

Fukushima: huge volume of radioactive water , removal of reactor fuel won't start until 2021

Tuesday 12 July 2011, by [Asahi Shimbun](#), [KON Naoya](#), [Kyodo News](#), [Mainichi Shimbun](#), [NAGATA Kazuaki](#), [Yomiuri Shimbun](#) (Date first published: 12 June 2011).

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Nuclear crisis minister wants underground barrier to block radioactive water built quickly

Goshi Hosono, minister in charge of the ongoing nuclear crisis, suggested July 11 that the government should push ahead with the construction of an underground barrier to block the flow of highly contaminated water from the Fukushima No. 1 Nuclear Power Plant as soon as possible.

Construction of such a barrier will cost more than 100 billion yen, according to some estimates. Hosono suggested that the government should help the plant's operator, Tokyo Electric Power Co. (TEPCO), with the project.

"Can a private company such as TEPCO handle this itself? I think the government should move into action, even if that means going a step ahead," Hosono said.

Contaminated water has leaked from reactor and turbine buildings at the crippled nuclear plant. To stop this water from spreading through underground water and flowing into the sea, TEPCO plans to construct underground walls extending to a depth of 30 meters. Under its roadmap for bringing the nuclear crisis under control, which was revised in June, consideration of the best way to block the flow of contaminated water, as well as selection of a solution and construction, had been deemed "mid-term issues" after Step 2 of the roadmap that began in July and continues for three to six months.

"Construction of a barrier is an important process. We finished considering plans at an early stage of Step 2, and have started considering whether we can quickly begin construction," Hosono said.

The minister's comments, made at a meeting of the House of Representatives' special committee on restoration following the Great East Japan Earthquake and tsunami, came in response to an inquiry from Liberal Democratic Party lawmaker Masayoshi Yoshino.

Mainichi Shimbun , July 12, 2011

<http://mdn.mainichi.jp/mdnnews/national/news/20110712p2a00m0na005000c.html>

Removal of reactor fuel won't start until 2021

Removal of fuel that melted down in reactors at the Fukushima No. 1 nuclear power plant will start in 2021, and demolition of the reactors will not be completed until decades from now, according to a government draft of a mid- to long-term schedule for a clean-up of the site.

Due to the unprecedented nature of the crisis, estimating a timeline for its resolution involves the challenge of predicting what problems might arise.

The draft, released Saturday, was compiled by a study group headed by Japan Atomic Energy Commission Chairman Shunsuke Kondo and comprising representatives of Tokyo Electric Power Co., the Nuclear and Industrial Safety Agency and nuclear reactor manufacturers.

The study group estimated the time needed to remove fuel from the Fukushima plant's Nos. 1-3 reactors, all of which suffered meltdown, by referring to events after the nuclear crisis at Three Mile Island in Pennsylvania in 1979.

It was not until six years after the start of the Three Mile Island crisis that collection of molten fuel actually began.

Damage to reactors and radiation contamination at the Fukushima nuclear power plant are much worse than at Three Mile Island.

The study group therefore estimated it will be 10 years—almost twice as long—before work to remove the fuel from the reactors can begin.

Demolition of the reactors cannot commence until radiation levels near the reactors have fallen to safe levels, and necessary preparation work is expected to take several decades.

Collection of spent fuel rods that are at present being kept in an interim storage facility is expected to start in 2014, as they suffered only minor damage.

But safe removal of the fuel will require the development of new technology. The fuel was transformed into a lavalike state during meltdown, and has since solidified, posing unprecedented technical challenges.

In April, TEPCO announced a schedule for bringing the Fukushima crisis under control, but it did not include a long-term plan for demolishing the reactors.

The Yomiuri Shimbun , July 12, 2011

<http://www.yomiuri.co.jp/dy/national/T110711004878.htm>

REALITY CHECK: It's 1 step forward, 2 steps back at Fukushima plant

Four months after the Great East Japan Earthquake, Tokyo Electric Power Co. still has a long and winding road to go before bringing the crisis at the Fukushima No. 1 nuclear power plant under control.

The company has been unable to inject nitrogen into the containment vessel of the No. 3 reactor to prevent another hydrogen explosion.

High levels of radiation have barred workers from entering the reactor building, which was badly damaged by a hydrogen explosion on March 14.

