# Nuclear Licensing: Promised Reform Miffs All Sides of Nuclear Debate

Getting a nuclear reactor built these days is becoming almost as difficult as digging a new Panama Canal. Utilities around the country have been plagued with delays and the time required for planning, licensing, and building a reactor has steadily increased until it is now 12 years or more. One reactor in Michigan is running 7 years behind schedule and the latest indications are that it will take at least 15 years to complete. (The Panama Canal, like the Michigan reactor, was built in fits and starts, but the American work on the Canal took only 8 years.)

Reactors are being delayed for many reasons, including the ratcheting of safety requirements upward, court challenges by citizen groups, labor strikes, bad weather, financial problems, and overdue equipment deliveries. Surprisingly few data are available to show how much licensing requirements contribute to the delay, but all parties in the process agree that the present procedures—which were largely developed in the 1960's, when licensing was carried out by the Atomic Energy Commission—are not satisfactory.

President Carter promised last April to reform the licensing procedures for light water reactors. After toiling through much of the summer and producing nine or more drafts, the Administration is working out the final details of its new licensing bill. The various federal agencies involved turned in their comments on the draft bill on 26 October, and the Administration hopes to send the bill to Congress before the end of the fall session. The proposed bill would shift considerable responsibility from the federal government to the states. It would increase the power of the Nuclear Regulatory Commission to preapprove sites and reactor designs, and it would provide federal funding for the first time to qualified citizen groups acting as intervenors in nuclear hearings.

Although some aspects of the bill are still being energetically debated within the Administration, the measure will certainly improve the predictability of the licensing process—a change the nuclear industry wants even more than acceleration of the process. Within the past month the Administration also announced a landmark spent-fuel policy (see box). These two measures offer a much greater degree of certainty about government policy than the troubled light water reactor industry has enjoyed in recent years, and together they may signal a much more conciliatory attitude toward the nuclear industry than the Administration has taken while battling over the breeder reactor with Congress during the past year.

But the 5-month history of the proposed bill indicates how difficult it may be to develop a compromise on such a complex and emotional issue. A draft bill drawn up in early August was reportedly so pro-nuclear that it was vetoed within the White House domestic council. A revised version circulated on 20 August was sufficiently altered that the nuclear industry called it "emasculated" and "worse than nothing at all," while the environmental movement called it a "totally unacceptable approach to energy system planning."

### Hesitant Support from the Industry

The nuclear industry finds the latest bill, identified in the chain of succession as a 14 October draft, better than the last try. Spokesmen for nuclear lobbying organizations call it "a positive step," and a "useful basis for licensing reform legislation." But it still does not go far enough to give the industry the degree of certainty about licensing it wants and is inapplicable to the 70 plants now in the works. Environmentalists fault the bill because it does nothing to strengthen safety standards—as Carter seemed to promise in addition to accelerated licensing in his 20 April speech—and because it reduces considerably the amount of citizen participation in the process.

How much the new legislation could reduce licensing lead times is anybody's guess. The newly appointed chairman of the Nuclear Regulatory Commission, which administers the process now and would continue to maintain jurisdiction over all safety issues in the future, warns that the proposed legislation will not drastically shorten the licensing procedure. "It will not cut the time from 12 to 5 years," said Joseph M. Hendrie in an interview with *Science*, "and there is no set of generally acceptable propositions I can see that would make that the case. But this improves the licensing process in important respects and that is why I favor it." In the future, after new procedures have been in effect for 5 to 10 years or more, Hendrie thinks that substantial gains could be expected.

Other parties who have observed the process closely also caution against expecting too much from licensing reform alone. Much of the time is taken up with early planning by the utility, design work to fit the plant to the site before a construction license application can be prepared, and then construction work itself. According to the Atomic Industrial Forum's expert on plant scheduling matters, Bob Szalay, "you can't say that we would zip right through if it weren't for licensing requirements, but you can say that what is now a 10 to 12 year schedule could be done in 7 to 8 years," in cases where construction proceeds at an optimum pace. Unfortunately for the utilities that have to pay huge finance charges during the construction period, construction currently takes longer than any other phase of reactor installation. The primary hiatus caused by the regulatory process is the time required for a utility to get its construction permit approved, which is currently 2 to 3½ years.

