

Radioactive waste

Windscale leak

The scathing report last week from the British Nuclear Inspectorate on the latest radioactive leak from the Windscale reprocessing plant raises familiar issues. Yet again, it seems, a substantial leakage of radioactivity, 100,000 curies this time, has arisen from relatively minor design faults and sheer human frailty.

One of the benefits of the arrangement under which the Nuclear Installations Inspectorate works directly to the Health and Safety Executive is, however, that its full report (Health and Safety Executive, £1.25) has now been made public. It emerges that the inspectors had seriously considered prosecuting British Nuclear Fuels Limited, or members of the senior staff at Windscale, for breaches of the operating licence. Instead, the inspectors have asked the company (which is state-owned) to take remedial action and plainly hope that publication of their report will be a more effective safeguard for the future. BNFL has duly eaten humble pie, with a statement reading like the public confessions common in China during the Cultural Revolution.

The chronology of this latest incident at Windscale begins in 1955 when a plant was built for bleeding off small quantities of highly active liquid waste from the reprocessing line as part of the research programme then under way at Harwell to glassify highly active waste. The UK Atomic Energy Authority (then the operator of Windscale) erected building 701 which contained a 1,400-litre stainless steel tank in which active waste could be aged for an appropriate length of time, and a device for transferring some of this material into 20-litre shielded flasks for transport to Harwell. There were arrangements for returning waste from the building to the main processing line, principally from a small 70-litre sump in the floor of the building.

After the last consignment of waste to Harwell in 1958, Building 701 seems to have fallen out of use and out of mind. For some years, workmen at Windscale followed the standard operating procedure of emptying the sump at regular intervals, but during the 1970s the practice had become irregular. BNFL told the inspectors that they assumed that the liquid collecting in the sump was not radioactive, but probably consisted of rainwater leaking through the roof of the building and of condensation inside. The inspectors complain that BNFL should have considered the chance that active waste was splashing over the movable vanes used in a valve arrangement to divert the stream of active waste in one direction or another.

Attempts to empty that sump during the 1970s were not always successful, now it seems because one of the two outlet lines had been mistakenly cut and blanked off in

1971. Curiosity about the level of liquid in the sump could not reliably be satisfied — the pointer on the face of the instrument recording the liquid level can apparently turn full circle and then keep on turning, so an over-full sump may seem nearly empty.

The leak was discovered during a survey of the Windscale site in 1978, and recognized to consist of fission products only two years old in March 1979 when the nuclear inspectors were informed. The inspectors say that for several years the sump had been overflowing and that radioactive material had found its way through the stainless steel cladding lining the bottom of the building to soak through the concrete foundation to the ground beneath.

The penance required from BNFL includes the reinstrumentation of building 701, its isolation and, eventually, its decontamination, the monitoring of radioactivity in the ground beneath the plant (where most of the activity is some three metres beneath the surface) and preparation for the physical isolation of the activity or even the removal of the contaminated soil.

Both parties to the investigation agree that nobody has been exposed to a significant radiation dose because of the leak.

European biotechnology

EEC proposals

The European Commission's proposals for the regulation of genetic manipulation, once widely feared for their restrictiveness, have turned out to be comparatively tame. The commission's "recommendation", submitted to the Council of Ministers this week, requires merely that experiments in genetic manipulation should be registered nationally. The proposals are thus much less constraining than the directive proposed in 1978 and later withdrawn.

A "recommendation" carries no legal force but, if agreed by ministers, has a certain moral force among the nine member states. Last week's recommendation argues that while hazards are now thought to be "non-existent or small" it would nevertheless be prudent to register experiments centrally in case so far undetected "long-term effects" exist. To deal with commercial objections about confidentiality, notification would be restricted to "the portion of the experimental protocol which is required for the evaluation of safety".

Compulsory notification already exists in the United Kingdom, and may do so in Germany if a proposed law on genetic engineering re-emerges after the October election. Elsewhere it is voluntary.

The commission would also set up a committee of experts, mandated by member states, to examine at least once a year the need for harmonization of regulations and to consider emerging knowledge of hazards. **Robert Walgate**

IWC whaling quotas

Politics wins out

The recent 32nd annual meeting of the International Whaling Commission (IWC) closed after a week of political struggle between those nations seeking a ban on commercial whaling (led by France, the Netherlands and the United States) and those, mainly the whaling nations (Canada, Chile, Iceland, Japan, South Korea, Peru, South Africa, Spain and the Soviet Union), arguing that such a ban could not be justified.

Any hope of a total moratorium was crushed at the beginning of the meeting, and for most of the week it looked as if agreement on quotas might never be reached. On the final day of the meeting, however, quotas were eventually agreed — 13,753 whales of all species can be taken in 1981–82 compared with 15,883 in 1980–81. The alternative of no agreement at all might have led to the demise of the whaling commission and a free-for-all, which would have been an even greater blow to the conservationists.

The purpose of the IWC's annual meetings is to reach agreement on the management of whale stocks for the next year based on the advice of its scientific committee. One of the problems is that the monitoring and prediction of whale population dynamics is fraught with difficulties, allowing interested parties to interpret the statistics as they wish.

The task of the IWC's scientific committee, which met a few weeks before the commission's main meeting, is to formulate a basis on which catch quotas can be set. It does this by estimating the current population of individual whale stocks and the ideal population which could be supported in the absence of interference by man. A population slightly below the ideal level will replace itself more rapidly than one at the ideal level because of increased resources per whale. The aim is to maintain populations at the level which shows the greatest replacement rate and hence gives the maximum sustainable yield (MSY). Under the IWC's new management procedure, a target yield, which provides guidance for setting catch quotas, is set at 90 per cent of MSY. The management procedure also stipulates that all catching should stop on any stock which falls to 10 per cent below the level at which it produces the MSY.

Estimated stock sizes and MSY and recommended catch limits

North Pacific, Western Division	Males		Females	
	(11+)	(10+)	(10+)	(9+)
1910 stock × 10 ³	157.9	175.0	124.6	131.1
1981 stock × 10 ³	66.5	71.2%	95.0	405
1981/1910	42.1%			
MSY level × 10 ³	88.3			
1981% MSY level	75.3			
Catch limits	0			