Second nuclear worker dies in Japan

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4 May 2000

Masato Shinohara, aged 40, died on the morning of April 27 in the University of Tokyo Hospital. Along with two other workers, he had been exposed to massive doses of radiation during last September's nuclear reaction at the Tokai-mura nuclear fuel processing plant. His fellow worker, Hisashi Ouchi, died of heart failure on December 21, while Yutaka Yokokawa has, for now, been released from hospital.

Shinohara remained alive for over six months, but doctors described his body as “ravaged” by radiation sickness. The final cause of death was given as multiple organ failure. Kazuhiko Maekawa, head of the intensive care unit, told the media: “I feel powerless faced with this enormous problem which was caused by human greed”.

The findings of an investigation committee established by the Nuclear Safety Commission, the official regulatory authority, demonstrate that the disaster was the direct product of the neglect of safety by the plant's owners, JCO Pty Ltd, and the Japanese government.

The three workers had been instructed to produce the enriched uranium oxide, which is required for a specialised nuclear fuel used in the experimental Joyo reactor. Over recent years, the company had slashed its staffing levels, due to falling profits. Two of the workers had never done the work before and they were not supervised by a manager or technician.

To speed up work, the company had altered a safety manual to allow workers to mix uranium oxides in steel buckets, instead of properly designed mixing tanks. JCO had not been inspected by government regulators for 10 years, on the grounds that the work it undertook posed no threat of a nuclear accident.

Untrained, unaware of the risks and under the pressure of a management deadline, the workers bypassed one stage in the enrichment process and, using the steel buckets, poured seven times the safe level of a uranium mixture directly into a precipitation tank. The mixture reached critical mass and passed into a sustained nuclear fission reaction that was not finally controlled for 22 hours.

The plant was not designed to contain a radiation leak, despite handling highly enriched fuel. The accident began at 10.35am but the company did not inform the relevant government authorities for 40 minutes. The fire brigade personnel dispatched to the site were not even told they were attending a nuclear accident. Experts from the Science and Technology Agency (STA) did not arrive at Tokai-mura until 1pm. A decision to evacuate residents in the immediate area was not made for five hours and a warning instructing the more than 320,000 people living within a 10-kilometre radius to remain indoors was not issued until 10pm.

The STA confirmed on January 31 that 439 people had suffered potentially dangerous radiation exposures. They include 158 JCO workers and contractors at the plant, 84 emergency service workers and 207 local residents. Measuring the degree of exposure was complicated by the fact that numbers of workers were not wearing the mandatory film badges that absorb radiation—another reflection of the general lack of safety supervised by JCO management. It will be years, however, before the broader impact is revealed. A Health Care Study Committee has been established to monitor the long-term health implications on local residents, such as increased cancer rates.

The accident has been followed by revelations of a culture of disregarding safety in Japan's nuclear industry. Researchers have accused nuclear employers of exposing thousands of unskilled day labourers and contractors to dangerous levels of radiation over the past decades. Workers have allegedly been paid bribes not to report medical problems most likely caused by radiation exposure. Nuclear industry trade unions have

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stood by in silence.

The Japanese nuclear industry is one of the most extensive in the world, with 51 operating reactors, as well as fuel processing and research facilities. It generates over 30 percent of Japan's electricity supply.

Public concern with its lack of safety has steadily grown. In the last four years there have been five major accidents and numerous minor incidents requiring plants to close. Only last week a nuclear reactor northwest of Tokyo closed for the second time, due to cracks in cooling pipes. On April 24 a research reactor shut down when its fuel rods malfunctioned.

In the aftermath of Tokai-mura, the Japanese government has made belated efforts to regulate the industry in order to placate public fears. After inspections discovered safety abuses at 15 nuclear facilities, legislation was passed in December requiring periodic and unscheduled inspections by authorities. The STA denied JCO's request to resume operations and on February 3 cancelled its permit. Police are said to be considering criminal charges against the management but, to this point, none have been laid.

The government's long record of self-regulation, however, highlights its complicity in the death of Masato Shinohara and Hisashi Ouchi. For decades, successive administrations have followed the “self-responsibility principle,” effectively giving the nuclear companies a free rein to put their workers and the broader population at risk.

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