The cooling of the reactor cores damaged in March 2011 still requires a constant flow of water, which circulates through the power plant basements. The water becomes radioactive after contact with the cores and is pumped to a storage and treatment facility before recirculation for cooling.

At about 9.50 am yesterday, a worker on routine inspection found water leaking from a rainwater drain valve in a dam that surrounds a tank of partly treated contaminated water. This had formed two shallow puddles outside the dam. Investigations showed that the level of water in the tank was about 3 metres lower than expected, indicating that some 300 cubic metres had escaped.

Tepco told WNN that the leaked water had already passed through the first ‘SARRY’ stage of decontamination, which had removed most of the radioactive caesium. It was yet to pass through the 'ALPS' treatment that would remove strontium and other beta-emitting radionuclides. As such its radioactivity is considered medium-to-low at 80,000 becquerels per cubic centimetre. Dose rates measured for gamma and beta radiation were high at over 100 milliSieverts per hour, while the dose rate for gamma only was low at just 1.5 milliSieverts per hour. Tepco did not specify if these were dose rates at the water surface or, more likely, a standard 1 metre above the ground.

Clean-up

The drain valve has been successfully closed and water from the failed tank is currently being
pumped to other tanks. Tepco is removing water from within the dam to a temporary tank with the intention to move it to other tanks at the facility.

Tepco has pumped away all the contaminated water that had accumulated on the surface and started removing affected soil from the area to storage, placing large sandbags in its place. The company's scientists are investigating how far the water may have spread and checking the area every three hours. It is also cleaning the floor slabs in the area.

There is no evidence that the water entered a drainage ditch, said Tepco, meaning it is unlikely to have left the area or reached the sea.

**INES classification**

The Japan Nuclear Regulation Authority (NRA) has preliminarily classified the incident at Level 1 on the International Nuclear Event Scale (INES) - an anomaly. However, based on an initial report submitted by Tepco, the regulator is considering raising this to Level 3 - a serious incident. The breakdown of a safety layer and the amount of radioactivity released by the leak meet some of the criteria of a Level 3 incident, it suggests. The NRA said that it will consult with the International Atomic Energy Agency about this reclassification.

The Japanese regulator also said that it was unsure whether the leak should be given its own INES rating or whether it should be treated as part of the overall Fukushima accident, already rated at Level 7 - a major accident.