Questions arise over whether poor workmanship or design led to leak of radioactive water

Tokyo Electric Power Co. (TEPCO), operator of the Fukushima No. 1 Nuclear Power Plant, appears to be at odds with construction company Maeda Corp. Over what led to leaks of radiation-tainted water from an underground reservoir at the plant.

The tank was designed by TEPCO, which says it has experience with storage reservoirs, and constructed by Maeda Corp., which argues that it would normally not design a reservoir tank in such a way. The leaks have raised the possibility of either a design error or construction flaw, and both companies are likely to come under scrutiny to determine whether they gave the project sufficient consideration. A Maeda Corp. representative said the company is investigating the content of its discussions with TEPCO on the tank’s design and construction.

TEPCO maintains that the leak may have stemmed from operating the reservoir with a leak-detection pipe piercing a reservoir sheet. It is possible that the weight of water in the reservoir tank pulled the sheet down, creating a gap that allowed water to escape.

The reservoir tank is lined with three waterproof sheets: Two polyethylene sheets each measuring 1.5 mm thick, and a 6.4 mm thick bentonite sheet on the outermost layer. The leak-detection pipe is pushed through the two polyethylene sheets, with the top of it above the water level.

Speaking with the Mainichi on April 8, a representative of Maeda Corp. said the construction company would normally not implement such a design. Maeda Corp. says that to prevent gaps from appearing, leak-detection pipes would not normally be allowed to pierce any sheets. A representative of the construction company added that while the same types of sheets have been used to store industrial waste, they didn’t have a proven record with water storage. Water-based experiments with TEPCO officials were conducted, however, and no water leaks were confirmed during these tests.

TEPCO, however, says that similar designs are used in farm reservoirs. It plans to improve the area around the pipe and continue using its underground reservoir tanks while it investigates the cause of the leaks.

At the same time, the company announced on April 8 that it would bring forward plans to build aboveground tanks capable of storing roughly 126,000 tons of radiation-tainted water at the Fukushima nuclear plant, though it has not yet specified a construction date.

Roughly 400 tons of contaminated underground water accumulates each day at the nuclear plant. Regular tanks and underground reservoir tanks at the plant have a capacity of roughly 331,000 tons, but as of April 2 they held about 276,000 tons of contaminated water, leaving space for only about 55,000 tons.

So far leaks have been uncovered at two storage tanks. TEPCO suspects that contaminated water leaked from near the top of the reservoir tanks, when they were nearly full. It says that if the water level is reduced to 80 percent, then leaks will not occur. However, the radiation level outside the tank where the first leak was detected stood at 57 becquerels per cubic centimeter on April 7, even though the water level was at 65 percent of capacity. This is the same figure as before the water level dropped, suggesting that water may still be leaking. TEPCO has explained that it may take some time for readings to fall.

Meanwhile on April 8, TEPCO announced that a silt fence designed to stop radioactive material...
spreading in the sea had been damaged in two places, apparently due to bad weather.
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