

## Biotechnology

# Regulations please nobody

Washington

CONTROVERSY continues in the United States over the federal government's proposals to regulate biotechnology. At a recent congressional hearing, representatives of the American Society for Microbiology, the Environmental Law Institute and the Ecological Society of America all criticized the administration's plan to exempt from high-level review environmental releases of intergeneric organisms whose introduced genetic material is "well-characterized and contains only non-coding regulatory regions".

The administration's latest proposals on biotechnology regulation were published after much delay on 26 June. They recognize that non-living products of genetic engineering technology should be regulated in the same way as conventionally made products, but require that environmental releases of engineered organisms containing DNA from different genera or from a known pathogen should receive high-level review. The exemption for transferred non-coding regulatory sequences applies whether or not the donor organism is a known pathogen.

The proposals were examined last week at a joint hearing by three subcommittees of the House of Representatives' Science and Technology Committee. Monica Riley, chairman of the American Society for Microbiology, said that "strain construction that places a strong, effective regulatory sequence in a position of control over any particular gene can increase the expression of that gene many fold", thus affecting a microorganism's capacity to compete. Riley also pointed out that regulatory sequences carry specific determinants that turn genes on or off; changing the signals to which a gene responds could constitute a substantial change in the biology of the recombinant organism.

Some congressional staff speculate that this criticism from respected professional bodies might persuade the administration, which is anxious not to overburden the emerging biotechnology industry, to remove the exemption. Industry organizations publicly support the administration's proposals, but some privately concede that the non-coding exemption could undermine public support and they would rather have it removed.

Meanwhile, the administration's plan has come under attack from a more predictable quarter. Jeremy Rifkin of the Foundation on Economic Trends has sued the government for omitting to conduct an environmental impact statement and failing to keep an adequate record of its development.

Tim Beardsley

## West German nuclear power

# The fast breeder is stumbling

Hamburg

REIMUT Jochimsen, Social Democratic Economy Minister of Nordrhein-Westfalen, has put aside political questions and called for a halt to the fast-breeder programme on scientific grounds. Fulfilling his earlier promise to keep scientific and political issues separate, he has published an expert opinion (roughly 100 pages long) written by co-workers in his ministry, where grave doubts are raised about the safety of the 300 MW prototype reactor. The problems are enough, Jochimsen emphasizes, to make the fast breeder the most expensive misinvestment ever in industrial history.

The report clearly shows that politicians have been careless in trusting the calculations of engineers from the reactor building and operating companies, in particular those of the Schnellbrüterkraftwerksgesellschaft (SBK), on which many of the 17 permits already granted were based. Under certain very adverse conditions, a runaway reaction could take place. In contradiction to earlier claims, there are serious doubts about the breeder's safety.

In 1984, experts of the companies involved said in court that a disastrous failure of the ventilation system was impossible. This expert opinion proved wrong when after less than two years of routine test running (without nuclear fuel cells) two of the ventilation devices failed. The experts also excluded absolutely the possibility that oil could enter the radioactive primary system of the reactor. But that happened. Never, they said, could water and sodium, the reactors' primary coolant, meet. But that too has happened.

Parts of the reactor, which must never fail, are called "holy" by the technicians. But some of them have been found to be not safe under any conditions. A grating to hold the fuel cells, for example, can rust. Jochimsen said that for such parts a "repeatable control" is necessary, which is impossible in the planned prototype. Rust has also (as long ago as 1980) been found in the reactor tank, and technicians have found weaknesses in weld seams. The method of estimating the probability of a runaway accident was not scientific, the report says. All the Gesellschaft für Reaktorsicherheit (the company responsible for reactor safety) did was to ask selected experts if they thought such an accident likely. Another analysis, carried out at the Kernforschungszentrum Karlsruhe, was found to be incorrect due to a faulty computer program.

Opponents of the Jochimsen report, such as the leader of the Nordrhein-Westfalen Christian Democrats, Kurt Biedenkopf, say that its arguments are

false. The truth, they say, is that Jochimsen is executing the Social Democratic Party's decision to stop the nuclear programme. A representative of the Ministry of Research and Technology said that Jochimsen's political intentions are evident because the minister published his paper only 11 days after the Nordrhein-Westfalen members of the Social Democrats had decided to stop the breeder. This accusation is hard to believe, however, for the report cannot have been produced so quickly.

Critics have not attacked the technical arguments presented. Jochimsen points out, but only produced political arguments. The head of SBK, August Wilhelm Eitz, argues that all necessary modifications will be made. But that still leaves one key objection from Jochimsen: in the foreseeable future, there is no acceptable place and method for disposing of the nuclear waste from the reactor.

The Social Democrats now want to go further. In Nordrhein-Westfalen, permission will not be given for new sites for nuclear plants. The party is working on a bill to be introduced into the Bundestag in the autumn. According to representatives, it demands that no nuclear plants at all should be permitted to run in West Germany, even those already built. Preferential treatment for nuclear energy should be ended. In addition, the Social Democrats will introduce clear standards of radiation analysis and protection to avoid the confusion experienced after the Chernobyl disaster. The law, which could come into force if the Social Democrats win next year's federal elections, would also automatically terminate the DM7,000 million breeder. The Nordrhein-Westfalen government cannot enforce a decision on its own because the federal government can make it grant permission for the fast breeder reactor.

Heinz Riesenhuber (CDU), Minister of Research and Technology, has already mentioned that option in an interview, but he knows that it is unlikely to be successful. On the other hand, if he abandoned the project he could save more than DM200 million. The problem is very delicate and the legal situation unclear. If the project is stopped without definite technical reasons, the power supplier will get back the DM1,400 million it paid. Belgium and the Netherlands will also want their DM1,600 million returned. If, however, Jochimsen's paper is telling the truth, the reimbursement need not exceed the present value of the plant, which would not be very high, given a plant too dangerous to run. A meeting planned for September should make things clear.

Jürgen Neffe