

tainers, constantly cooled in a deep pit. A similar proposal is being made at Ahaus, 100 km from Gorleben, but the inquiry there will take place later.

Both proposals are backstops, not permanent solutions to the problem of nuclear waste in Germany. The spent fuel ponds of the existing 12 GW of nuclear power plants are full (allowing space for emergency core dumping), and spent fuel is being transferred to the French reprocessing firm Cogema. But that 500 times per year contract expires in 1984, when French capacity will be fully committed on domestic work.

One alternative being considered is what is called compact storage at existing ponds, using barium shields to absorb neutrons and to kill potential fusion chain reaction. The result could be a five- to sevenfold increase of storage capacity but only in the face of political opposition. As part of nuclear power station site construction (or modification), compact storage must be approved by public inquiry.

Compact storage has nevertheless been agreed for the six nuclear reactors now under construction, which will bring German nuclear power capacity to 21 GW by 1984, so that the issue is only relevant for existing reactors but is there critical. Legally, reactors whose fuel cannot be disposed of safely must be shut down. With the possible ending of the Cogema contract in 1984, West Germany may have to shut down 12 GW of nuclear power.

The sites of Ahaus and Gorleben are thus safety valves, and the planning process has been started in good time in deference to the inevitable opposition. At Gorleben, the chief opponent will be Helmut Hirsch, who organized the opposition at the previous inquiry. Backed by a consortium of environmental groups, he will be arguing that extended storage in transport casks is unsafe.

"The whole scheme is improvised" he said last week. Two years ago, he claimed, the nuclear industry had admitted that there was no recognized system of safe dry storage. In the new proposal, the fuel would become hotter in ponds, perhaps hotter even than in a reactor, and the mechanical stresses involved would lead to corrosion and collapse of the fuel cladding. Hirsch also emphasized that the containers will have to be actively cooled, so that safety will depend on the continuity of the power supply to the plant. The nuclear industry counters that Hirsch's scenarios are extremely improbable.

The long-term deep storage of reprocessed and glassified high active waste seems still a long way off. Indeed, the prospect has become even more uncertain since the last inquiry, for the East German government has now weighed in with complaints about the risks of siting a deep storage facility close to the border, where the prevailing winds would carry emissions to the East rather than the West.

Robert Walgate

## Baltic oil pollution

### Finns fight spill

Finland's Department of Environmental Protection is to set up a new marine biological research and rescue programme to deal with oil spills. This announcement by the Ministry of the Interior follows publication of a report on the damage caused by the oil slick from the *Antonio Gramsci*, which went aground in the Gulf of Riga in February 1979. Although the damage on this occasion was relatively slight, the report found Finnish preparations inadequate to deal with a major slick disaster. The new programme, which will cost an estimated FM 400,000 (£57,000) to implement, will include both oil-fighting and clean-up measures and longer-term research on toxic after-effects.

The oil from the *Antonio Gramsci* first entered Finnish waters at the end of March 1979, striking the edge of the sea ice just south of Utö. It then drifted away towards Sweden, but returned at the end of May and came ashore in the Aaland Islands until

4 June. After emergency clean-up measures, a survey was made during July and August on the impact of the oil on fish, seal and bird populations, and on the littoral and benthic ecologies.

Some 1,200 sea birds had perished in the disaster, and a further 500 were soiled. By the time the survey was made, fish life was found to be virtually unaffected. (The islanders had apparently continued to eat the fish without ill-effects.) However, ichthyologists found a significantly higher rate of abnormal tails in the fish examined, although it was not clear that this was the result of oil from the *Antonio Gramsci*.

There was, however, considerable benthic deposition of oil, with the consequent threat of accumulation in food chains. Six months after the incident, there were still traces of oil in mussels.

Finland's unpreparedness for post-spill rescue and clean-up measures is in remarkable contrast to its concern with pollution prevention. The pride of the Finnish passenger fleet, the *Finnjet* ice-breaker ferry, operates as a totally closed environment, with special port facilities for the discharge of sewage and bilges, while her onboard sewage treatment plant has been estimated to cost some £1,000 a day in lost cabin/cargo space alone.

Moreover, under the terms of the Helsinki Convention for the Protection of the Marine Environment of the Baltic Sea, Finland has special responsibility for pollution due to oil spills. Although the convention only came into force on 3 May 1980, there has been joint research and monitoring programmes between the participant countries for several years. A major programme for open-sea monitoring of biomass as an indicator of pollution is already under way. Finland, however, like all other participant countries, is experiencing some delays in getting started; in Finland's case, this is due to lack of carbon-determination facilities in institutes on the coast.

One country which is not taking part in the biomass monitoring programme, although it is a signatory to the Helsinki Convention, is the Soviet Union. The reason for this is mainly that the biomass working group needs to be able to meet at relatively short notice, shorter than the time needed for Soviet experts to obtain visas to attend. Therefore, when, at a working group meeting at the Gdynia Sea Fisheries' Institute last May, monitoring of the Baltic was partitioned between the participant countries, the Soviet offshore waters became the responsibility of Finland and the GDR.

It would seem, furthermore, that the Soviet Union is unable to meet its full commitment regarding damages from the *Antonio Gramsci* affair. The Finns set the total bill at some 15 million Finnmarks, but have agreed to settle for about 25 per cent of this sum, the one million rubles which is the maximum compensation permitted under Soviet law.

Vera Rich

## Frosch moves on

Washington

Dr Robert Frosch, administrator of the National Aeronautics and Space Administration (NASA) since 1977, is the latest to join the exodus of science administrators from the federal government.

Following the departure in June of Dr Richard Atkinson, director of the National Science Foundation, and the widely expected appointment of the President's Science Advisor, Dr Frank Press, as president of the National Academy of Sciences (NAS), Dr Frosch has announced that he will become the first president of the American Association of Engineering Societies. on 20 January next year.

Before joining NASA he was associate director for applied oceanography at Woods Hole Oceanographic Institution, and has also been Assistant Secretary of the Navy for research and development. His three and a half years at NASA have seen the agency struggling increasingly against the escalating costs of the space shuttle programme, which is now biting deeply into the space research budget.

Dr Press's appointment is almost settled. His was the only name put forward by the academy's nominating committee, and no serious challenge is expected. Dr Press's appointment would have to be reviewed by a federal ethics committee, established last year to consider the exemption of science administrators from a new law forbidding an ex-government employee from accepting funds from his old agency for two years after leaving government service, but this is not expected to raise difficulties.

David Dickson