

Science in Europe/Carter Nuclear Policy Finds Few Friends

President Carter's new nuclear policies have so far failed to find much support among the European powers. At the London summit meeting, and later at the Salzburg conference on the nuclear fuel cycle, the best that could be said was that there was an agreement to differ. The London meeting concealed the rift by setting up a group of experts who will spend the next 2 months working out the terms of reference for a year-long study of the problem. But since agreement has eluded earlier attempts in the London nuclear suppliers club, at the summit, and at Salzburg, few expect this group to succeed.

France has immediately made it clear that the conclusions of the study group would not be binding, and West German officials were delighted that, in their words, Washington had "come down to earth" on the nuclear issue. According to Bonn, the Carter Administration appears for the moment to have abandoned attempts to stop the controversial nuclear contract between West Germany and Brazil. At Salzburg one British official, Mr. Con Allday, managing director of British Nuclear Fuels Ltd., was openly critical of the American approach. The spread of nuclear weapons was a proper matter for international concern, he said, but there were better ways of tackling the problem than imposing restrictions that would affect civil nuclear power supplies and therefore "threaten mankind's future well-being in a world short of energy." One alternative, he suggested, might be to use "established supplier organisations" as the basis for international groupings which would provide an effective mechanism for controlling the spread of nuclear materials and technology. British Nuclear Fuels was such an organization, he said, to nobody's surprise.

The nearest the United States has to an ally on the issue is the Netherlands, where people are anxious about the proliferation implications of the gas centrifuge enrichment process they have developed in harness with the West Germans and the British. Otherwise, opponents to the American plans have multiplied as the story has unfolded. One particularly contentious issue is the clear intention of the Administration to prevent the export of spent fuel for reprocessing where that fuel was originally supplied by the United States, and, therefore, comes under bilateral safeguard agreements.

This policy, if implemented, would put a stop to a contract which Britain and France have lined up for the reprocessing of Japanese spent fuel. The contract is ready for signature and would involve the shipment of 3200 tons of spent fuel over 10 years, half to Britain and half to France. The contract would be worth £200 million to each country, with Britain also collecting another £150 million for transporting the fuel. The United States made it clear at Salzburg that it is opposed to such long-term contracts and will only grant permission for export on a case-by-case basis. To justify such individual shipments, the sending country will have to show that its own storage facilities are full.

This part of President Carter's policy has ensured that Japan, Britain, and France will all oppose it. (France was, of course, already at loggerheads with the United States over another contract, with Pakistan.) Other countries who are looking for reprocessing contracts include Spain. Yet another contract which falls foul of the American rules is one being negotiated between Brazil and the Anglo-Dutch-

German enrichment consortium, Urenco. This is a 10-year agreement for enrichment services for four Brazilian nuclear plants, worth £100 million for each of the Urenco partners.

In short, it seems likely that President Carter's nuclear diplomacy is falling into the trap of taking on too many opponents at once instead of picking them off one by one. As things stand, the reprocessing of spent nuclear fuel and the "plutonium economy" remain strong European objectives, whatever Washington—and individual Europeans—have to say about it.

Oil's Well that Ends Well

The North Sea's first major oil spill ended without any of the horrors predicted by excited newspaper headlines. The blowout happened in the Ekofisk field, in the Norwegian sector of the North Sea, on a rig operated by Phillips Petroleum. After 9 days it was successfully capped by Red Adair, the Texas oil-well expert, with the help of two colleagues, and within a couple of days it had been totally forgotten.

In this there was a good deal of luck. Had fire broken out on the rig the task of stopping the leak would have been much harder, since there are in the North Sea no adequate fire-fighting vessels. If it had proved necessary to drill fresh holes to relieve the pressure on the leaking rig, the leak might have continued for very much longer. And had the wind blown consistently in the same direction throughout the 9 days, large amounts of oil might have been washed ashore on the Dutch or Norwegian coasts. Fortunately, none of these things happened and, although a huge oil slick formed, much of it, including the more toxic fractions, rapidly evaporated. The rest was broken up into small droplets by the sea and disappeared without apparent damage to fish or fowl.

The accident did, however, expose the state of unreadiness of both Britain and Norway to tackle a major oil spill. The assumption has always been that the oil companies have so much to lose by a major spill—the Ekofisk spill probably cost Phillips £3 million a day—that they could be relied on to operate with the greatest possible safety and to provide the emergency services needed. This assumption now appears to be unwarranted, and a greater government involvement in setting standards now seems unavoidable. Much will depend on the findings of the Norwegian government commission of inquiry which is investigating how the accident happened. What appears to have happened was that the blowout occurred during servicing of the well and that control was made more difficult by the fact that the "blowout preventer"—a stack of valves on the top of the well—had been put on upside down.