In early July, TEPCO tried to remove radioactive materials from the floor with a robot cleaner, but radiation levels did not fall as expected.

The company laid steel sheets to prevent workers' exposure to radiation.

TEPCO has been injecting nitrogen into the No. 1 reactor building since early April and into the No. 2 reactor building since late June to prevent a hydrogen explosion.

The No. 1 reactor building was damaged by a hydrogen explosion on March 12. Part of the No. 2 reactor building was also damaged by an explosion at the suppression pool on March 15.

At the No. 4 reactor, the water temperature at the storage pool for spent nuclear fuel remained high at about 85 degrees.

TEPCO has not been able to install a circulating cooling system for the storage pool, which contains about 1,500 nuclear fuel assemblies. Water has been pumped in from an outside source through hoses, and the company plans to start operating a circulating cooling system by the end of July.

The No. 4 reactor does not contain any nuclear fuel because it was shut down for regular inspections when the tsunami swamped the plant on March 11.

Still, a fire and an explosion occurred at the No. 4 reactor building on March 15. The cause is not clear, although officials have suggested that hydrogen gas may have flowed back through an exhaust duct.

Meanwhile, the water temperature at the spent nuclear fuel storage pools for the No. 2 and No. 3 reactors has stabilized at about 35 degrees.

A circulating cooling system at the storage pool for the No. 2 reactor began operations in late May, and one at the storage pool for the No. 3 reactor in late June.

TEPCO, however, has not been able to measure the correct water temperature at the storage pool for the No. 1 reactor although water has been pumped into the pool through a piping system.

In addition, TEPCO is installing a cover for the No. 1 reactor building, which had its roof blown off in the hydrogen explosion, to prevent radioactive materials from spreading into the atmosphere and keep rainwater from entering the building.

The company is also adjusting water and pressure gauges at the No. 2 reactor.

Meanwhile, TEPCO has been cooling the spent nuclear fuel storage pools for the No. 5 and No. 6

reactors, which were shut down when the tsunami struck.

Water with low levels of radioactivity has been accumulating in the turbine building for the No. 6 reactor, and TEPCO is transporting the water to a temporary tank.

BY NAOYA KON, *Asahi Shimbun* Staff Writer, 2011/07/12
<http://www.asahi.com/english/TKY201107110130.html>

Situation clearer, but problems remain after 4 months of nuclear crisis

The situation seems to have stabilized somewhat at the Fukushima No. 1 nuclear power plant after four months of fears and uncertainties—and an early spewing of radioactive materials that spread to 12 prefectures.

But Tokyo Electric Power Co., operator of the plant, and government officials still face a host of problems. Early damage to the plant continues to present a risk of further radioactive leaks. And questions remain over the actual extent of damage to human health and the environment from the estimated 770,000 terabecquerels of radioactive materials released into the air so far from the damaged reactors.

The amount from the Fukushima plant is more than 10 percent of the 5.2 million terabecquerels discharged during the Chernobyl nuclear disaster in 1986.

Officials said radioactive materials escaped into the atmosphere when TEPCO workers vented reactor containers to reduce the pressure inside.

But most of the radioactive materials were emitted on March 15, when a hydrogen explosion in the suppression pool, which is linked to the containment vessel, took place in the No. 2 reactor building around 6 a.m. Another explosion hit the No. 4 reactor building around the same time.

Earlier, on March 12, a hydrogen explosion occurred at the No. 1 reactor building.

After the explosions on March 15, readings of 11,930 microsieverts of radiation per hour were recorded around 9 a.m. near the front gate of the plant, the highest measurements so far on the edge of the plant's compound.

To estimate the spread of radioactive materials from March 15 through March 16, the Japan Atomic Energy Agency (JAEA) used a simulation that took into account weather conditions and geographical data.

The study covered a 190-kilometer-by-190-km area that was split into 1-square-km units.

The results of the simulation were nearly identical to the high levels of iodine and cesium measured in Shirakawa and Koriyama cities in the Nakadori area, as well as Iitate village located northwest of the Fukushima plant.

Monitoring by the Ministry of Education, Culture, Sports, Science and Technology also found high radiation levels in 12 prefectures, including those in the Kanto region.

Radioactive materials currently in the soil fell to the ground with the rain around those days, officials said.

To determine the amount of radiation exposure to humans in the two months following the explosions, JAEA researchers used the System for Prediction of Environmental Emergency Dose Information (SPEEDI) to cover all of Japan, split into 10-km-by-10-km areas.

