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Japan Utility Dumps Radioactive Water

Plant Operator Hopes Release of Low-Level Radiation Into Sea Can Blunt Threat

By MITSURU OBE

TOKYO—Tokyo Electric Power Co. began dumping three million gallons of low-level radioactive water into the Pacific Ocean on Monday in an effort to ward off the release of even-more-dangerous material from its damaged nuclear-power plant.



Radioactive water is streaming into the sea in Japan as workers struggle to clear out toxic pools around the reactors. WSJ's Jake Schlesinger and Yumiko Ono discuss why this is happening and how it's affecting the local fishing industry.



Abaca Press/Abacausa

Radioactive water draining into the ocean from the No. 2 reactor at the Fukushima Daiichi plant on Saturday.

Government officials, who approved the move, said the radiation in the water was too low to pose a threat to human health. But the release, which will conclude Friday, demonstrates the tough choices the company and the government are making as they fight to keep the stricken plant under control and prevent more radioactive material from being released.

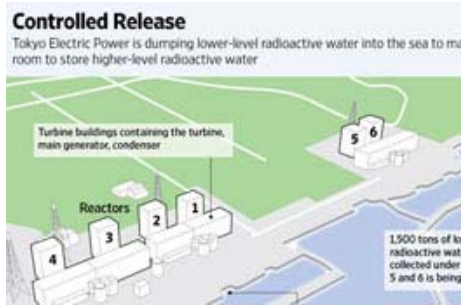
"This is an inevitable measure because we are running out of time," Hidehiko Nishiyama, a spokesman for the Nuclear and Industrial Safety Agency, told a news conference.

And despite the government's assurances of minimal risk, the move drew immediate protest from the large local fishing industry, which worries about fears, even unfounded, surrounding their products. "The impact on fish in the ocean will be huge even though they say it will get diluted," said Shuji Ono, spokesman of Fukushima Prefectural Fisheries Co-operative Association. "Bad rumors will also affect us a lot." Fukushima Prefecture has 14 major ports along the coast, which caught fish and seaweed worth 11.9 billion yen in 2010, or about \$142 million at current exchange rates. All the ports have refrained from fishing since March 14th.

Share prices in some leading fishing companies slipped 2% to 3% in morning trading Tuesday, underperforming the broader indexes. Even before the latest news, Russia had said it would

ban seafood imports from some 200 companies that fish near the trouble nuclear reactor.

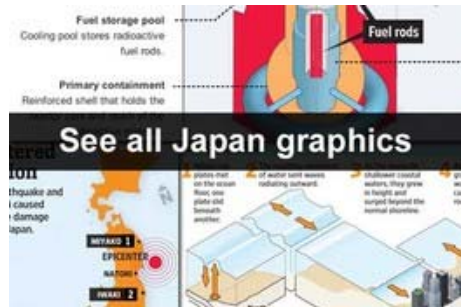
The five-day-long operation began Monday evening after the government approved the action, which was prompted by the recent discovery of the leakage of highly radioactive water, believed to be originating from the heavily damaged No. 2 reactor.



By discharging the less-toxic water into the sea, the government can free up more space for storing the more-toxic water that has been hobbling efforts to repair the reactors and bring them under control.

"We wanted to avoid releasing radioactive water into the ocean," Mr. Nishiyama said. But other storage options, such as a large barge and a floating pier known as the megafloat, are taking too much time to implement, he said.

Earthquake in Japan



The water the utility began releasing Monday has radioactive iodine-131 contamination around 100 times, and as much as 500 times, what is considered safe in normal times, and cesium-134 and cesium-137 of some 50-70 times. While iodine dissipates relatively quickly, cesium remains in the environment for years.

The more dangerous water leaking from the plant is far higher than the safe limits for these contaminants. The most dangerous water currently flowing into the ocean from a cracked concrete pit is giving off radioactivity of 1,000 millisieverts an hour, a level too high to allow properly protected workers from getting close enough to make repairs.

See all the graphics on the situation in Japan -- from before and after photos to the status of the reactors to survivors' stories.

The government said no advance consultations were held with other countries, although embassies from countries including Russia, South Korea, China and the U.S. had been advised of the decision.

Tepco is undertaking two releases. In the first, 10,000 tons of water that flooded a radioactive waste processing facility because of the magnitude-9 earthquake and a tsunami on March 11 are being pumped out. It wants to use the space as storage for the highly radioactive water that is collecting in the basement of the reactor No. 2 building.

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Separately, Tepco is releasing 1,500 tons of water that have been collecting in soil under reactors Nos. 5-6 due to seepage.

Such water is normally pumped away on a continuing basis but has been left accumulating since normal operations were stopped after the earthquake. Authorities are concerned that the water may eventually flood the rooms holding the recirculating pumps that have prevented those two units from dangerously overheating.

The Nuclear and Industrial Safety Agency argues that the release of this level of radioactive water will cause little or no health risk to people who live near the plant. Even if fish caught just outside the 0.6-mile radius of the plant are consumed every day for a year, the amount of radiation will total only 0.6 millisievert per year, a quarter of the amount humans usually receive naturally, it said.

Journal Community

DISCUSS

There aren't agreed international standards about the maximal level of radioactivity that can be ingested. The concern with consuming radioactive elements is that as they decay in the body, they emit radiation—high-energy particles—that can

It's really sad. Why do we need to wait for something like this to happen to reconsider the use of nuclear energy?

—Rachel Garcia

A Pressing Problem

Removing radioactive water from the reactors

Reactor No. 1 The basement of the turbine building is still flooded. But on Sunday, workers began moving water out of the nearby condenser. Once the condenser is empty, they can start pumping water out of the turbine building into that condenser.

Reactor No. 2 The flooding here is most worrisome, because the water has been found to be highly radioactive. The water is believed to be leaking outside the plant, contaminating nearby seawater. Work transferring water out of the condenser began Saturday.

Reactor No. 3 The transfer of water from the condenser at reactor No. 3 hasn't started yet. Although it is expected to begin soon, the precise timing hasn't yet been specified.

damage cell DNA, increasing the risk of cancer. Generally, the concern lies with the cumulative effect of ingested radioactive particles.

The large quantities of contaminated water at the plant have been caused by the frantic efforts to cool the nuclear units over the past three weeks to avoid a catastrophic release of nuclear material.

This would normally be done via a closed system that keeps recirculating and cooling the same water. But with those systems taken out by the disaster, Tepco has had to pour in outside water that becomes contaminated and then leaks out.

The scale of the problem became clear when the nuclear-safety agency said a sample of seawater taken 25 miles south of the plant on March 30 showed a level of radioactive iodine-131 twice as high as legally permitted. That appeared to belie authorities' earlier assurances that contamination would dissipate in the ocean and raised new questions about the viability of the fishing industry in an area dotted with fishing villages.

—Juro Osawa and Megumi Fujikawa contributed to this article.

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