

# Safety inspectorate perilously overstretched 'We've just been lucky.'

THE SAFE RUNNING and construction of British nuclear power stations is in severe jeopardy. The Nuclear Installations Inspectorate is almost 20 per cent short of inspectors and one commercial nuclear power station no longer has a site inspector. Over half the remaining inspectors have threatened to take new jobs if pay and prospects are not improved. If this happened existing nuclear power stations could only be run at considerable risk to workers and the public. Unpublished reports obtained by the NEW STATESMAN recount a twenty year history of horrifying mistakes that would have been catastrophes without NII inspectors.

Chapelcross nuclear power station in Dumfries and Galloway has now been without an inspector for two months because there are not enough NII inspectors to ensure that each station in Britain has one employed fulltime: a safety principle hitherto considered unassailable. This means that Chapelcross has no site inspector to check the safety implications of the continual minor failures and modifications which nuclear power stations, like any sophisticated engineering plant, suffer. Instead, an inspector from a similar reactor at Calder Hall in Cumbria is trying to cover both jobs at once from London, even though checking Calder Hall – which like Chapelcross, has four separate reactors – is already a full-time job.

Calder Hall and Chapelcross were the first British reactors of the magnox design. All of these have now been discovered to have substantial cracks in their pipework. If the cracks spread through the structure, and allow the reactor's cooling gases to escape, this is likely to require the evacuation of the surrounding population. Fortunately most of the cracks have not spread. But, alarmingly, many of them seem to have been built into the reactors during their construction, when the need to test every component with critical exactitude was not appreciated or technically possible. One independent safety specialist who has examined the cracks told the NEW STATESMAN 'We've just been lucky.'

We nearly weren't so lucky in March this year. After repairing cracks and other defects in the welding of a gas bellows in the Dungeness 'A' magnox station in Kent, the Central Electricity Generating Board pronounced the reactor safe. Only because the NII took the opposite view were more defects discovered and a three month investigation undertaken to make sure that the cracks were not going to spread. Further checks are now being made while the reactor is running. The 4-day shut-down cost the CEGB £4 million – highlighting the need for independent safety checks. The NII inspectors are bitter that they earn considerably less than even the CEGB's deputy station managers, with whom their responsibility for safety is comparable.

AN UNPUBLISHED REPORT of the NII, presented to an international nuclear experts' meeting in Madrid a month ago, highlights shocking errors and carelessness by contractors in British nuclear power station construction. At the new station at Heysham, Lancashire, dangerously weak concrete has been used in the construction of the reactor vessel. Unnoticed, this fault could have caused what



## No watch on safety

Chapelcross is the site of four low power 'magnox' nuclear reactors. There has been no Nuclear Installations Site Inspector there for two months

– and no prospect of a replacement. A London-based inspector is trying to cover it and other reactors at Windscale, Cumbria, simultaneously. Below: how 40 inspectors privately put themselves on the market in a *Guardian* ad in October. Their union says that ten firms have offered new jobs in the private sector.

## NUCLEAR SAFETY ENGINEERS SEEK EMPLOYMENT

Owing to impending dispersal from London area, 40 professionally qualified and experienced nuclear safety engineers are currently available for employment in the private sector.

nuclear safety experts call the 'incredible' accident – total failure of the reactor vessel.

This fault was caused by a broken wall in the concrete mixing plant. It was only when the NII inspector noticed that one section of concrete was lighter coloured than the rest that an investigation revealed 20 cubic yards of defective concrete. Four cubic yards were replaced; the rest was 'satisfactory'.

At the Dungeness 'B' five years ago, it was found that some of the stress wires built into the concrete of the reactor vessel hadn't been shaped to take any stress at all. Although less than one in a thousand wires were involved, the defective ones were close together. Yet the contractor's test records showed, wrongly, that the work of 'upsetting' the tendon wires to take the stress had been done properly.

Another reactor at Hartlepool, still under construction, had a different sort of problem. The contractors assembling the core of the reactor had what the NII politely called an 'unacceptable' attitude to cleaning up inside the reactor after their work. More exactly, they had a habit of leaving the reactor core strewn with a 'terrible' assortment of bits of welding rod, plastic sheeting, spare steel plate and cable, and general detritus. A lot of different firms were involved. NII 'persuasion', coupled to a threat not to grant an operating licence, led to 'satisfactory cleanliness standards being re-introduced' (our italics).

Dungeness B, Heysham and Hartlepool are the three latest reactors to be constructed in Britain, leaving little confidence that standards of unchecked work have improved since the magnox reactors were completed with their built-in cracks. The OECD Committee on the Safety of Nuclear Installations meeting in Madrid early in November also heard from the NII on a wide variety of other hair-raising incidents, including wrongly-built 'vital shut-down system pipework' which, if left uncorrected could fail, causing 'uncontrolled reactor depressurisation' and a major accident; gas input pipes buried unnoticed in corrosive water, and skimping on quality control tests. One incident at Dungeness B was chillingly similar to the event in *The China Syndrome* where crooked cost-cutting contractors faked the test records of vital welds; checks at Dungeness showed the failure of CEGB contractors to 'authenticate the manufacture' of

'particular vital pieces of CO<sub>2</sub> (gas) pipeline'.

The CEGB's own emergency plans have come under just as critical scrutiny. When they first introduced concrete instead of steel reactor vessels at the Olbury-on-Severn station, they said that even the 'maximum credible accident' was sufficiently small for there to be no hazard of excess radiation to the population outside. The NII decided that this was wrong in principle, and emergency plans for the population at large are now mandatory, even if the CEGB doesn't *think* that a 'credible accident' will affect them.

THE NATIONAL Nuclear Inspectorate are now threatened with break-up. Firstly, because a long standing plan to disperse the Inspectorate from London to Bootle, together with the rest of the Health and Safety Executive, has hung over their heads for five years, and deterred new recruitment. Eighteen out of 87 posts are or soon will be vacant. The NII have tried to keep each operating site covered, and – until recently – succeeded. But experienced staff have been leaving at an increasing rate. The unfilled posts, according to their union IPCS, include vacancies for experts in reactor faults, control and instrumentation, and fracture mechanics. Without experts in these disciplines, safety studies of new reactor designs – like the American PWR Mrs Thatcher wishes to buy – cannot be done in time.

Because of the still impending move northwards which almost all the London staff oppose, and the poor pay compared with similar staff elsewhere in the industry, new recruitment has wholly failed to make up the loss of qualified and experienced inspectors. By last month, most of them were so demoralised as to advertise themselves for sale in the *Guardian*. On a move to Bootle many inspectors would leave. As it is, two more posts will be vacant by the end of the month.

Safety checks of the Commercial Fast Reactor have now been abandoned partly through lack of staff. Safety checks of the new American PWR couldn't be done in less than three years, and even that is outrageously optimistic in the deteriorating circumstances. It amounts to this: unless something is done to boost the NII back to necessary strength, we can have new reactors, or we can have safety, but we can't have both.