force acknowledged that the AEC indeed had a serious problem when, on 19 June 1971, it issued a set of special instructions for operating and evaluating reactors. These "interim criteria," the task force said, would compensate for any unforeseen shortcomings in backup cooling systems. Happily for the multibillion dollar nuclear industry, the "interim criteria" imposed no serious hardships on utilities that were then operating some 20 power reactors. Nonetheless, an AEC press release said, these special regulations were "clearly conservative."

That, however, may not be quite the case. And issuance of the "interim criteria" turns out to have merely been the beginning, not the end, of the ECCS affair.

Last January the new AEC chairman, James R. Schlesinger, ordered a hearing in the matter of ECCS to allow the public to comment on the "interim criteria." This is not an unusual procedure in itself, but what it has produced certainly is.

The hearing, which may continue through the summer, has already uncovered an extraordinary welter of dissent inside the AEC over the way that the agency handled the problem of emergency core cooling. In recent weeks, half-a-dozen foremost specialists in nuclear reactor safety from two national laboratories and from within the AEC's regulatory structure have testified that the interim criteria are—in many respects—anything but conservative. More than 20 others within the AEC appear to share these misgivings. And at least two technical experts—the very ones who recognized the problem in the first place—have said that questions still surrounding the adequacy of this safeguard device are so serious, and are so far from being resolved, that they warrant an immediate and indefinite moratorium on reactor design changes and on increases in reactor power levels, pending further research.

But more than this, compelling evidence has come to light of several instances in which AEC officials apparently have tried to prevent more conservative, dissenting opinions from percolating up from the AEC's national laboratories and out into public view.

Utilities and reactor manufacturers are yet to be heard from, and they are expected to testify that the ECCS regulations are in some ways *too* conservative. Though the balance of testimony may yet shift, it seems at this point inescapable that the AEC has badly bungled one of the most serious safety issues ever to arise—and did so for reasons that are not at all clear—by ignoring or rejecting the more conservative judgments of a large portion of the expertise at its disposal.

The hearing that has aired all this dirty laundry is taking place on the first floor of a rented office building in suburban Bethesda, Maryland, near one of the AEC's three headquarters buildings in the Washington area. Technically, it is known as a "rule-making" hearing, one meant to gather information to assist the five AEC commissioners in deciding whether to change a proposed or existing regulation.

The hearing is being held now partly because the AEC considered its ECCS regulations so urgent last year that it put them into force without providing the usual 30- to 60-day comment period. What's more, environmental groups had learned of the AEC's concerns, and since last summer have been interjecting the core cooling issue into more and more reactor licensing hearings. In an apparent effort to settle the issue once and for all, Schlesinger ordered the hearing.

Although it has now raised broad questions about freedom of dissent and about relations between the national laboratories and the commission, the specific issue at hand is the adequacy of the interim criteria worked out by the senior task force, under the direction of Stephen H. Hanauer, the chief technical adviser to the AEC's regulatory staff.

Essentially, the Hanauer group did two things: It laid down some new operating rules for power reactors which are aimed at reducing the already small chance of a major "loss-of-coolant accident," or LOCA. (One such rule set a maximum operating temperature of 2300°F, or 1200°C.) Second, the task force issued special instructions for evaluating the performance of ECCS in the event of a major leak. These instructions applied to all 20 or so reactors then operating, as well as to more than 100 being designed or built, and they called for using one of several computer models of LOCA phenomena previously developed by the AEC and industry.

The Hanauer group recognized that computer models of ECCS performance have never been adequately verified by experimental work, nor, indeed, has a backup cooling system ever been tested under realistic operating conditions in a working reactor (*Science*, 9 July 1971). Nevertheless, the task force felt confident that a lengthy set of "suitably conservative" assumptions and conditions it prescribed for plugging into the models would fully but-

Kennedy Asks NSF Budget Boost

Senator Edward M. Kennedy (D–Mass.) has introduced a bill that would authorize $740 million for the National Science Foundation for fiscal 1973. This is $94 million above the Administration request.

The largest increase in the Senate bill is included in the $131,200 asked for science education programs. The Administration wants $75 million. For Research Applied to National Needs (RANN), the Kennedy bill asks for $96.5 million, which is $16.5 million above the Administration request. The higher amount includes a near-doubling of the sum requested for energy research—or $26 million. This money, says Kennedy, would go for research in solar, geothermal, and other nonconventional sources of energy.

The special subcommittee on the NSF, which Kennedy heads, planned to hold hearings on the bill at the end of this week.

Meanwhile, the House last week passed a bill authorizing $673.8 million for NSF for the next fiscal year. The major increase over Administration demands is contained in the $109.8 million the bill asks for science education in the categories of science education improvement, graduate student support, and institutional aid. For RANN, the House bill endorses the Administration's $80 million request.

The Administration plans to release $21 million in education funds that it impounded for fiscal 1972, which would bring its total projected 1973 budget to $667.7 million. The NSF 1972 appropriation was $619 million.—C.H.