

Fukushima: Radiation up to 36,000 times permissible level, lacks decommissioning experts

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More than 800 join suit to seek suspension of Oi nuclear plant

KYOTO (Kyodo) — More than 800 people joined a lawsuit Tuesday filed last year by 1,100 plaintiffs from 17 prefectures demanding the central government and Kansai Electric Power Co. shut down the utility's Oi nuclear power plant.

The plaintiffs also demanded the government and Kansai Electric pay damages of 10,000 yen per person per month until the Oi plant in Fukui Prefecture, western Japan, is suspended, arguing an accident there would cause irrevocable damage and violate their right to live safely.

The suit was filed with the Kyoto District Court last November.

The plaintiffs said they will continue soliciting more people to join the suit.

Lawsuits to seek suspension of the Oi plant are also pending at the Fukui and Osaka district courts.

All of Japan's 50 commercial reactors are currently offline. About a dozen of them are being checked by the Nuclear Regulation Authority as part of the process toward resuming their operations.

Kyodo News, December 3, 2013

<http://mainichi.jp/english/english/newsselect/news/20131203p2g00m0dm074000c.html>

Fire trucks' coolant water did not fully reach reactor cores: TEPCO

TOKYO (Kyodo) — Tokyo Electric Power Co., the operator of the crisis-hit Fukushima Daiichi nuclear plant, said Friday it is highly likely that coolant water injected by fire trucks immediately after the accident on March 11, 2011 did not fully reach reactor cores where meltdowns occurred.

TEPCO, which has been looking into developments at the plant in the early days of the disaster, said it has confirmed that water supplied by fire trucks flowed into some pipes not leading to cores at the

Nos. 1 to 3 reactors.

The utility said the amount of coolant water provided by fire trucks as an emergency measure was several times the amount needed to cool reactor cores, but part of the water was unexpectedly diverted to pipes not connected to the cores.

The company also said workers could not operate valves to keep coolant water from flowing into unintended pipes due to high dose of radiation at the plant.

TEPCO said if the prepared water was fully injected from fire trucks into reactor cores, it could at least have slowed melting of the fuel.

The Nos. 1 to 3 reactors suffered meltdowns as a tsunami triggered by the devastating earthquake flooded electrical equipment and disabled key cooling functions at the units.

The company examined water flow in the pipes as it unexpectedly confirmed the existence of a considerable amount of water at a steam condenser at the No. 2 reactor in late March 2011.

The utility also said it is possible that the amount of coolant water injected into the core of the No. 3 reactor had fallen before workers manually stopped a high pressure coolant injection system.

As for reasons behind a sharp fall in pressure at the No. 3 reactor pressure vessel on March 13, 2011, TEPCO said it is highly likely a valve opened to reduce pressure as the automatic decompression system was turned on by coincidence.

The company had previously pointed to the possibility that the reactor pressure vessel had a hole.

Kyodo News, December 14, 2013

<http://mainichi.jp/english/english/newsselect/news/20131214p2g00m0dm005000c.html>

Radiations

TEPCO to pave Fukushima Daiichi site with asphalt to lower radiation

TOKYO (Kyodo) — The operator of the crippled Fukushima Daiichi nuclear complex said Wednesday it will start covering the plant's premises with asphalt to reduce the levels of radiation workers are exposed to there, possibly later this month.

The forest in the northern area and the land around reactor buildings, where radiation levels are high, will be excluded from the so-called facing of the site, Tokyo Electric Power Co. said.

TEPCO plans to first remove rubble and debris remaining at the site, which was hit by a huge earthquake and tsunami in March 2011, and then take away the topsoil and pave the land with asphalt.

By doing so, TEPCO expects radiation levels to drop to one-third of present levels even in areas where 100 microsieverts per hour is observed.

The utility also thinks that paving will help reduce rainwater from soaking into the ground and becoming groundwater.

Groundwater passing through the premises is leading to an increase in radioactive water daily as it seeps into the basement of reactor buildings and mixes with highly toxic water used to cool the three reactors that melted down during the nuclear crisis, triggered by the March 2011 earthquake and tsunami.

On Tuesday, a government panel tasked with devising measures to deal with the radioactive water buildup compiled a report that says paving the site would be effective in reducing the groundwater inflow into the reactor buildings.

