Nuclear safety

United States opts for caution

Washington

THE principal US military plutonium production reactor, a graphite-moderated plant similar to that at Chernobyl, is to be shut down for six months by the Department of Energy (DoE) to carry out urgent safety modifications which could cost about \$50 million.

The 23-year-old 'N' reactor on the Hanford military nuclear reservation in Washington state has been a focus of concern since the Chernobyl accident. Besides being graphite-moderated, like Chernobyl-4 it lacks a containment structure capable of withstanding steam and

N reactor at Hanford site.

hydrogen explosions that might occur in an accident. Two out of six independent consultants, asked by DoE to assess N-reactor safety, recommended closing down the reactor immediately and permanently, unless to do so would threaten national security.

Others said the poor containment meant the consequences of an accident would be worse than at a commercial power station, and that they could support continuing operations only if further safety checks were made. DoE declined the invitation to shut down the reactor permanently, but has accepted the need to spend immediately \$50 million on improvements.

The consultants, under Louis H. Roddis, submitted independent reports, agreed that there was virtually no possibility of a Chernobyl-like accident, but found that radioactivity might be released following a minor accident because of doubts about the N reactor's 'confinement' system, which is designed to lower pressure in the reactor building after an accident by spraying cold water. The system has never been tested under realistic conditions. One consultant commented that the list of required improvements is so extensive that a commercial reactor would be required to shut down to carry them out. Management improvements were also urged.

The consultants urgently recommended installing a hydrogen mitigation system, and a 'basin' for collecting radioactive wa-

ter that would be released in an accident. Hydrogen explosions figured in both the Chernobyl and Three Mile Island accidents, but the N reactor confinement system would not withstand an explosion of the size thought possible, according to the consultants. And under present plans, contaminated water would be temporarily stored in a desert pit, a plan DoE acknowledges to be inadequate. The department says it will start to install a hydrogen mitigation system immediately and also accelerate a comprehensive probabilistic risk assessment now in progress.

While announcing the temporary shutdown, DoE also said it was awarding a 5-year, \$4,000-million contract to manage the entire Hanford operation to Westinghouse. The N reactor was previously man-

aged for DoE by the General Electric Company, and some of DoE consultants noted "complacency" over safety. Another contractor at Hanford, Rockwell International, has been the focus of allegations of poor management at two plutonium production plants recently shut down temporarily for safety violations.

Whatever safety improvements are made, the N reactor will not be in business for much longer. Commissioned in 1963 with a design lifetime of 20 years, its pile is now expanding at the rate of 0.8 inches per year, putting stress on coolant pipes and threatening to hit the thermal shield in as little as 3 years. That will be the end for the reactor as replacement of the whole pile is not feasible. DoE is now trying to decide whether it needs another plutonium production reactor (it has others at the Savannah River complex in South Carolina) for next century's nuclear weapons.

Tim Beardsley

Albanian outlook

Changing tack on exports

RAMIZ Alia, who became leader of the Albania Workers' Party (AWP) on the death last year of Enver Hoxha, has an unusual approach to his country's non-renewable natural resources. "The interests of future generations", he told the AWP congress last month, demand that such assets as copper and chromite ores be "put into economic circulation as soon as possible", by extracting and exporting them. "It is better to leave these natural assets to future generations in the form of factories, plants and combines, as means of production, as functioning assets, rather than in the form of potential resources hidden underground", he said.

Although he was referring chiefly to mineral ores, Alia's speech made it clear that Albania's new five-year plan will attempt also to increase its capacity for exporting oil and coal. Albania, the least developed country in Europe, thus differs markedly from most developing countries which see the massive export of raw materials as a vestige of colonialism, and aim instead at the export of finished or semi-finished products with a larger added value. But the policy of Albanian self-sufficiency established by Hoxha after his breaks with the Soviet Union and then with China means that the country must implement its plans for modernization without foreign loans or grants-in-aid.

In these circumstances, Alia's view that future generations can best be served by selling off the country's irreplaceable assets does make some kind of short-term sense. Albania's economy is still based largely on human muscle-power. The 'prestige' civil engineering projects of recent years, such as hydroelectric dams and railways, have largely been built by

student volunteers, equipped with little more than pick and shovel. Agriculture is labour-intensive, and Alia's promise to "increase the role of science in its service" will entail not a decrease in the numbers employed but a "considerable increase".

Science in the service of production is one of the main targets of Alia's programme. This policy demands trained personnel, in a country where at present only 57 per cent of young people receive more than primary education. (By 1990, according to the plan, this figure should rise to 73 per cent.) Alia's speech stressed not only the need for more trained scientists and technicians, but also for better management of science. The Albanian Academy of Sciences, he said, must give "more initiative and thought" to the directions in which the sciences should develop, while the Committee for Science and Technology must provide "better planning, a clearer definition of priorities and more effective organization and coordination of manpower and resources". The University of Tirana and other institutions of higher education must become "bodies of consultation for the broad masses of specialists in production", while the ministries concerned must refrain from turning educational and research centres into mere "administrative apparatuses".

In spite of Alia's boast that Albania can now train all the specialists it needs, and in spite of "self-sufficiency", the country is still, of course, largely dependent on foreign scientific achievements. And to enable Albanian scientists and technicians to make use of foreign results, the Ministry of Education has been instructed to remedy the "unsatisfactory situation" in the teaching of foreign languages. Vera Rich