



#### 4. **NUCLEAR: Engineers still struggle to manage Fukushima 1, radiation spread and rotating blackouts** (03/23/2011)

**Peter Behr, E&E reporter**

Japanese utility crews re-entered the control room at the No. 3 reactor at the Fukushima Daiichi nuclear plant for the first time since the March 11 earthquake, hoping to restart reactor cooling systems, but they were driven away by black smoke rising from the crippled reactor Wednesday afternoon, Japanese press reports said.

The smoke cleared after about an hour, and plant owner Toyko Electric Power Co. (TEPCO) said the smoke did not cause a major change in radiation levels at the plant. Water-spraying operations on reactors and spent fuel pools were suspended for the day, NHK World reported.

TEPCO officials remained hopeful that they can succeed in restoring power to more of the plant today and tomorrow, allowing engineers to check critical measurements of temperature and pressures, and to test electrical cabling and cooling systems for reactors and spent fuel pools.

The condition of some of the blast-damaged reactor complex remained uncertain Wednesday. The Union of Concerned Scientists estimated that water directed at pools at the No. 3 pool substantially exceeded its capacity. It was not clear how much of the water had reached the pool, but the operation suggested the pool may have been damaged and is leaking, UCS said.

While the struggle to control the damaged reactors and fuel storage pools continued, assessments of the human, environmental and economic devastation from the earthquake and tsunami continued to rise.

More than 24,000 people are confirmed dead or missing, the National Police Agency said yesterday. The count includes 9,452 dead and 14,715 reported missing.

#### **Harmful levels of iodine-131 found in Tokyo water**

Ei Yoshida, head of water purification for the Tokyo water department, said that infants in Tokyo and surrounding areas should not drink tap water, *The New York Times* reported. Iodine-131 had been detected in water samples at a level of 210 becquerels per liter, he said in a televised statement. The recommended limit for infants is 100 becquerels per liter.

Radioactive contamination has been found at levels exceeding legal limits in 11 vegetable products in Fukushima Prefecture, and shipments of these products has been halted, the Kyodo News agency reported.

A Japanese university expert said tests showed radioactive contamination 1,600 times higher than normal had been measured in a village 40 kilometers from the plant on Japan's northeast coast, NHK World reported. The readings were of cesium-137, a persistent fission product that can be absorbed by humans.

The cost of damage from destroyed buildings and infrastructure systems is estimated at between \$200 billion and \$308 billion dollars, Economic and Fiscal Policy Minister Kaoru Yosano told a Cabinet meeting on Wednesday, by far the greatest economic impact from a natural disaster in Japan, press reports said.

The figure does not include future losses resulting from the destruction of businesses and the loss of livelihoods, or the consequences of rolling electricity blackouts that continue in parts of Japan because of the damage to power plants and destruction to sections of the transmission grid. Two thermal plants with a capacity of 4,800 megawatts were damaged, and their output is close to that of the blast-stricken Fukushima nuclear complex, *Asahi Shimbun* reported.

TEPCO said the rolling blackouts in the region of the quake are likely to last for a year. "We cannot keep the restarted thermal power plants constantly generating electricity because they need regular checks," the TEPCO official said. "We will likely be forced to walk a tightrope, not just this summer and winter, but also the following summer," *Asahi Shimbun* said.

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