According to JAEA, only people in parts of eastern Fukushima Prefecture were exposed to radioactive iodine and cesium levels exceeding the annual limit of 1 millisievert.

Areas where people were exposed to more than 0.01 millisievert of radiation through intake of food, water and other materials included the central and eastern Kanto areas and the southern Tohoku region.

However, the SPEEDI simulation was based on the unlikely scenario of people remaining outdoors for 24 hours a day.

To determine actual radiation exposure levels from 9 a.m. on March 12 to midnight on March 17, the government plans to conduct long-term health studies on people in Fukushima Prefecture using data kept by the prefectural government.

In health checks on 2 million people, the prefectural government has gathered data on what each person was doing during every hour of that period.

That data, combined with actual hourly radiation readings, will make it easier for researchers to accurately estimate the level of radiation exposure for each person.

For areas where radiation measurements were not conducted, the researchers will use figures calculated by SPEEDI.

The radiation level near the front gate of the Fukushima plant is currently about 30 microsieverts per hour, or one-400th of the peak on March 15.

Under the road map to bring the reactors at the Fukushima plant to a cold shutdown, TEPCO will steadily decrease the amount of radioactive materials released by mid-July.

It will also estimate the amount of radioactive materials discharged from each reactor and make public the results.

Radioactive materials can still easily leak into the atmosphere from the plant because the roofs of the No. 1, No. 3 and No. 4 reactors were destroyed in the hydrogen explosions, leaving pools of spent fuel rods exposed to the air.

TEPCO is working to cover the damaged reactor buildings with specially coated polyester fiber sheets to prevent radioactive materials from escaping. The work will be completed on the No. 1 reactor building by the end of September, according to TEPCO's road map, followed by similar work at the No. 3 and No. 4 reactor buildings.

Asahi Shimbun , 2011/07/12

<http://www.asahi.com/english/TKY201107110131.html>

Huge volume of radioactive water a big problem at Fukushima

A crucial difference between the accident at the Fukushima No. 1 nuclear power plant and the 1986 Chernobyl nuclear accident is the huge volume of highly radioactive water that is accumulating at the Fukushima plant.

There is a constant danger that the water could leak outside the plant.

Both the Fukushima and Chernobyl accidents are assessed at the most serious level of 7 on an international scale.

Tokyo Electric Power Co., the plant's operator, estimates that about 119,000 tons of contaminated water had accumulated in the basements of the No. 1 to No. 4 reactors of the Fukushima plant, as well as in the central waste processing facility, as of July 5.

The water is believed to have leaked from core vessels and leaky pipes after radioactive materials dissolved into the water pumped in from outside to cool the fuel rods.

According to one estimate, the contaminated water contains about 800,000 terabecquerels of radiation (1 tera is 1 trillion).

Radiation levels equivalent to what has already spewed into the atmosphere have accumulated in the contaminated water, and experts fear it could leak outside the plant.

While releases of radiation into the atmosphere peaked in March and are now moving toward being placed under control, the volume of contaminated water continued to increase by between 400 and 500 tons a day until the end of June.

Even now, four months after the accident, the danger of leaking contaminated water still exists, making it extremely difficult to bring the Fukushima accident under control.

The contaminated water has also accumulated in the trenches and shafts that connect the reactor and turbine buildings to the outside. Water containing high levels of radiation has leaked into the ocean.

On April 2, highly contaminated water flowed into a work pit near the water intake of the No. 2 reactor at the Fukushima No. 1 nuclear plant. That water later leaked into the ocean from cracks in walls near the reactor.

Over a four-day period before the leak was plugged, 520 tons of contaminated water flowed out, carrying an estimated total radiation of approximately 4,700 terabecquerels. That is about 20,000 times the annual emission standard established by the central government.

While TEPCO stopped the leak by plugging the cracks and shafts, as long as contaminated water remains there is always the danger of water leaking into the ocean through cracks in the wall that could allow it to flow into underground water.

The prospect of processing the contaminated water became more likely from July when a system of

purifying the water to recycle it for cooling purposes started operating.

In its road map for bringing the Fukushima accident under control, TEPCO states that its first-step objective is the “stable cooling of fuel rods.”

A main pillar for reaching that objective will be recycling purified water to cool the reactors.

