Science in the News

Science in the Courts: The Supreme Court Is Asked To Decide on the Inherent Dangers of Nuclear Reactors

An often puzzled Supreme Court last week heard 3 hours of argument on a case that questioned the legality of the procedure the Atomic Energy Commission has been using to permit the construction and operation of nuclear power plants. In 1956 the Power Reactor Development Corporation, a nonprofit corporation supported by 17 private industrial and utility companies interested in atomic power, received a permit to build a power reactor at Lagoona Beach, Michigan, 30 miles from Detroit. The construction permit has been under attack more or less continuously ever since by several of the senior members of the Joint Committee on Atomic Energy and by a group of labor unions, chiefly the electrical and auto workers.

The unions fought the AEC unsuccessfully through its own hearings procedure, then successfully appealed to the courts to have the permit set aside. The government then appealed to the Supreme Court.

Opposing Views

As the unions see it, the AEC cannot let anyone build a reactor unless it is clear that the reactor can operate safely. Their point is that once someone has spent the $50 million or so to build a power reactor it is not likely that the AEC will tell them their money is thrown away because the reactor is not safe enough to operate. This means, the unions say, that to fully protect the public the AEC must be able to make the same stringent findings of safety at the time it issues a construction permit which, both sides agree, it must make to issue an operating license.

The government's opinion is that the union's view, if upheld, would substantially slow the development of atomic energy applications without substantially adding to the public's protection.

The reason for this, the government says, lies in the nature of the problem: atomic power plants cannot compete with conventional plants, and the only reason for building them is to advance technology toward the point where atomic power will be as cheap as conventional power. Therefore any new atomic power reactor is different from all those built earlier, and to delay each construction permit until all the detailed information is available to support a safety finding for a final design would delay each project for several years. In the government's view, the current procedure involves no risk to the public since the builder realizes that the construction permit will not lead to an operating license unless the final reactor meets the safety requirements. This warning to the builder was repeatedly emphasized in the AEC decision on the PRDC case, partly as an answer to the unions' contention that issuing a construction permit almost automatically leads to an eventual issuance of an operating license.

Technically the question is strictly on whether the law allows the two-step procedure the AEC uses, with the definitive finding of safe operation delayed until the time to issue an actual operating license. What makes the case curious is that the case is really going to be decided on the court's evaluation of the scientific question of how much risk is involved in operating an atomic power plant. "Let's face it," says an attorney who worked on the case for the unions, "the thing that made the lower court throw out the AEC's finding and the thing that's going to make the Supreme Court go the same way is that anyone would have to be crazy to build a reactor like that near a big city."

"The possibilities of harm are so enormous," the lower court said, "that any doubt as to what findings the act requires, and any doubt as to whether the Commission made such findings, should be resolved on the side of safety." What the unions have done is to offer the courts a rationalization for an interpretation of the law that could be used to provide a legal justification of a decision that would really be based on the court's finding that "the possibilities of harm are so enormous." If the law is interpreted in a straightforward way there is not much doubt that the AEC has the right to proceed the way it has been doing. But lawyers recognize that if the judges' feelings are strong enough they can sometimes be persuaded to accept a suggested interpretation which allows them to decide, in effect, what Congress should have done rather than what Congress did.

The government argues that there is nothing in the scientific testimony to support the court's view of the dangers of the reactor. The court, or rather the two of the three judges on the court who supported the union, cited two pieces of evidence to support its view of the dangers, both general statements concerned with the kinds of imaginable nuclear accidents. Neither statement, and nothing in the record, suggested that the AEC regulations would authorize an operating license for a reactor that would make these imaginary accidents a credible possibility.

The unions themselves offered no witnesses to back up their view of the dangers. Their contribution to the scientific testimony consisted primarily of cross-examining the scientific witnesses to emphasize that the findings of probable safety of operation made for the provisional construction permit were not as strict as those that would have to be made for an actual operating license.

The AEC concedes this is true, and will always be true as long as each new power reactor, in order to be worth building, must be substantially different from any earlier reactor. The question for the Supreme Court, then, is whether in their judgment, as men who make no pretense of understanding nuclear technology, the inherent dangers of reactors are so great that the courts must go to great lengths to minimize not only the possibility that the AEC would permit a dangerous reactor to be put in operation, but that the courts themselves would then uphold an AEC decision to allow a dangerous reactor to operate.

Legal Technicalities

The case illustrates the substantial difference between scientific and legal controversy. The case involves rival theories of how the law is to be interpreted. Both sides attempt to develop

evidence for a theory that would account for how the law came to be written as it is, leading to a conclusion that if such is the basis for the wording of the law, then it follows that this is the way the law should be interpreted in this case.

