

Fast reactor leak hits nuclear safety image

Tokyo. A fault in the cooling system of Japan's prototype fast breeder reactor Monju forced its shutdown last Friday, 8 December, causing concern about the safety and reliability of the technology and prompting calls for a review of Japan's nuclear power policy. A fault in the secondary cooling system allowed between two and three tonnes of liquid sodium to leak out, causing a temperature abnormality that triggered a fire alarm.

According to officials of the semi-public Power Reactor and Nuclear Fuel Development Corporation, the plant, located in Fukui Prefecture on the Japan Sea, was shut manually on Friday evening after an alarm had gone off. A task force headed by the plant's chief manager was immediately set up, and workers were ordered to drain about 80 tonnes of liquid sodium into a tank in order to prevent further leakage. Oxidized sodium was subsequently found in piles beneath the liquid sodium pipes.

The source of the leakage has yet to be

established because of the insulation and panelling covering the pipes. But officials have suggested that the most likely site may be a weld connecting the system to a branch pipe equipped with a device that measures the temperature of the sodium.

All of the piping in the section had to be replaced in 1992 due to faulty construction. This, together with the fact that the plant just began operating, has led to speculation that the cause was faulty construction, rather than metal fatigue or another cause.

Monju, which was operating at 40 per cent of its 28-MW capacity at the time of the accident, started operating in August, and according to current plans will reach full capacity in June 1996. Construction of the ¥600-billion plant began in 1985. The Japanese government is hoping to follow Monju with the introduction of commercial reactors around the year 2030. This fast breeder reactor programme is a central plank of its energy policy, but has met opposition both domestically and internationally.

The accident has provoked strong reactions from local and prefectural governments, as well as local citizens' groups, which have demanded that the operating authorities should publish all information related to the plant and its operations, and participate in regular discussions with concerned parties. Technical problems related to the liquid sodium cooling systems have plagued fast breeder reactor programmes in France, Germany and the United Kingdom, all of which have either cancelled or severely reduced their fast breeder programmes.

Apart from concern about safety and the environment, the programme has also met resistance from the Japanese power utilities, which resent the high costs of the programme, part of which they must bear. Internationally, the programme has come under fire because of the huge amounts of plutonium — which could be used for nuclear weapons — that Japan will accumulate as the programme develops.

Stephen Barker

Researchers split over food safety as schools ban beef

London. The British government has again been forced to deny claims that bovine spongiform encephalopathy (BSE) — widely referred to as 'mad cow' disease — can be transmitted to humans, following a decision by local education authorities representing more than a thousand schools to stop serving beef.

The move follows public statements by prominent scientists and health experts who have indicated that, although no evidence of such transmission has been found in laboratory tests, the risk — that BSE might be associated with its human equivalent, Creutzfeldt-Jakob Disease (CJD) — is sufficient for them to stop eating beef.

Addressing the House of Commons last week, the prime minister, John Major, repeated the government's position that "there is currently no scientific evidence that BSE can be transmitted to humans or that eating beef causes CJD in humans". He added: "I am also advised that beef is a safe and wholesome product."

Kenneth Calman, the government's chief medical officer, acknowledged that the annual number of CJD cases had doubled to 55 in the past decade in the United Kingdom. But he pointed out that this is still within worldwide averages, and almost certainly due to better detection and not through eating products infected with BSE.

The government's view is shared by many scientists. One CJD researcher, for example, expressed surprise that schools had chosen to ban beef "one decade after BSE had first been reported" and three years after the incidence of BSE had peaked. He pointed

out that new cases of BSE have now dropped from 1,000 a week to 300.

But such views have had little impact on the public. The chairman of one local authority education committee in the north of England, for example, said his authority has a legal requirement to ensure that children are given food that was considered safe to eat. The authority, he said, will not serve beef until "the government can prove with concrete research results that people cannot get CJD after eating BSE-infected food".

The current scare follows the recent deaths of four farmers and two schoolchildren from CJD. The government's apparent lack of concern has, to some, been underlined by its decision to cut the budget of a

laboratory conducting research into CJD, the Edinburgh Neuropathogenesis Unit, part of the Institute of Animal Health, with the possible loss of 15 research staff. The Ministry of Agriculture, however, has promised to increase the total BSE/CJD research budget by £1 million to £6.4 million next year.

The BSE infecting agent is a 'prion', an infectious protein that attacks the brain, leaving it sponge-like. It is found in brain and spinal cord. Since 1989, the use of offal in human food and in cattle feed has been banned, but not completely eliminated.

Last week, several scientists, including Sir Bernard Tomlinson, a neuropathologist and former government medical adviser, said they had changed their minds about the possibility of a BSE/CJD link and had stopped eating food containing beef offal.

In a full-page newspaper article, Colin Blakemore, Waynflete professor of physiology at the University of Oxford, said the government was wrong to transform "cautious scientific and medical advice into categorical reassurance". Not only is there a conceivable risk of BSE being transmitted from cows to humans, he said, "but it is increasingly being acknowledged by experts". Blakemore advised the public to stay calm but "consider giving up all beef until the picture is clearer".

But James Ironside, a neuropathologist with the CJD Surveillance Unit at the Edinburgh Western General Hospital, says such statements carry authority and "could be potentially misinterpreted by the public".

Hsan Masood



Richard Greenhill

Off the menu? Beef is safe, say government advisers, despite fears surrounding BSE.