

Radioactivity level high at Fukushima

Tuesday 26 April 2011, by [Asahi Shimbun](#), [Nikkei](#), [TOMOYUKI Yamamoto](#), [Yomiuri Shimbun](#) (Date first published: 26 April 2011).

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Radioactivity level in contaminated seawater approaches record high

BY TOMOYUKI YAMAMOTO STAFF WRITER, 2011/04/24

* <http://www.asahi.com/english/TKY201104230223.html>

The level of radioactivity from contaminated water that leaked into the sea from the Fukushima No. 1 nuclear power plant is close to the highest levels ever recorded.

The water that leaked from a crack in a concrete wall near the No. 2 reactor building at the Fukushima No. 1 nuclear power plant is estimated to be 4,700 trillion becquerels, the Tokyo Electric Power Co. said April 21.

That figure is about 20,000 times higher than the permissible annual standard stipulated by the government. Officials said 520 tons of the contaminated water leaked into the ocean from the crippled Fukushima plant. The leakage of the highly contaminated water was discovered April 2 and was halted April 6.

The worst case in history took place in Sellafield on the coast of the Irish Sea in Cumbria, England, in the 1960s-70s. Cesium-137 with a radioactivity of 5,230 trillion becquerels a year was discharged into the Irish Sea from a nuclear fuel reprocessing factory at the peak year of 1975.

Although the radioactivity level in the water in the Fukushima disaster is lower than that of the Sellafield case, officials say it is still a serious situation because the radioactive substances were discharged into the sea over a much shorter period of time.

“Even if the sea contamination made through the air is factored in, the figure is still a little bit lower than that in Sellafield,” said Katsumi Hirose, former director of the Meteorological Research Institute’s Geochemical Research Department. “But this time, we have to pay attention to the fact that the radioactive substances were discharged in an extremely short period of time.”

As for the concentration of the contamination, about 200 becquerels per liter of water was recorded in the Irish Sea in 1974.

“In the sea 34 kilometers from the Fukushima No. 1 nuclear power plant, 186 becquerels per liter of

water was recorded on April 15. The figure is close to the 200 becquerels found in the Irish Sea," Hirose said.

Radioactive substances discharged into the ocean are diluted by seawater. However, they do not necessarily spread evenly. There is a possibility that a water mass with a high concentration of radioactive material still exists.

Hirose said the observation area should be expanded to sea areas in a radius of 100 kilometers, centering on the coast off Fukushima, and that observation points should be increased drastically.

Atmospheric radiation leak underestimated

The Yomiuri Shimbun, Apr. 25, 2011

* <http://www.yomiuri.co.jp/dy/national/20110424dy04.htm>

Data released by the government indicates radioactive material was leaking into the atmosphere from the Fukushima No. 1 nuclear power plant in early April in greater quantities than previously estimated.

Radioactive material was being released into the atmosphere from the plant at an estimated rate of 154 terabecquerels per day as of April 5, according to data released by the Cabinet Office's Nuclear Safety Commission on Saturday.

The NSC previously estimated radiation leakage on April 5 at "less than 1 terabecquerel per hour."

Iodine-131 and cesium-137 were released into the atmosphere that day at the estimated rates of 0.69 terabecquerel per hour and 0.14 terabecquerel per hour, respectively, the NSC said.

Emissions are converted into iodine-131 equivalents for assessment on the international nuclear event scale (INES), to arrive at the total 154 terabecquerels per day, the nuclear safety watchdog said.

One terabecquerel equals 1 trillion becquerels.

On April 17, plant operator Tokyo Electric Power Co. said in its plan for stabilization of the crippled reactors it would not start to get radiation leakage under control until the plan's fourth month of implementation.

This would mean 10,000 terabecquerels of radioactive substances would be released into the atmosphere from the plant during the coming three months, according to simple calculations based on the estimated emission rate as of April 5.

Emissions in that three-month period alone would therefore exceed the level necessary for a Level 6 severity rating on the INES, the globally accepted measure for evaluating nuclear accidents.

The ongoing crisis at the Fukushima plant has been rated a maximum Level 7 on the scale, which was established by the International Atomic Energy Agency and the Organization for Economic

Cooperation and Development in 1992.

The total amount of radioactive material discharged from the plant from March 11 to early April was estimated between 370,000 and 630,000 terabecquerels, according to government sources.