TEPCO is seeking to purify 200,000 tons of contaminated water by the end of the year to eliminate all the highly contaminated water.

The recycling system comprises about 4 kilometers of piping that connects the reactor buildings and storage tanks. At the core of the system is the purification equipment.

Besides equipment to separate oil from the contaminated water and to desalinate water, equipment manufactured by Kurion Inc. of the United States uses a mineral to absorb radioactive cesium in the water.

Another machine manufactured by Areva SA of France uses a special solution to reduce the concentration of radioactive materials in the water.

The recycling system is an unprecedented one that mixes technology developed all around the world.

Plans call for purifying 1,200 tons of water a day and to reduce the concentration of radiation to one-10,000th to one-millionth of its original levels.

Unless the concentration is reduced to at least one-10,000th of its original levels, contaminated seawater cannot be passed through a desalination mechanism.

However, various problems arose in the early stages of the purification process.

On June 17, immediately after beginning normal operations, the radiation level in the cesium-absorbing equipment reached a level requiring replacement of parts very quickly, causing the equipment to stop operating.

After the recycling of purified water began June 27, operations had to be suspended after leaks were found in piping and the Areva equipment.

The problems are blamed on the rush to begin operations, which shortened the period for trial runs of the equipment to a minimum.

While additional steps to install more storage tanks have been taken, there is no change in the process: The recycling system must be operated while keeping a close eye on problems that arise.

The system is operating at 76 percent of capacity, below TEPCO's initial goal of 80 percent. If it becomes difficult to continuously operate the system 24 hours a day, TEPCO will have to extend its time frame for the volume of water to be purified.

Any delay in purifying the water will also affect the date at which the objectives in the road map can be declared achieved.

BY NAOYA KON,

Leak forces Tepco to temporarily halt water decontamination system

Tokyo Electric Power Co. said Sunday it temporarily halted the system to decontaminate radioactive water at the crippled Fukushima Daiichi nuclear power plant in Fukushima Prefecture after discovering that about 50 liters of contaminated water and chemicals used in the system were leaking from a pipe after a part broke.

The utility has been using the decontaminated water to cool the Nos. 1-3 reactors at the plant, and even during the temporary suspension to fix the part, it was able to continue the cooling function using water that had already been decontaminated, it said.

"The concentration of radioactive substances in the leaked contaminated water was not at levels that would cause problems involving workers' exposure to radiation," a Tepco official said.

The leak occurred in a section of a device developed by France's Areva SA where the chemicals, which are used to condense and precipitate radioactive materials in the contaminated water, are injected from a hose into a pipe through which the polluted water passes, according to Tepco.

The plastic part broke, causing the chemicals and contaminated water to leak, the company said, adding that workers replaced the part with a steel one and resumed operation of the water treatment system

Kyodo, July 11, 2011
<http://search.japantimes.co.jp/cgi-bin/nn20110711a1.html>

Water treatment, cooling systems finally working:Tepco able to patch leaks in 4 km of hose, for now

After suffering numerous problems, the newly installed treatment system for

decontaminating radioactive water at the Fukushima No. 1 power plant and another system designed to recirculate that water to cool the reactors are finally working.

Leaks at couplings and various other parts of a 4-km-long stretch of hoses between the water treatment system and the circulation cooling system have been a major headache for Tokyo Electric Power Co. workers, who have been forced to shut down the systems several times.

Experts say, however, that Tepco is out of options.

The circulation cooling system “is crucial. Without this, the contaminated water would only keep increasing,” said Kenji Takeshita, a professor at the Research Laboratory for Nuclear Reactors at Tokyo Institute of Technology and an expert on nuclear waste disposal.

Takeshita said the initial troubles were expected as the jury-rigged system was built in a rush with different technologies from three countries — Japan, the United States and France.

The water treatment system was installed to address the problems triggered by contaminated water leaking from holes, cracks or other breaches in the containment vessels and filling reactor buildings, turbine buildings and outside trenches connected with those facilities.

Before the decontamination effort started, massive amounts of radioactive water managed to find its way to the sea.

As of Tuesday, there was an estimated 97,610 tons of contaminated water in reactor buildings 1 through 4 and their turbine buildings. The water is transferred to two other storage facilities and then enters the treatment system.

In addition, another 21,850 tons of water were being kept in the two storage facilities as of Tuesday.

