

UK atomic energy

Design delays

British hopes of building a pressurized water reactor (PWR) seem now to rest on Dr Walter Marshall, chairman of the UK Atomic Energy Authority, who was last week appointed by the Department of Energy as chairman of a "task force" intended to stifle squabbles about the project — and to help reduce the cost. This development is a consequence of mounting impatience among Marshall and his colleagues on the four-man "nuclear industry group" with the delays that have accumulated in the PWR programme; they put their complaints in a letter to the Department of Energy three weeks ago.

As yet, the National Nuclear Corporation — the putative constructor — has not completed the reactor design, which should have been sent to the Nuclear Installations Inspectorate in the spring. Like a schoolboy late with his homework,



Marshall the catalyst

the corporation was able to manage by the deadline only a "reference design" that omitted details of the containment vessel and the emergency core cooling system. The missing information has not yet materialized because the corporation (and the Central Electricity Generating Board, which will have to pay for the reactor) have had cold feet about the cost.

Several modifications of the basic Westinghouse design have added to the cost. The generating board has asked for relatively easy access to the steam supply parts of the system to reduce maintenance time and the radiation exposure of workers. The containment building for the reactor was intended to have a double-walled construction, some concrete shielding was intended to be extra thick and there were to have been four (rather than two) emergency core cooling systems.

However, critics of these changes say they substitute concrete and equipment for analysis. Good chemical control of the steam supply system — for example, by purging the steam supply system before

dismantling for refuelling — can reduce radiation doses to levels acceptable to the generating board, say the critics, without using more concrete. (The board has indicated that it will not accept levels higher than those at the Heysham advanced gas-cooled reactor, a relatively clean power plant.) Some American utilities already use the hydrogen peroxide method in their PWRs. So this week a team of National Nuclear Corporation and generating board scientists has flown out to inspect such "best practice" in American reactors, and make its own measurements of radiation.

Similarly, the net benefit of quadrupling the emergency core cooling system could be obtained more cheaply by looking closely at the failure rate and significance of individual components of the system. The containment building will also probably be simpler, and similar to the optional construction designed by the Bechtel Corporation which is acting as consulting engineers to the National Nuclear Corporation.

What has worried Marshall, and now apparently the Department of Energy, is that the pursuit of perfection at the National Nuclear Corporation has been time-consuming as well as potentially expensive. His task force will function not as a decision-making body but as a forum in which the designers can be shamed into making up their minds.

All of the questions to be tackled relate to safety, and most of them involve trade-offs against cost. Marshall hopes that the outcome will be a reactor with a construction cost (per kW of generating capacity) only 60 per cent of the cost of the advanced gas-cooled reactor. He may have to be satisfied with less. Although some of the refinements of the Westinghouse design may have to be abandoned, Marshall is confident that the reactor can be built within British safety criteria.

The plan now is that the final design should be with the nuclear inspectors in the autumn. With a lot of luck, it may still be possible for the government to hold its promised public inquiry on the project before the end of 1982, almost exactly a decade after the electricity board first designated the site at Sizewell for the project. Marshall's chumminess with the minister at the Department of Energy with special responsibility for nuclear energy, Mr Norman Lamont, will help to simplify the timetable. **Robert Walgate**

Large Space Telescope

View from Munich

The contract for the European Coordinating Facility for the Large Space Telescope has been awarded by the European Space Agency (ESA) to the European Southern Observatory (ESO) in Garching, near Munich. The other contenders for the prize were the Royal Observatory at Edinburgh, the Institute of

Soviet second sentences

Dr Andrei Sakharov has this week issued two new appeals to scientific colleagues abroad on behalf of fellow human-rights activists.

The first is on behalf of Aleksandr Bolonkin, a mathematician arrested in 1972 on a charge of disseminating false propaganda — in fact, for having circulated the *samizdat* "Chronicle of Current Events". For this, Mr Bolonkin received a sentence of four years' prison camp and three years' internal exile, while the state Attestation Committee refused to confirm his doctoral degree. After serving his time in camp, and just before the sentence of exile expired, Bolonkin was rearrested and sentenced to a further three years in the camp. Then, a few weeks ago, just ten days before this second sentence was to expire, he was charged again.

Such reconstructions of political prisoners due for release have been frequent in the past two to three years, and many now fear that such a fate may await Dr Sergei Kovalev, whose seven year prison term (on the same charge as Bolonkin) expires next December (to be followed by three years' Siberian exile). Kovalev, whose life is reported to be in danger, is the subject of Sakharov's second appeal, which takes the form of an open letter to Dr Linus Pauling. Included in the appeal are Tanya Osipova, Dr Kovalev's daughter-in-law and a member of the Moscow Helsinki Watch Committee, who was recently sentenced to 5 years labour camp and 5 years exile, and her husband, Ivan Kovalev, against whom it is understood similar charges of subversion are being prepared. Tanya Osipova's plight, says Sakharov, is particularly serious, since she has to serve her sentence in an ordinary criminal camp, whose regular inmates traditionally bully and exploit the political offenders to gain favour with the camp authorities.

Space Astrophysics at Frascati and the Institut d'Astrophysique and the Observatoire de Paris in a joint proposal.

ESO (whose member states are Sweden, Denmark, the Netherlands, Germany, France and Belgium — to be joined by Italy and Switzerland next year) moved last year to the Munich site from Geneva. It manages the observatory at La Silla, Chile, where the main instrument is a 3.6-metre reflector.

There is more than enough room at Garching for the space telescope institute. ESO now operates an imaging processing unit, incorporating a VAX 11/780 computer. Another VAX is to be installed, along with 15 staff members, who will be expected to spend half their time on their own research and half on coordinating the European space telescope observations.