The court must make a decision (it cannot, as in a scientific controversy, simply decide that there is not enough evidence to decide), and that decision, depending on the terms of the court's option, can fall anywhere in the wide area between the union's view that the basic law requires the AEC to make the same safety findings for a construction permit as for an operating license, and the government's implied view that the law allows the AEC great freedom on what regulations it should write on the requirements for a construction permit.

Rival Theories

Each side wants a decision as close to its view as possible. It offers theories that would justify a decision at various points in the gray area between the extremes which are different from, and what is worse, sometimes contradictory of the theory that it would rely on if it wanted to stake everything on the chance of winning complete victory. This raises the danger of arguing so well for a compromise theory that contradicts your main theory that you convince the court your main theory is wrong. In this case the result of such problems was that neither the government nor the unions offered a completely clear presentation of any one theory. The details of the case made this especially true for the unions. From the union's argument (that the law requires the same safety finding for construction as for operation) it seemed to follow that the pertinent AEC regulation (50.35) was itself a violation of the law, for the regulation was designed to allow leeway on a reactor of untried design "where, because of the nature of a proposed project, an applicant is not in a position to supply initially all of the technical information . . ."

The unions never followed this argument through to its apparent conclusion. Instead they emphasized a theory that although regulation 50.35 is legal in itself, it is to be interpreted in a very narrow way. But to interpret the regulation as narrowly as the unions sometimes seemed to argue raised such not unanswerable, but ticklish questions as why the AEC would go to the trouble of writing a regulation whose meaning was so narrow that it really had no more discretion on safety findings that it had without the regulation, or alternatively, if the regulation was to be interpreted slightly less narrowly, but giving the AEC a fair amount of leeway, how the unions' basic premise that the law allowed no leeway could be true.

The Court questioned the union's attorney at length, trying to pin him down on just what he was arguing, but since the confusion resulted from the nature of legal disputation rather than from mere perversity on the part of the union's lawyers, the court showed no special annoyance at the situation. For the unions had merely strived to provide the court with a line of reasoning that could be used to justify any decision the Court might make favorable to the unions, an opinion that would be perfectly coherent once it was divorced from the competing lines of reasoning which had to be presented simultaneously.

News Notes

Conflict of Interest

The President has asked Congress for a wholesale rewriting of the conflict-of-interest laws, a matter of interest to the scientific community since at least a technical case of violation of the current statutes could be made out against most of the more prominent scientists in the country.

The laws, as they stand now, are a collection of seven separate pieces of legislation passed at various times over the last 90 years, five of them dating back to the early post-Civil War days. Most of them were written in response to a particular set of scandals; no two of them use quite the same terminology; and no one is quite sure how they are to be interpreted, since the specific abuses most of them were written to combat are not often the sort of abuses that are matters of concern today.

There is some question whether there was a clear violation of the conflict-of-interest laws in the Welch scandal at the Food and Drug Administration last year, and equally a question of whether nearly every scientist on a government advisory panel is not violating the conflict-of-interest laws, since he normally will be a consultant or staff member of one or more organizations which are receiving research support from the government, usually in the very field in which he is advising the government.

(Welch was simultaneously chief of the FDA antibiotics division and editor of several antibiotics journals. The Kefauver drug investigation turned up information that the "modest honorarium" he told his superiors he was receiving for the editorship was in fact a percentage of the advertising and reprint revenues derived from the antibiotics manufacturers he was supposed to regulate, and came to about $40,000 a year.)

Kennedy has asked Congress to scrap the old laws and substitute a single new statute. This is what has been recommended by a number of committees that have studied the problem in the past 10 years, and the objectives would include both broadening the laws to include clear violations that were not thought of when the earlier laws were written, and writing into the law a clear procedure for granting exemptions in cases, such as those involving most scientists, where the government must necessarily accept some conflict of interest, since the only people qualified to give the advice needed are people who are in a position to benefit, indirectly at least, from what the government does.

As things stand now, the laws are often simply ignored because to comply with them would cut the government off from the very people whose services it most needs.

NASA succeeded last week in another firing which placed the first astronomical satellite in orbit. The 90-pound Explorer XI is a telescope-shaped device intended to gauge the intensity and direction of cosmic gamma radiation. This cannot be done from the earth, for the interstellar gamma rays become mixed with rays created within the atmosphere. The device tumbles over as it orbits. It contains, in addition to gamma ray detectors, earth and sun sensing devices which enable its orientation to be constantly known. This makes it possible to learn the intensity of radiation coming from various directions.

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School segregation, for the first time, is being opposed in a law suit initiated by the federal government. Until now all desegregation suits have been filed by the private citizens affected. A county in Virginia had attempted to circumvent a desegregation order by opening a system of private schools,