Tepco started full operation of the water treatment system on June 17 and began the circulation cooling system on June 27. Both suffered setbacks, including repeated leaks that brought the operation to a halt until they were sealed.

However, the system is now running smoother, which has allowed Tepco’s workers to cool reactors 1, 2 and 3 with only decontaminated water since Saturday. Until then, the three reactors were also receiving water from a nearby reservoir.

The water treatment system had processed 13,610 tons of contaminated water as of Tuesday.

For now, Tepco's main task is to keep the operations stable, since more leaks could occur from the couplings connecting the hose sections.

"Maintaining an operation with such a long hose itself is a risk," said Tepco spokesman Junichi Matsumoto.

The leaks at the connections show that they need to be reinforced, he added.

Goshi Hosono, state minister in charge of the Fukushima crisis, played down the troubles.

"Problems may persistently crop up, but the circulation cooling system's operation rate is gradually progressing. By the end of the first phase, I think it will be more stable," Hosono said when he visited the plant last weekend.

But Tepco still has many hurdles to overcome before disposing of the thousands of tons of highly radioactive water accumulating in the compound, which is preventing workers from achieving the ultimate goal of getting control of the radiation-spewing reactors.

Tepco on April 17 revealed its road map to end the crisis and announced that the first phase, including installing the self-contained cooling system, was expected to take about three months.

While the utility appears headed toward stabilizing the cooling system, it is still unsure when it will be able to clear out all the water.

Last month, the government's Nuclear and Industrial Safety Agency ordered Tepco to report changes in the amount of contamination on a weekly basis.

As of Tuesday, the water accumulating in the reactor and turbine buildings had dropped 1,830 tons compared with a week earlier, according to Tepco.

The utility expects to reduce the total by another 1,130 tons by next Tuesday.

The utility aims to process 200,000 tons of the contaminated water by the end of the year, and Matsumoto said the water flooding the four reactor buildings and turbine buildings will be pretty much removed by then, but it is unclear how much will be left in other storage facilities.

The work may continue for a year or longer.

Matsumoto said that while the estimated service life of the water treatment

system is one year, Tepco hopes to use it longer through effective maintenance, though this could cause unforeseen problems.

Another task will be the disposal of large amounts of radioactive waste, such as sludge created by processing the contaminated water.

Matsumoto said Tepco has not yet come up with specific plans to dispose of such waste.

“I think the disposal of the radioactive waste will be a critical issue,” said Takeshita of Tokyo Institute of Technology, adding, “ways to solve that issue need to be discussed among experts as soon as possible.”

**By KAZUAKI NAGATA, *Japan Times* Staff writer, July 8, 2011
<http://search.japantimes.co.jp/cgi-bin/nn20110708a2.html>**

TEPCO Working to Install New Water Tank for Cooling Reactors

Fukushima, July 1 (Jiji Press)—Tokyo Electric Power Co. said Friday it is working to set up a new water tank used for cooling the No. 1, 2 and 3 reactors of its Fukushima No. 1 nuclear power plant damaged by the March 11 earthquake and tsunami.

Currently, there are two tanks used for the cooling operations. One of the tanks has been used to store water taken in from a dam within the plant, and the other was set up in line with the launch in late June of a system to treat radiation-contaminated water for reuse in the cooling operations.

The envisioned third tank will collect water from the two existing tanks, according to TEPCO.

After the installation of the new tank, water injection into the reactors will be conducted stably at a pace of 3.9 to 9.0 tons per hour even if some problem occurs in part of the water treatment system, TEPCO said.

Meanwhile, the company said that 16 workers at the plant have shown symptoms of heat stroke since the nuclear crisis began and 41 others have suffered heart attacks or bone fractures.

**Jiji Press, July 1, 2011
<http://jen.jiji.com/jc/eng?g=eco&k=2011070200001>**

Hose leak dooms bid in 90 minutes: Circulation system tried on reactors

Tokyo Electric Power Co. attempted Monday to circulate decontaminated water to cool three damaged reactors at the Fukushima No. 1 power plant but was forced to stop just 1 1/2 hours later by a leak.

The water was found leaking from a hose linking the reactor cores to a temporary water tank.

The start of the “circulating injection cooling” is seen as key in getting a handle on reactors 1, 2 and 3, which are being cooled from outside in an emergency measure that is causing thousands of tons of highly radioactive water to flood the premises.

