Claremont Graduate School, federal regulations alone inflate costs on 3,200 US campuses by an estimated $3,000 million a year. And the Business Higher Education Forum quotes the widely used — although often challenged — calculation by economist Murray Weidenbaum, now chairman of the Council of Economic Advisors, that federal regulations may be costing US industry $100,000 million a year overall.

But there are other factors at work as well. "The most important of the regulations' effects is the growing and unwelcome degree to which government intrudes into the private sector, compromising the capacity for independent action in business, labour, academic institutions and elsewhere", says the forum report.

The Bush task force has already said it plans to review two existing regulations covering research. One requires college professors and researchers receiving federal grants or contracts to obtain government approval for leave of absence, changes in research methods or transfer of the research to others; the other requires colleges and universities to share certain percentages of the cost of research financed by the federal government.

Research administrators are cautiously optimistic that, given the general anti-regulatory stance of the new Administration, they will achieve significant changes, a step towards what the American Council on Education forum describes as "a more systematic, rational national policy on regulation".

David Dickson

French nuclear power

Close to the brink?

Brussels

The breakdown in the electricity supply from the French national grid to the nuclear reprocessing plant at Cap de la Hague, at the tip of the Cherbourg peninsula, which occurred in April last year (see *Nature* 24 April 1980, p. 653), came within an ace of becoming a major catastrophe. That, at any rate, is what the Brussels-based international socialist group Agenor is claiming.

Agenor has published an account of the incident based on the research of two groups of critical scientists, GSIEN in France, and PERG (Political Ecology Research Group) based in Oxford. The report claims that when the electricity supply was restored the emergency generator "blew", putting all the plant's electrically operated mechanisms out of action. By pure chance one of the worst consequences was avoided. Ten minutes earlier a 30-kg load of plutonium was being prepared. Without the electricity, the agitation needed to prevent the plutonium going critical would have stopped.

The power failure also stopped the cooling of the reservoirs containing radioactive waste from all of France's reactors. Within 10 hours the waste would have begun to boil, releasing caesium-137 and rubidium-106 and making it difficult to gain access to the plant to restore the current and restart the cooling. If that had happened, within three days a radioactive cloud would have formed, and the prevailing southwesterly winds might have carried the cloud as far as London. The uncooled and dry waste left in the reservoir would then have melted down, reaching the water table and causing a steam explosion. At the Cap de la Hague site not only radioactive waste but also stored plutonium would have been distributed over a large area.

On 6 January this year a different accident occurred, the news of which the authorities had more difficulty in suppressing. A fire broke out in a trench used for dumping cladding removed from around the used fuel rods of graphite gas reactors. When alarm bells rang in several workshops on the site, the reaction was to disconnect them. Only later was it realized that radioactivity was coming into the workshops from outside. The fire burned for 15 hours. According to measurements taken by the unions, the level of beta radiation on the site had risen to 26 times the permitted level and alpha radiation to 6 times the permitted level. According to Agenor, the French Atomic Energy Authority (COGEMA) avoided informing the workers downwind of the fire and denied there was any danger to the local population. The radical trade union CFDT had produced figures to show that milk has been contaminated throughout the Cherbourg peninsula.

The intention of GSIEN, PERG and Agenor is to discredit the technology of the Cap de la Hague reprocessing plant and to go on to show that the nuclear power strategy of France as well as Western Europe is wrong.

As well as having problems with safety, the Cap de la Hague plant is not fulfilling its tasks. Cap de la Hague started processing oxide fuel in September 1976, a year behind schedule. The planned capacity is 800 tonnes a year but by 1980 the total amount processed was only 340 tonnes. In the meantime, France has gone on negotiating contracts to reprocess the waste from Japan, Germany, Belgium, Spain, Sweden, the Netherlands and elsewhere. To manage what is estimated to be a commitment to reprocess 6,000 tonnes, France is building two more plants, each with an annual capacity of 800 tonnes. Neither is likely to be in operation by 1988, and meanwhile the waste is being stored.

As well as being behind in coping with nuclear waste, Cap de la Hague is not producing enough fuel. In 1980 the plant handled enough uranium oxide to produce only one tonne of plutonium. Agenor argues that at this speed the fast-breeder strategy falls flat on its face. The initial fuel load of plutonium needed at Malville, a 1,300-MW reactor, is 4.5 tonnes, so that the idea that France or Europe can become self-sufficient with fast-breeders is implausible. Europe boasts only one other reprocessing plant, that at Windscale in the United Kingdom.

Jasper Becker

Nuclear Structure Facility

More delays ahead

Britain's Nuclear Structure Facility, under construction at the Science Research Council's Daresbury Laboratory in Cheshire, has run into new problems. The 30-MV tandem Van de Graaf accelerator had been expected to produce its first beam for experiments this month, but the latest setback means that full operation is unlikely before the autumn. The problem is dust, which caused a short circuit across the laddertron — the aluminium and plastic belt which carries charge up the 40-m column to terminals — during a recent trial. The resulting break in a couple of plastic links in the laddertron has been relatively simple to repair, but getting rid of the dust is proving more difficult.

The Nuclear Structure Facility, which should provide a variety of ion beams for nuclear structure studies, has had a long, and not always easy, history. The Science Research Council bit off rather more than it could chew when it decided in 1972 to build a tandem Van de Graaf accelerator that exceeded the capabilities of machines operating at the time. The highest voltage achieved by standard machines was then about 15 MV. Design and technical problems have considerably increased the building time and the cost.

The dust problem first became apparent last November. There are two sources of dust — beds of alumina pellets used to dry out sulphur hexafluoride gas which surrounds the tandem, and the bearings used in the construction of the machine. A short test last summer revealed no dust problem. For that test, the machine was run without drying the sulphur hexafluoride insulating gas and, according to Dr R. Voss at Daresbury, not for long enough for the dust from the bearings to become a problem.

Work is now concentrated on removing all dust from the machine. Dust from the alumina beds should be minimized by passing the gas through more slowly, but it may be more difficult to eliminate dust from the bearings. However, after a few hundred hours of operation, bearing dust should fall off dramatically. After that, the plan is to catch residual dust in traps built into each rung of the laddertron.

The result is that the facility will be late coming on line. It is now hoped that the high-voltage performance can be demonstrated within one or two months, the accelerator tube within the following two months and that commissioning will be complete two months after that. The first experiments are likely in September or October.

Judy Redfearn

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