

death and less than \$1 million worth of damage to property outside the plant itself.

The worst possible case would involve a series of accidents leading to a core melt, followed by a massive explosion which ruptures the pressure vessel and releases large amounts of radioactive gases into the atmosphere, a steady wind blowing toward a populous area, and rain occurring at a critical time so that most of the radioactivity would be dumped on the population centre. The possibility of such a calamity would be about 1 in 10^8 per reactor year, the analysis suggests, but it would result in about 3,300 deaths and cause about \$14,000 million worth of damage to property.

The results of the analysis are stated in many ingenious ways in the report, the most widely quoted of which is sure to be the statement that a person living near a reactor stands a 2,000 times greater chance of being killed by lightning than of being killed by a nuclear accident.

Rasmussen said last week that he has high confidence in the accuracy of the predictions, and he pointed out that the methods used in the analysis have been endorsed by many groups. He readily acknowledged, however, that the study has its limitations. It does not deal with the possibility of sabotage, for example, but Rasmussen said at a press conference that it would be difficult to cause a very severe catastrophe by sabotage because of the existence of safety devices to prevent large releases of radioactivity following a core melt.

The analysis, moreover, is limited exclusively to an accident at an operating reactor, and does not include an assessment of the risks associated with waste disposal, the potential theft of atomic bomb ingredients by terrorist organisations, or other frequently cited hazards of nuclear power. The focus of the anti-nuclear power movement has recently shifted to those areas.

Needless to say, Rasmussen's conclusions have not met with widespread endorsement from groups which have been critical of the nuclear power programme in the past. Dr Arthur Tampin, a scientist on the staff of the Natural Resources Defense Council, last week suggested that the report has little application to the real world. "Those numbers are fine for an academic discussion in nuclear engineering departments", he said, but "the exercise has no reality". In particular, he questioned the study's predictions about what would happen after a core melt, suggesting that the behaviour of a mass of molten fuel is entirely unknown. Another critic was even as unchivalrous as to suggest that the report was a typical computer pro-

grammer's nightmare of "garbage in and garbage out".

Nevertheless, the study is the most ambitious attempt so far to place hard numbers on the official assertions that nuclear power is safe, and it will clearly form the basis of nuclear regulation in the United States for many years. Rasmussen warned, however, that the results of the analysis should not be extrapolated beyond the first 100 or so operating reactors in the United States. Later reactors, he suggested, will be even safer because of constant improvements in the safety systems.

As a footnote, it should be noted that the report could actually be seen as a boon for critics of nuclear power.

FOR the first time since 1969, the number of students enrolled in postgraduate science and engineering courses in the United States increased last year. According to a survey carried out by the National Science Foundation (NSF), the increase amounted to nearly 6% and the total number climbed back to the level of 1967.

Although the upturn makes a welcome change for many universities, which have been financially hard pressed and which have had to impose a virtual freeze on faculty recruitment partly because of declining enrolments in the early 1970s, the renewed interest in postgraduate education is of uncertain durability and it is concentrated heavily in a few fields.

The sharpest increase occurred in the life sciences, where the number of postgraduate students jumped by 11.3%. Psychology and the social sciences also showed substantial increases—8.0 and 6.6% respectively—while in engineering and the physical sciences there was only a slight upward trend. Engineering enrolments increased by 3.3% and those in the physical sciences by 1.4%; enrolment for the mathematical sciences declined a little.

The increases are surprising since they came at a time of continuing decline in direct government support of postgraduate students. The number of postgraduates receiving support from the federal government has declined by some 42% since 1967, and the trend shows little sign of abating because it is declared federal policy to phase out most graduate fellowship programmes. In contrast, the number of postgraduates supporting themselves through their studies is increasing—numbers were up by 14% between 1973 and 1974.

One explanation for the renewed interest in postgraduate education is that many scientists and engineers

who received their first degrees in 1973 were faced with a tight job market, and elected to stay on at the universities to increase their chances of finding suitable employment. As far as enrolment in the life sciences is concerned, the sharp increase probably reflects the fact that there is at present a fashion in the United States for studying medicine—a year or so ago it was law—and many students who failed to get into medical schools turned to closely related fields in the life sciences.

Does the upswing in graduate enrolments indicate a return to the golden years of university expansion in the 1960s? Almost certainly not. The driving force for expansion a decade ago arose partly from large increases in federal support for science and technology and partly from the fact that the post-war baby boom was passing through the universities. The federal science budget is now virtually stagnant in terms of spending power, and demographic trends suggest that there will be little expansion of the college-age population for the next two decades.

One particularly interesting fact to emerge from the survey is that the number of women enrolled in postgraduate science and engineering courses has been increasing sharply during the past few years. Women represented 24% of all full-time graduate students last year, and their numbers had increased by 13% since 1973. They were concentrated chiefly in the life sciences and the social sciences. The survey also reflects the fact that government restrictions on the employment of foreign students is continuing to depress their numbers. There were 3% fewer foreign students enrolled in postgraduate science and engineering courses last year, and their representation in the total postgraduate population declined to 16%.

At present, insurance against nuclear accidents is limited by law to a total of \$560 million per accident. The law, known as the Price-Anderson Act, has been bitterly contested by nuclear critics, who argue that in the event of a nuclear accident, full compensation should be paid for health and property damage. If the dangers are really as remote as the Rasmussen analysis predicts, and the consequences likely to be small, then why should there be any limits to the liability? A statement published last week by the Friends of the Earth suggested that the Price-Anderson Act "points out the hypocrisy and inconsistency of the federal government's policy towards nuclear power". □