Fukushima leaks' radioactivity 18 times higher than previously reported

John Marion
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On September 1, the Tokyo Electric Power Company (TEPCO) announced that radiation levels in water leaking from storage tanks at Japan's Fukushima Daiichi nuclear power plant is up to 18 times higher than previously announced.

Yesterday the Japanese government announced a $500 million plan to contain radioactive water leakage. It is based on an untested technique of building an underground wall of ice around the facility.

The Japanese national government has left the cleanup in TEPCO's hands for nearly two and a half years. It took action amid rising concerns that the leakage is affecting Japanese fisheries and the city of Tokyo, which is approximately 160 miles.

Remarkably, TEPCO's latest announcement was accompanied by the news that the meters with which it recently measured exposure levels at 100 millisieverts (mSv) per hour simply were not capable of measuring radiation above that level. Now that more appropriate meters have been used, levels up to 1,800 mSv have been detected.

Exposure to this level of radiation for four hours is deadly. According to the French daily *Liberation,* one hour of this level of radiation would expose a worker to 36 times the yearly amount allowed by the plant's regulations. TEPCO could not explain the sudden 18-fold jump in radiation measured, beyond the use of more robust meters.

While the beta rays that were measured can be deflected with aluminum shielding, the inability of TEPCO to contain contaminated water in its makeshift tanks poses a serious threat to both workers and the general public. In the past week, the company has increased its estimate of the number of leaking tanks from one to four.

Particularly vulnerable are the 1,000-ton tanks which were bolted together (with plastic or rubber sheeting in the seams) in as little as three days apiece. Because tanks with welded seams—stronger than the bolted variety—take up to one month to build, the company insisted on bolting together approximately 350 of the weaker tanks after the 2011 plant meltdown. Bolted tanks are not expected to last for more than five years.

The *Japan Times* interviewed workers who built the bolted tanks. "'We were required to build the tanks in quick succession,' a worker said, recalling his experience building a group of tanks in the H4 area of the plan two years ago. 'We were told to put priority on making the tanks, rather than quality control. There were fears toxic water may leak.'"

Until now, two workers have been assigned to patrol the approximately 1,000 storage tanks twice a day, with a total of ten workers rotating on and off. *The Asahi Shimbun* describes the process: on the two person patrols, "each worker patrolled different areas. But because each would be responsible for about 500 tanks over a two-hour patrol period, a simple calculation showed a worker had only 15 seconds for each tank."

In addition, "because rainwater easily collected at the concrete foundations where the tanks were lined up, workers rarely considered puddles around the tanks to be suspicious, and often radiation measurements were not taken."

Having subjected the radiation inspectors to such impossible conditions, TEPCO has now promised to increase the number of inspection workers from ten to 60 and to increase the number of patrols. There is, however, no reason to think that the company, which has previously underreported exposure risks (See: TEPCO reports new leaks at Fukushima reactor), will act in the interests either of its workers or of the general public.

Nearly 2-1/2 years after the crisis began, adequate technology for solving it is still not available. Reuters reported that technology needed for plant decommissioning is still in a government-funded research and development phase.

In addition, two of Toshiba's advanced liquid processing systems (ALPS) are on site for filtering radioactive metals from the water, but one has been taken offline because its pipes and basins were being corroded by radiation. Even when functional, the ALPS filters cannot remove radioactive tritium from water.

The removal of 1,300 used fuel rods from the cooling pool above Reactor No. 4 this November could dwarf even the current problems, if it is not properly handled. Large amounts of plutonium will be involved, and the computers normally used for such an operation are not functional.

The Japanese government has left the crisis until now under the management of TEPCO, though Trade Minister Toshimitsu Motegi labeled the firm's approach "Whack-a-Mole." Like US President Obama, the government of Prime Minister Shinzo Abe is beholden to the large corporations it represents.

Because TEPCO's stock value has dropped since March 2011 and its profits have been reduced by the high cost of using fossil fuels to replace nuclear energy, it has sought not technical but financial help from the government. According to Reuters , in 2012 TEPCO sold a "controlling stake" to the government for ¥1 trillion (US $10.2 billion). The government took no practical remediation measures with its "controlling stake," however.

Nonetheless, Abe's government faces a growing crisis from Fukushima. A recent *Japan Times* editorial cited polls showing that more than 90 percent of the Japanese population wants government intervention. The possibility of a South Korean ban on the importation of Japanese fish could weaken Japan's economy, which is also being hit by the costs of fossil fuel.

Abe is also concerned that the Fukushima crisis will cause Tokyo to be passed over for the 2020 summer Olympics when the International Olympic Committee makes that decision on September 7. According to *the Guardian,* "Japan's foreign ministry has started posting English-language information online showing that atmospheric radiation levels in Tokyo, 140 miles south of Fukushima Daiichi, are comparable with those in London and New York."