Enticements for Engineers

Britain's Science Research Council and Department of Industry have announced a new scheme designed to encourage more graduates to go into manufacturing industry. The scheme aims to provide the industrial equivalent of teaching hospitals—to be known as "teaching companies"—who will collaborate with university departments to provide graduates with industrial experience. By the end

of 5 years it is expected that some 20 teaching companies will have been selected and the program will by then be costing £2 million a year.

The idea of the scheme is for graduates, selected jointly by the companies and the academic departments, to work in industry under research grants provided by the SRC and the Department of Industry. The companies will get the benefit of access to the techniques of the academic department in return for providing the graduates with a taste of industrial life. Each individual graduate can be supported in this way for up to 4 years—at the end of which, it is hoped, he or she will have found the experience so interesting that he will immediately take a job in industry.

If the program works—and previous attempts to inveigle British engineering graduates into industry have not—then it could become a permanent part of engineering research and training.

German Breeder Program Put on Hold

West Germany, whose nuclear investment plans have been stalled by a series of court actions and by strenuous opposition from environmental groups, has announced a halt on spending on fast breeder reactor development until Parliament has had time to discuss safety issues connected with the program. The halt was suggested by Social Democratic politicians and is likely to be only a temporary one, since the West German government has not weakened in its support for the fast breeder.

The announcement came 2 weeks after the publication of West Germany's medium-term energy research program, which puts by far the greatest weight on nuclear power. Of the total budget of 6200 million DM* to be spent between 1977 and 1980, three quarters is to be spent on nuclear power development, principally on fast breeders and high-temperature reactors. In a concession to antinuclear sentiment, the Research and Technology Minister Herr Hans Matthoefer said that a principal concern of the program will be to improve safety standards and to devise methods of disposing of highly active waste.

The government is also intending to spend between 90 and 100 million DM a year on fusion research and around 30 million DM on solar energy, which it believes will be useful for space heating. Coal technology, including gasification and liquefaction, will cost 140 million DM a year.

The temporary halt on fast breeder development involves 122 million DM earmarked for fast reactor development but not yet firmly committed. None of this money will be spent, Herr Matthoefer has promised, until Parliament has had time to discuss the program. But official spokesmen were pointing out that last year a similar block had been placed on 75 million DM earmarked for high-temperature reactor development and that this block had since been lifted. It is likely, therefore, that Herr Matthoefer's gesture is more a piece of political prudence than a genuine interruption in West Germany's nuclear planning.

—NIGEL HAWKES

* One Deutsche mark is equivalent to \$0.41.

Alaskan Gas: NEPA Brings Out a Strong New Pipeline Applicant

Deciding how the oil and natural gas resources of the Alaskan North Slope will be delivered to the lower 48 states has been a difficult and at times decidedly frustrating learning experience for the U.S. government. Certainly the government cannot be pleased at the current evidence that critics of the trans-Alaska pipeline system (TAPS) project may very well have been right—that, in the absence of either a West Coast market for the North Slope oil or of pipelines to move it from the West Coast to the Midwest and East where it is needed, TAPS may wind up delivering the oil to tankers bound for Japan.

Yet, if the decision-making with respect to transporting the oil has left much to be desired, the government is quite clearly doing better at deciding how the North Slope gas should be transported. For the final decision on this matter will not be made until a wide range of

possible choices has been carefully considered. The improvement seems to stem largely from the fact that the National Environmental Policy Act (NEPA) requirement for a searching analysis and review of alternatives is being faithfully met in the case of the gas, whereas in the case of the oil it was not.

A final decision on how the North Slope gas shall be delivered to the "lower 48" is due either late this year or in early 1978. Unlike the situation that existed with respect to the oil, there are three—not just one—serious proposals on the table. Moreover, one of them—the "Alcan" proposal for a 48-inch pipeline to be built along the TAPS corridor from Prudhoe Bay to Fairbanks, then along the Alcan Highway corridor into Canada and across the Yukon Territory—actually came about as the direct result of recommendations in 1975 and 1976 by the environmental staff of the

Federal Power Commission (FPC). The Northwest Pipeline Corporation of Salt Lake City, Utah, together with three Canadian companies, put forward this proposal after a Fairbanks-Alcan corridor pipeline was recommended as an alternative in environmental impact statements which the FPC had prepared as required by NEPA.

The FPC staff wanted this alternative to be considered by the commission along with the projects that had been proposed by the Alaskan Arctic Gas Pipeline Company and the El Paso Alaska Company, then the only applicants seeking FPC certification. The Arctic Gas proposal is to build a 48-inch pipeline from Prudhoe Bay east across the Arctic National Wildlife Range and the northern Yukon to the Mackenzie River delta in the Northwest Territories, then south down the Mackenzie Valley into Alberta. A particular advantage seen for this project is that Canadian gas from Mackenzie delta reserves—reserves still too modest to justify a pipeline for them alone—could be transported along with the Alaskan gas.

The El Paso proposal is to build a 42-inch pipeline from Prudhoe Bay along the TAPS corridor to a liquefaction facility at Point Gravina on Prince William