The commission, however, said the figures were estimates only, "with a considerable margin of error." Radiation levels around the six-reactor complex have been slowly falling, it said.

Nuclear Body To Issue Hourly Radiation Forecasts

Tuesday, April 26, 2011

* <http://e.nikkei.com/e/fr/tnks/Nni20110426D25JFA23.htm>

TOKYO (Nikkei)—The Nuclear Safety Commission said Monday that it will start issuing forecasts of how airborne radioactive material may be spreading out by the hour from the Fukushima Daiichi power plant.

Starting Tuesday, the commission's Web site will show hour-by-hour data from SPEEDI, a system that analyzes and predicts dispersal of radioactive material in the event of a nuclear emergency.

Run by the government-affiliated Nuclear Safety Technology Center, the system has taken flak for publishing results just twice since the Fukushima crisis began, despite 11.3 billion yen in development and operating costs.

Goshi Hosono, a special adviser to Prime Minister Naoto Kan, apologized to the public Monday for the lack of information. Speaking at the first-ever news conference by the government's Fukushima accident task force, where he is the administrative chief, he blamed poor interagency coordination.

The forecasts will show how a hypothetical leak of 1 becquerel of radioactive iodine an hour might disperse over areas around the plant, based on wind patterns and other conditions. They are supposed to give residents a basis for making informed decisions.

Also on Monday, the commission released the latest estimates for radiation buildup around the plant. Compared with the last set of data, issued April 11, the new figures show a wider dispersal of high-level radiation to the northwest and south.

Separately, the Education Ministry, which is also in charge of science and technology, said it would strengthen monitoring of radioactive material in the ocean near the power plant by increasing the number of monitoring stations.

(The Nikkei April 26 morning edition)

Map details radiation at N-plant site

The Yomiuri Shimbun, Apr. 26, 2011

* <http://www.yomiuri.co.jp/dy/national/T110425003601.htm>

Tokyo Electric Power Co. has released to the public for the first time a map of its Fukushima No. 1 nuclear power plant that shows results of a survey of radiation levels at the site.

The map released Sunday shows high levels of radiation in different parts of the site, including 300 millisieverts per hour from debris near the No. 3 reactor, the outer building of which was damaged in a hydrogen explosion more than a month ago.

The map, which shows radiation levels at about 230 locations within the nuclear plant complex, indicates the dangers of working at the plant for long periods.

A TEPCO spokesperson said the information revealed by the map would not affect the timetable for stabilizing the reactors that was released by the firm this month.

"It'll take more than six months to remove all the debris from the site. Data included in the survey map were taken into consideration when the timetable [for stabilizing the reactors] was compiled," the spokesperson said.

Another map, compiled March 23, showed radiation levels around that time exceeded 100 millisieverts per hour in the air at five locations on the site—including around the Nos. 1 and 3 reactor buildings, which had been severely damaged by hydrogen explosions.

At those levels, it is believed a person would have been exposed to the annual maximum of radiation allowed for emergency workers in just one hour. Radiation at the plant has fallen since then, due to clearing up of contaminated debris and natural declines in substances' radioactivity.

According to the latest map, radiation levels were not above 100 millisieverts per hour anywhere at the plant as of Saturday.

Even so, levels of more than 10 millisieverts per hour were detected in the air at more than 30 locations around the Nos. 1 to 4 reactors.

Debris was cleared from an area to the east of the No. 3 reactor Thursday, after levels of 900 millisieverts per hour were detected. Later readings showed levels had fallen to 10 millisieverts to 30 millisieverts.

Levels from 40 millisieverts to 70 millisieverts detected in the air at some places were due to diffused radiation from the hydrogen explosions.

Near a concrete pump TEPCO workers are currently using to pour water into a pool containing spent fuel rods inside the No. 3 reactor building, radiation levels were between 20 millisieverts and 30 millisieverts.

A debris-strewn area to the north of the No. 1 reactor returned levels of 40 millisieverts in the air, as did an area to the west of the reactor.

The surface of a hose that carries radioactive water from beneath the No. 2 reactor trench to the complex's central waste treatment facility had radiation levels from 75 millisieverts to 86

millisieverts per hour different points.

Near the waste treatment facility, readings from the hose surface were 160 millisieverts per hour. TEPCO said it could not explain why the level there was so high.

The water inside the hose at any one time contains more than 1,000 millisieverts of radiation.