Kyodo News, December 12, 2013

<http://mainichi.jp/english/english/newsselect/news/20131212p2g00m0dm043000c.html>

Radiation 36,000 times permissible level found in water at Fukushima plant

FUKUSHIMA — The operator of the disaster-hit Fukushima No. 1 Nuclear Power Plant said on Dec. 2 that it has detected radioactive materials that topped 36,000 times the permissible level in underground water extracted in the area.

According to plant operator Tokyo Electric Power Co. (TEPCO), strontium-90 and other radioactive substances that emit beta rays were detected at a level of 1.1 million becquerels per liter in underground water pumped up from an observatory well on Nov. 28. The well is located at a sea bank east of the No. 2 reactor, about 40 meters from the ocean.

The amount of detected radioactive materials hit the highest level since Nov. 25, which marked 910,000 becquerels per liter of underground water. The national allowable emission level for strontium-90, a typical radioactive isotope that emits beta rays, is less than 30 becquerels per liter of water.

TEPCO said radioactive levels in seawater within the harbor around the plant do not show any major change.

It has been feared that highly contaminated water is leaking to the ground from a trench that stretches from the No. 2 reactor building to the sea bank. The radioactive isotope detected this time suggests the possibility of radioactive materials remaining outside the trench.

Mainichi Shimbun, December 3, 2013

<http://mainichi.jp/english/english/newsselect/news/20131203p2a00m0na011000c.html>

IAEA says radioactive water discharge from Fukushima plant an option

TOKYO (Kyodo) — A team of experts from the International Atomic Energy Agency on Wednesday proposed that Tokyo Electric Power Co. consider discharging less harmful radioactive water from

the crippled Fukushima Daiichi nuclear power plant into the sea as one option to address the toxic water buildup at the site.

“Controlled discharge is a regular practice in all the nuclear facilities in the world. And what we are trying to say here...is to consider this as one of the options to contribute to a good balance of risks and to stabilize the facility for the long term,” Juan Carlos Lentijo, the team leader, told a press conference in Tokyo.

The IAEA experts offered the proposal among other advice after completing a 10-day review of Japan’s ongoing efforts to scrap the damaged reactors at the Fukushima Daiichi plant, which was hit by a huge earthquake and tsunami in March 2011. It is the second time that the U.N. nuclear watchdog has sent a team of experts for such a purpose.

Lentijo, the IAEA director of Nuclear Fuel Cycle and Waste Technology, praised Japan’s “good progress” in its efforts to conduct safe decommissioning work but added that the situation “remains very complex” and “there are still very challenging issues that must be resolved to ensure the plant’s long-term stability.”

The latest mission was conducted shortly after TEPCO started a delicate operation to remove over 1,000 fuel assemblies from the spent fuel pool inside the damaged No. 4 reactor building.

Along with the decommissioning work, TEPCO has to manage a massive amount of radioactive water that is growing daily at the site because groundwater is seeping into reactor buildings and mixing with water used to cool the three stricken reactors.

TEPCO is increasing the number of tanks to keep the highly radioactive water, while planning to significantly reduce the radiation level of the liquid by running a water treatment system that can remove various radioactive substances, except for tritium.

As long as hundreds of tanks remain at the site, however, the possibilities of accidental leaks will remain.

In a preliminary summary report issued after the mission, the IAEA experts pointed to the need to find a “sustainable solution to the problem of managing contaminated water” and said that all options, including controlled discharges, should be considered.

But Lentijo said before resorting to the option of controlled discharges, TEPCO should make sure the water treatment system works efficiently to remove radioactive materials and it should prepare a safety assessment of the impact on people and the environment arising from the release of tritium and other residual radionuclides.

Kyodo News, December 5, 2013

<http://mainichi.jp/english/english/newsselect/news/20131205p2g00m0dm029000c.html>

Gov’t to consider discharging Fukushima toxic water into sea

TOKYO (Kyodo) — Japan’s central government said Thursday it will carefully consider discharging into the sea some of the radioactive water accumulating at the site of the crippled Fukushima Daiichi nuclear power plant, as proposed by the U.N. watchdog.

“We will respond by considering the advice” from the International Atomic Energy Agency, Chief Cabinet Secretary Yoshihide Suga told a press conference. But the top government spokesman also said such a decision must follow careful consultations with relevant bodies.

