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# Japanese nuclear plant may be on quake fault line

- Leak during tremor worse than originally admitted
- IAEA calls for openness in investigation of errors

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**Justin McCurry** in Tokyo  
The Guardian, Thursday 19 July 2007

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Earthquake damage outside

Japan's Kashiwazaki-Kariwa nuclear power plant. Photograph: Koichi Kamoshida/Getty Images

The world's biggest nuclear power station faces an uncertain future after it emerged yesterday that it may lie directly above the fault line that triggered Monday's earthquake in which nine people died and more than 1,000 were injured.

The Kashiwazaki-Kariwa plant - the biggest in the world in terms of output capacity - shook violently when a magnitude 6.8 earthquake struck Niigata prefecture in northern Japan on Monday morning. The plant was not designed to resist shaking caused by earthquakes of greater than magnitude 6.5.

On another day of embarrassment for Japan's nuclear power industry, the Tokyo Electric Power Company (Tepco), which operates the plant, said the amount of radioactivity in water that leaked into the sea during the earthquake was 50% higher than it had originally said. The firm blamed a calculation error and said the levels were still well within safety standards.

Late yesterday it also said that 400 drums - not 100 as first reported - of low-level radioactive waste had toppled over during the quake. About 40 lost their lids, spilling their contents on to the ground as they fell. The spillage was one of more than 50 malfunctions the plant experienced in the immediate aftermath of the quake.

International nuclear inspectors said they were concerned by Tepco's apparent lack of preparedness for such a powerful quake.

"It is clear that this earthquake ... was stronger than what the reactor was designed for," Mohamed ElBaradei, head of the International Atomic Energy Agency, told reporters in Kuala Lumpur. "I would hope and I trust that Japan would be fully transparent in its investigation."

The mayor of Kashiwazaki, Hiroshi Aida, ordered Tepco to close the plant indefinitely. "The safety of the plant must be assured before it is reopened," he said. The closure has forced the firm to ask six other power utilities to supply it with additional electricity through to the end of September to avoid power cuts when demand peaks later this summer.

Tepco is under pressure to explain why it took so long to inform the authorities of radioactive leaks and why just four employees were on hand to tackle a fire inside an electrical transformer that was extinguished only after firefighters arrived almost 90 minutes later.

The mishaps have raised questions about the wisdom of building nuclear power stations in a country where earth tremors are recorded, on average, every few minutes. New safety regulations were brought in last year, but upgrading ageing reactors to withstand larger tremors will require huge investment.

Akira Fukushima, of Japan's Nuclear and Industrial Safety Agency, said no irregularities had been found in critical areas of the plant, but added: "It is possible that the epicentre fault line does run beneath the power plant."

Inspectors reportedly identified four fault lines in the area while conducting a geological survey before work began on the Kashiwazaki plant in 1980, but concluded that they were inactive.

The Citizen's Nuclear Information Centre said that the fault believed to have triggered the earthquake was not discovered during pre-construction surveys. "Clearly Japan's earthquake safety standards are inadequate," it said in a statement.

Tepco's president, Tsunehisa Katsumata, defended the firm. "It is hard to make everything go perfectly ... I think fundamentally we have confirmed that our safety measures work," he said.

Japan, which has very few indigenous energy sources, depends on 55 nuclear plants for 30% of its electricity. Despite mounting public opposition, it plans to increase capacity to 40% by the end of the decade.

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