NUCLEAR PHYSICS

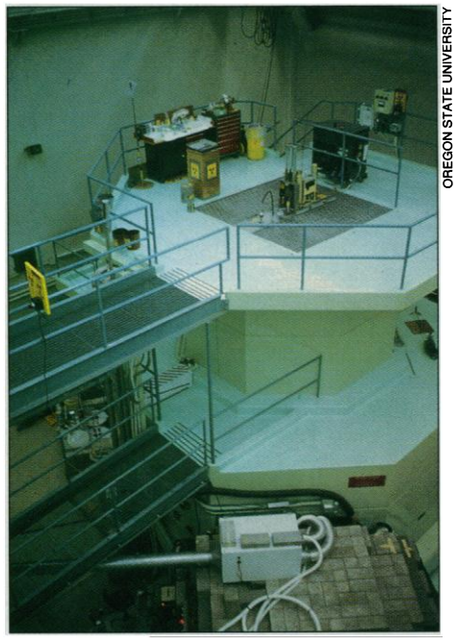
Surprise Fees Leave U.S. Research Reactors Gasping

The operators of research reactors in the United States got a nasty shock late last month: huge bills from Uncle Sam, due on 30 September, that may force as many as half of the reactors to shut down permanently. The bills—$62,000 per reactor to cover licensing costs—were sent out by the Nuclear Regulatory Commission (NRC) with little advance notice, and the move has sent reactor operators into crisis mode. A dozen universities last week filed an appeal with the NRC, but the commission says it was forced by a federal court decision to impose the fees and has little choice in the matter.

For many research reactors, this bombshell is the latest in a series of blows that have already left them struggling financially. Since their heyday in the 1960s and 70s, nuclear reactors at universities have come under fire on safety grounds, while nuclear engineering programs have shrunk as the nation turned its energy priorities away from nuclear power. Of the 38 reactors now operating on U.S. campuses, all but two have annual operating budgets under $1 million, and most are below $300,000. For a facility such as Cornell's Ward Laboratory, which houses two reactors and has an annual budget of $240,000, the arrival of an unexpected bill for $124,000 was "pretty much of a body blow," says director David Clark. At Massachusetts' Worcester Polytechnic Institute, whose research reactor supports about 30 nuclear engineering students on a $100,000 annual budget, the new $62,000 fee "puts us in a very difficult position," says director Leo Bobek. "What it's going to do to many of the small reactors is force them to close." He estimates that the NRC decision could kill as many as 28 research reactors nationwide.

That would be a shock for more than just the reactor community. Research reactors are used as a resource in dozens of disciplines, including neutron activation analysis of pollutants and geological samples, neutron capture therapy for cancer, the production of radioisotopes for medical research, and radiation testing of electronic components, as well as research on reactor technology itself. John Wasson is a University of California, Los Angeles, geochemist who uses the reactor at the University of California, Irvine, to do neutron activation analysis of meteorites and deep-sea core samples. If the NRC fees hold, that reactor is one of those that will almost certainly have to shut down, which could force Wasson and his 10-person team to abandon their research technique. "It would be a very heavy blow," he says.

This threat to research comes from a 1990 law that requires the NRC to pay for itself entirely through "user fees," mostly by charging reactor operators the cost of licensing their facilities. Until now, the NRC has exempted research reactors on the grounds that universities, unlike commercial utilities, had no way to pass along the fees to their users. But last year Allied Signal Inc., a company that processes uranium hexafluoride for reactors, sued the NRC, claiming it, too, should be exempted from paying fees because if it had to pass along the increased costs to its customers it would be unable to compete with international companies that don't pay such fees. The court rejected that argument, but in doing so, it also rejected the whole concept of "passthrough" as the rationale for the NRC fees, on the grounds that it is impossible to calculate accurately the economics of such cost sharing. Instead, the court ruled, the NRC should find some other reason to distinguish who should pay and who should not.



OREGON STATE UNIVERSITY

Splitting headache. Oregon State's reactor is among those hit with new fees.

The court itself suggested that a case for continuing the exemption for research reactors could be based on the argument that their operation provides a significant "externalized benefit" to society that "cannot be captured in tuition and other market prices." University officials believe they can demonstrate such benefits, but NRC decided it couldn't risk another lawsuit and decided to apply the new fee rules immediately. In a final rule published in the 20 July *Federal Register*, the NRC said the court ruling left it no option but to collect fees in the 1993 fiscal year, which ends on 30 September. NRC's move "caught us virtually blindsided," says Arthur Johnson, director of Oregon State University's radiation center. "We suddenly learned that we were going to get these huge bills, that the comment period had closed, and we were up the creek." Combined with other new NRC charges, the licensing fees could push the annual regulatory cost of operating a research reactor over $100,000, he says.

The decision to demand payment now was controversial inside NRC itself. In an unusual dissent to the *Federal Register* announcement, two of the five NRC commissioners protested that many research reactors may not survive long enough to make the case for an exemption on grounds of "externalized benefits." "We fear...the country may lose the considerable benefits [that] the nuclear-related activities of education institutions provide," the dissenting commissioners wrote.

Reactor operators have gone on red alert to try to get NRC to withdraw the 1993 bills. Last week's appeal, spearheaded by Cornell and signed by 11 other universities, asks the NRC to reconsider the final rule in light of the devastating effect it could have on research reactor operations. And Worcester Polytechnic's Bobeck is taking a leaf from the antinuclear movement's book: He's preparing to challenge the rule on the grounds that it should not have been issued without an Environmental Impact Assessment. If reactors are forced to close, Bobeck argues, their radioactive material will have to be disposed of. So far, however, the commission has said only that it will consider case-by-case requests for an exemption this year, and it warned that "severe financial hardship as well as significant externalized benefits" must be demonstrated to win a stay.

As for the future, an NRC spokesman says the commission "would be happy to find a basis for extending the research exemption." The NRC, he says, doesn't want to shut down research facilities any more than the researchers do. The reactor operators are hoping that Congress will come to the rescue: They are planning to mount a lobbying effort next year for a permanent research exemption. Indeed, some researchers believe that the NRC took a hard line to galvanize the research community into pressuring their legislators. But in order to put together a lobbying effort next year, the reactor operators first have to survive this year's demand for payment.

–Christopher Anderson