The IAEA proposed Wednesday the so-called “controlled discharge” as one of options with which plant operator Tokyo Electric Power Co. would dispose of less harmful toxic water into the nearby ocean.

The utility has set up hundreds of tanks at the site to keep the highly radioactive water and is planning to significantly reduce the radiation level of the liquid by running a water treatment system, as accidental leaks from those tanks have been feared.

Kyodo News, December 5, 2013

<http://mainichi.jp/english/english/newsselect/news/20131205p2g00m0dm062000c.html>

TEPCO transfers batch of spent fuel from Fukushima No. 4 unit pool

TOKYO (Kyodo) — The operator of the disaster-stricken Fukushima Daiichi nuclear power plant said Friday that it transferred a batch of spent fuel rod assemblies from the No. 4 unit spent fuel pool for the first time to a more stable storage space.

Plant operator Tokyo Electric Power Co. started removing spent fuel from the pool earlier this week after successfully transporting about 20 less risky unused fuel assemblies to another pool in a different building about 100 meters away.

The work will continue through the end of next year, until TEPCO finishes taking out over 1,000 fuel assemblies, including unused ones, from the spent fuel pool.

The fuel removal work marks a key step toward decommissioning the Nos. 1 to 4 reactors that have been largely affected by the nuclear crisis, triggered by a huge earthquake and tsunami in March 2011.

The Nos. 1 to 3 reactors, all in operation at the time of the quake, experienced core meltdowns. The No. 4 reactor, offline for periodic maintenance work, had all of its fuel stored in the spent fuel pool and avoided a meltdown, but concerns have remained over the continued storage of the fuel in the building weakened by a hydrogen explosion.

Kyodo News, November 29, 2013

<http://mainichi.jp/english/english/newsselect/news/20131129p2g00m0dm066000c.html>

2 more incumbent mayors in Fukushima lose re-election bids

FUKUSHIMA — The incumbent mayors in the city of Nihonmatsu and the town of Hirono in Fukushima Prefecture lost their re-election bids on Nov. 24, falling victim to nuclear radiation fears

like four other incumbents this year.

The incumbent mayor in the prefectural capital of Fukushima was defeated by a newcomer in the mayoral election on Nov. 17. The incumbents also lost in mayoral elections in Koriyama in April, Tomioka in July and Iwaki in September, respectively.

Hiroshi Shinno, a 62-year-old former city assemblyman, edged incumbent Nihonmatsu Mayor Keiichi Miho, 64, who had sought a third-term, by garnering 15,632 votes, compared with 14,930 votes for Miho. Both ran as independents.

The city's population dropped to 56,909 as of Nov. 1 this year from 59,656 on March 1, 2011, just before the Great East Japan Earthquake and tsunami which triggered the nuclear disaster at the Fukushima No. 1 Nuclear Power Plant.

Miho said, "We proceeded with decontamination work but concerns about radiation were conveyed to leaders of municipalities. The election campaign was held in the middle of a big tide against incumbents."

In Hirono near the crippled nuclear power plant, former town assemblyman Satoshi Endo, 52, defeated incumbent Mayor Motohoshi Yamada, 65, who had sought a third-term.

The town was designated as an emergency evacuation preparatory district in the wake of the nuclear crisis. The advisory was lifted in March 2012, prompting the town to relocate its town hall functions from Iwaki in the prefecture. But of 5,235 residents, only 1,191 have returned home as of Nov. 22.

Yamada said in his concession speech, "The central government's efforts have been slow, and I could not explain the restoration work to town residents in a visible way."

Kyodo News, November 25, 2013

<http://mainichi.jp/english/english/newsselect/news/20131125p2a00m0na008000c.html>

Japan lacks decommissioning experts for Fukushima

TOKYO (AP) — Japan is incapable of safely decommissioning the devastated Fukushima nuclear plant alone and must stitch together an international team for the massive undertaking, experts say, but has made only halting progress in that direction.

Unlike the U.S. and some European countries, Japan has never decommissioned a full-fledged reactor. Now it must do so at the Fukushima Dai-Ichi plant. Three of its six reactors melted down after the 2011 earthquake and tsunami, making what is ordinarily a technically challenging operation even more complex.

