged reactors puts the plant operator in dilemma, since if the volume of water is reduced, temperatures in the reactors will likely rise. In fact, temperatures inside the No. 3 reactor have already risen slightly.

The amount of water being injected into the Nos. 1 and 2 reactors was reduced by half a ton per hour Tuesday for the second straight day to 3.5 tons per hour and four tons per hour, respectively. But plant workers have continued pouring 10 tons per hour into the No. 3 reactor because of high temperatures inside, TEPCO said.

Other measures to deal with expected heavy rain include installing sandbags around the reactor facilities, and covering roofs and doors with steel sheets.

Contaminated water in an operational trench for the No. 3 reactor reached its highest level when it rose to 12 centimeters below the top of the trench at 7 a.m. Wednesday. If decontamination does not proceed smoothly, the polluted water could overflow by next Wednesday, or even earlier if rainwater gets in.

Water levels in the same trench rose by 6.5 centimeters a day when an extratropical cyclone passed over the plant at the end of May, the utility said.

The Meteorological Agency has forecast precipitation for the coming month in the southern Tohoku region will be less than normal, but warned there was the possibility it would rain more heavily toward the end of the rainy season.

Radiation of 430 millisieverts per hour was detected near the No. 2 reactor at the Fukushima plant, TEPCO said Wednesday.

The extremely high radiation level was measured at a mezzanine floor between the first floor and the basement of the No. 2 reactor building. This figure is the highest ever recorded in the building.

Highly radioactive water is believed to have leaked from the damaged reactor pressure suppression chamber in the basement, a TEPCO official said.

TEPCO workers entered the basement for the first time since the March 11 disaster Tuesday and measured radiation on the stairway on the northwestern side of the building.

The Yomiuri Shimbun , June 23, 2011
http://www.yomiuri.co.jp/dy/national/T110622005235.htm

Accidental water flow into pool may have prevented fuel melting: TEPCO

Tokyo Electric Power Co. (TEPCO) has released the results of an investigation into developments surrounding the No. 4 reactor at the Fukushima No. 1 Nuclear Power Plant and advised that water accidentally flowed into a spent fuel pool from an adjacent pool, barely avoiding fuel from melting.

If water had not been poured into the spent fuel pool, the No. 4 reactor would have been “in a very serious situation,” TEPCO spokesman Junichi Matsumoto said, adding that the worst-case scenario would have been the melting of nuclear fuel.

According to the utility, the No. 4 reactor’s fuel pool had been connected with a storage pool containing radioactive substances through mobile shield plates and their water levels were the same prior to the March 11 earthquake and tsunami.

The fuel pool lost its cooling functions due to power loss caused by the tsunami and its water level dropped due to evaporation. But the hydrogen explosion at the No. 4 reactor and other factors on March 15 shifted the shield plates, allowing water from the adjacent pool to pour in and restore the water level.

On March 20, TEPCO started pumping water into the fuel pool from outside, probably causing the shield plates to shut again and keeping the device storage pool’s water at a low level.

TEPCO plans to pump 1,000 cubic meters of water into the storage pool to keep the devices submerged. "The devices do not generate heat but will be submerged because of the radiation dosage problem," a TEPCO official said.

TEPCO will finish installing 32 steel posts to support the fuel pool on June 20 before building a concrete wall to cover the pillars by the end of July to make the structure more quake-resistant.

Mainichi Shimbun , June 21, 2011

http://mdn.mainichi.jp/mdnnews/national/news/20110621p2a00m0na010000c.html