Tepco, meanwhile, continued decontaminating coolant water from the reactors Monday using a new water treatment system.

Tepco tried injecting 16 tons of water per hour into the reactors and aimed to replace 13 tons of it with water decontaminated by the new system, which removes cesium and iodine.

The new system has been failed in trial runs because of leaks. Still, about 1,850 tons of clean water has been produced so far, and Tepco started injecting that water Monday, the Nuclear and Industrial Safety Agency said.

Some 110,000 tons of highly contaminated water Å\ enough to fill about 40 Olympic-size swimming pools Å\ plus coolant from the leaking reactors is flooding the reactors’ turbine buildings and adjacent areas, raising the risk that it might overflow and enter the Pacific Ocean.

NISA spokesman Hidehiko Nishiyama said the main focus of the circulating injection cooling will first be on reducing the amount of polluted water to address the overflow danger.

The cores of units 1, 2 and 3 are assumed to have melted and sunk to the bottoms of their pressure vessels, where the deformed fuel pellets are being cooled by perpetual water injections.

Reactor lids in works

A combination of traditional post-and-beam construction methods and cutting-edge dome stadium technologies will be used in building giant covers for three

damaged reactor buildings at the Fukushima No. 1 nuclear power complex, it was learned Monday.

Major general contractors Kajima Corp., Shimizu Corp. and Takenaka Corp. will begin work as early as Tuesday, with an eye to completing the first cover around the fall, industry sources said.

The construction orders for blanketing the buildings of reactors 1, 3 and 4 to contain the release of radioactive substances are expected to cost \15 billion to \20 billion each, the sources said.

Kyodo, June 28, 2011

<http://search.japantimes.co.jp/cgi-bin/nn20110628a1.html>

Hose leak again halts water unit

Two small leaks forced Tokyo Electric Power Co. on Wednesday to briefly halt its problem-plagued water decontamination system at the Fukushima No. 1 power plant.

The system is a key part of Tepco's efforts to cool down the crippled nuclear reactors.

Tepco said it found decontaminated water leaking from the two small holes in a 30-meter-long vinyl hose connecting a storage tank and a pump that sends water to the reactors.

Repeated troubles with the water treatment system have been keeping the utility from consistently cooling the reactors with the decontaminated water.

The system's "circulation injection cooling" operation stopped Monday shortly after it commenced due to a water leak.

Faced with a looming overflow into the sea of highly radioactive water accumulating in the complex, and high radiation levels in the reactor buildings, the system's continuous operation is vital for containing the crisis.

Tepco has also made little progress in injecting nitrogen into reactor 3's containment vessel to prevent an explosion.

It began sending nitrogen into the No. 2 unit's containment vessel Tuesday, but a high level of radiation within the No. 3 building is obstructing

preparation work needed to send workers in.

Kyodo, June 30, 2011

<http://search.japantimes.co.jp/cgi-bin/nn20110630a2.html>

TEPCO denies new leak at Fukushima plant

Radioactive tellurium-129m was detected for the first time in seawater near the water intake of the Fukushima No. 1 nuclear power plant's No. 1 reactor, Tokyo Electric Power Co., the plant operator, said June 29.

Seven hundred and twenty becquerels of the substance was detected per liter of water collected on June 4. This concentration is about 2.4 times safe levels.

Tellurium-129m has a short half-life of about 34 days. Its detection near the intake indicates the possibility of a new leak of radioactive water into the sea.

TEPCO, however, said a new leak was unlikely because there wasn't a sharp increase in other radioactive substances and because tellurium-129m was detected only at this single sampling point near the water intake.

Also on June 29, TEPCO announced that as of the day before about 121,000 tons of highly radioactive water was present at the No. 1 through No. 4 reactors at the plant, up 16,000 tons from the end of May.

TEPCO said that moving forward, the new water purification system will cleanse 3,000 tons of radioactive water a week.

The calculation is based on the system operating at 80 percent capacity. Actual utilization was only about 55 percent from June 17 to June 28.

***Asahi Shimbun* , July 1, 2011**

<http://www.asahi.com/english/TKY201106300191.html>

TEPCO starts system to cool another spent fuel pool at nuclear plant: a doctor for radiation exposure is stationed from Friday

TOKYO (Kyodo) — Tokyo Electric Power Co. said Thursday that it had activated

a water circulation system to stably cool another spent nuclear fuel pool at the crisis-hit Fukushima Daiichi atomic power plant, while also starting to transfer relatively low-level radioactive water at the plant to an artificial floating island called a megafloat.