The cloud over Japan's capacity to get the decades-long job done has further undermined the image of the nuclear industry with the public. Opinion surveys show a majority of Japanese are opposed to restarting 50 reactors that were put offline for safety and other checks in the aftermath of the disaster. Japan has been forced to import oil and gas to meet its power needs, burdening its already feeble economy.

“Even for the U.S. nuclear industry, such a cleanup and decommissioning would be a great challenge,” said Akira Tokuhiro, a University of Idaho professor of mechanical and nuclear engineering who is among those calling for a larger international role at Fukushima.

Decommissioning a nuclear power plant normally involves first bringing the reactor cores to stable shutdown, and then eventually removing them for long-term storage. It is a process that takes years. Throughout, radiation levels and worker exposure must be monitored.

At Fukushima, there is the daunting challenge of taking out cores that suffered meltdown, which is the most dangerous type of nuclear power accident. Their exact location within the reactor units isn’t known and needs to be ascertained so their condition can be analyzed. That will require development of nimble robots capable of withstanding high radiation.

The lack of experts is worse at the regulatory level. The tally is zero.

Japan’s Nuclear Regulation Authority has no one devoted to decommissioning, said spokesman Juntaro Yamada, though it has experts dealing with the ongoing removal of fuel rods from one of the Fukushima reactor units.

Its predecessor organization was criticized after the Fukushima disaster for being too close to the nuclear industry, so the members chosen for the new agency launched last year don’t have direct ties to the industry to ensure their objectivity.

The government-funded Nuclear Energy Safety Organization, which is to be folded into the regulatory authority to beef up its expertise, has one expert on decommissioning, a person who studies overseas regulations on the process. The group mainly helps with routine nuclear plant inspections, but since the 2011 catastrophe has been involved with bringing the Fukushima plant under control.

In contrast, the U.S. Nuclear Regulatory Commission has 10 people devoted to decommissioning including four project managers, four health physicists, and a hydro-geologist. It says it has the equivalent of more than 200 years of experience in decommissioning and has overseen the termination of 11 power reactors and 13 research reactors.

France has decommissioned nine reactors, and its regulatory agency has seven decommissioning experts at the national level, and 10 more at the local level.

Lake Barrett, a retired nuclear engineer who took part in decommissioning Pennsylvania’s Three Mile Island after the meltdown of its reactor core in 1979, was hired as a consultant by Fukushima operator Tokyo Electric Power Co. He visits about once a year or so to give advice, and is not assigned daily to the job.

The cleanup at Fukushima would be more difficult than Three Mile Island because the damage is more numerous, involving three reactors instead of one, and more serious because of the greater damage from the bigger explosions.

Barrett said one reason he wanted to help Fukushima was that Japanese engineers had helped out at Three Mile Island. He had asked about their whereabouts but got no answers. He fears they are all retired or working in other industries.

“The most challenging area is skilled nuclear engineers and managers that can plan, integrate and communicate effectively in Japanese,” he said.

Japan's nuclear program started later than the U.S. and it has scrapped only a small test reactor. Five reactors are in various stages of decommissioning, including two experimental reactors and three commercial ones.

The furthest along is Tokai Power Station's No. 1 reactor, which is 15 years into a planned 22-year process. About 70 experts are working on the decommissioning, but the experience gained with Japan's oldest reactor is not directly transferable to Fukushima.

The decommissioning of two reactors similar to Fukushima's began in 2009 at Hamaoka nuclear power plant west of Tokyo, but it is in the early stages and is expected to take nearly 30 more years.

It took until August this year, nearly two and half years after the tsunami, for Japan to set up the International Research Institute for Nuclear Decommissioning, to bring together ideas, both inside and outside Japan, on Fukushima decommissioning and encourage communication.

Tokuhiro, who has more than 20 years in the nuclear design and safety fields, calls it a step in the right direction but too small, given the huge task at hand. The organization acknowledges much remains to be done, including responding to unprecedented challenges that will require the development of robotics and other new technology.

Tokuhiro is advocating the creation of an international team to help Japan, including those with experience at Three Mile Island and Chernobyl in the Ukraine.

"It is clear that this very large undertaking requires an international effort," he said. "It is in the spirit of a global nuclear energy partnership."

Associated Press, December 15, 2013

<http://mainichi.jp/english/english/newsselect/news/20131215p2g00m0dm043000c.html>