The plant operator is hoping to efficiently cool the spent fuel pool of the No. 3 unit, having started a similar cooling system for the No. 2 unit's pool.

The utility known as TEPCO is trying to contain the world's worst nuclear crisis since the 1986 Chernobyl disaster, in line with a road map that aims to stabilize by January the plant's reactors and spent fuel pools, which lost their key cooling functions in the wake of the massive March 11 earthquake and tsunami.

TEPCO is seeking to operate similar systems for the Nos. 1 and 4 units by July. The remaining Nos. 5 and 6 units at the six-reactor Fukushima plant achieved a stable condition called cold shutdown in the early days of the crisis.

As for the steel megafloat, which is berthed at a quay near the plant, about 8,000 tons of low-level radioactive water will be transferred over the next three or four months. The government's nuclear safety agency said TEPCO has not yet decided what to do with the water after it is transferred, but it will not be directly dumped into the sea.

The water comes from the Nos. 5 and 6 reactor turbine buildings and a large part of it is believed to be seawater left inside the facilities after large tsunami waves hit the plant on the Pacific Coast in Fukushima Prefecture, as well as groundwater.

Dealing with the massive amount of water contaminated with various degrees of radioactive substances is a key part of the process to contain the ongoing nuclear crisis.

The megafloat is 136 meters long, 46 meters wide and 3 meters high, and was originally used in the city of Shizuoka as a platform for sea fishing. It can store around 10,000 tons of water.

TEPCO has been transferring the low-level radioactive water into makeshift storage tanks and has decided to use the megafloat because the tanks are becoming full.

Meanwhile, to reduce highly radioactive water produced in the process of cooling the crippled reactors at the plant, TEPCO is operating devices to remove radioactive substances from the polluted water and a system to recycle the decontaminated water as a coolant for the reactors.

But operation of the devices and the water circulation system, using technologies from various companies in and outside Japan, has been repeatedly suspended due to problems such as water leaks.

TEPCO spokesman Junichi Matsumoto told a press conference in the afternoon, "We are operating something we made for the first time, so some initial problems cannot be helped. It is important to accumulate experience."

To reinforce support for workers involved in restoration efforts, the government and TEPCO announced the same day that a doctor who specializes in emergency treatment for radiation exposure will be stationed at the Fukushima plant from Friday.

TEPCO has revised down the total number of workers at the power plant found to have been exposed to radiation above the maximum allowable limit of 250 millisieverts from nine to seven, the Ministry of Health, Labor and Welfare said Thursday.

It said the utility has reported to the ministry that two of the nine workers were found not to have been exposed to radiation above the limit after more detailed medical examinations.

Kyodo, July 1, 2011

<http://mdn.mainichi.jp/mdnnews/news/20110701p2g00m0dm014000c.html>

TEPCO starts using megafloat to store low-level radioactive water

TOKYO (Kyodo) — Tokyo Electric Power Co. said Thursday that it started using an artificial floating island called a megafloat as a facility to store relatively low-level radioactive water at the crisis-hit Fukushima Daiichi nuclear complex.

About 8,000 tons of the water will be transferred to the steel megafloat, which is berthed at a quay near the plant, over the next three or four months. The government's nuclear safety agency said the plant operator has not yet decided what to do with the water after it is transferred, but it will not be directly dumped into the sea.

The water comes from the Nos. 5 and 6 reactor turbine buildings and a large part of it is believed to be seawater left inside the facilities after large tsunami

waves hit the plant on the Pacific Coast in Fukushima Prefecture, as well as groundwater.

Dealing with the massive amount of water contaminated with various degrees of radioactive substances is a key part of the process to contain the ongoing nuclear crisis triggered by the devastating March 11 earthquake and ensuing tsunami.

Meanwhile, to reduce highly radioactive water produced in the process of cooling the crippled reactors at the plant, Tokyo Electric is operating devices to remove radioactive substances from the polluted water and a system to recycle the decontaminated water as a coolant for the reactors.

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Kyodo, July 1, 2011

<http://mdn.mainichi.jp/mdnnews/news/20110701p2g00m0dm008000c.html>