Data tabulated by the Nuclear Regulatory Commission indicate that for reactors finished in 1976, construction work alone took almost 8 years (94 months). Since most observers agree that under the most expedited procedures it will still take 1 to 3 years of planning and licensing before construction, it is clear that the industry needs to accelerate its own efforts as well as the licensing process. When the Nuclear Regulatory Commission examined the causes for "delays and cancellations" of 68 plants in 1977, they found that only 14 of the slippages were due to licensing and litigation.

Whether the new bill shortens the process or not, it will change the timing of the decision points in the process so that the most crucial determinations can be made well before large investments are required. The key substantive provisions of the reform are early site approval and standardization of nuclear plant designs. The proposed bill would tend to transfer to the states the responsibilities for assessing the "need for power" and the environmental impact at an intended nuclear site, both tasks now borne by the Nuclear Regulatory Commission (NRC). Pro-nuclear and anti-nuclear forces agree that these are economic and land-

use questions that can be appropriately dealt with by the local agencies (such as state utility commissions). The proposed codification would allow states to approve nuclear sites as much as 10 years before they are needed, providing what is often called a "site bank" for future use. Authority over the safety issues would remain with the NRC, which would pass on the safety of standardized designs and issue approvals good for 5 years. By marrying a preapproved site with an approved reference reactor design, a utility could bypass the lengthy individual-plant safety reviews that must now be conducted because most plants are custom-designed.

The idea of standardized plant designs is one which the industry generally favors and which it would probably pursue even without licensing reform because it makes economic sense. The vice president of Northern State Power, Art Dienhart, estimates that his company will save $100 million in constructing its Tyrone plant near Durand, Wisconsin, because the plant is one of five identical units that are being designed, licensed, and built as a joint project by four utilities in the East and Midwest. The savings come from reduced architectural engineering fees, because the cost of one design is spread over many plants, and reduced construction costs. Warren Owen, at Duke Power Company, estimates that when the company built two identical reactors recently, construction of the second required only two-thirds as many man-hours as the first. "There are obvious benefits to doing the same thing twice," says Owen. Within a few months, Duke Power is scheduled to get permission to start building six identical plants at two different sites in North Carolina and South Carolina.

But standardization alone may not speed up the whole process significantly. "Early site review is fundamental to fair treatment of the land-use issues," says NRC chairman Hendrie, who thinks that standardization alone will not be very significant. Early site approval would also change the timing of the most significant decision—that is, whether the plant will be built at all—and disconnect it from the plant financing questions. Both utilities and citizen intervenors favor working out the crucial questions of need for power and site suitability before a great deal of money is tied up.

The greatest controversy in the proposed legislation is over the provision that intervenors in the licensing process would be paid by the federal government. Intervenors have long argued the unfairness of a system whereby they

# New Spent Fuel Policy Unveiled

After taking things away from the nuclear industry for much of the past year, the Administration moved in late October to give the industry something. Not free but for a price, the new Department of Energy offered to take spent reactor fuel off the hands of reactor owners and take complete responsibility for its safe handling and disposal forever thereafter.

The long-planned cycle of nuclear fuel use had been left with a large gap in it by decisions to postpone reprocessing and commercial breeder development earlier this year. The tattered fuel cycle was made considerably more orderly by the new fuel storage policy, which was announced 18 October by John Aherne, senior adviser to Department of Energy (DOE) Secretary James R. Schlesinger. The policy, which Administration officials say will take several more months to work out in detail, specified the general terms under which a utility company could arrange for the government to store and dispose of its spent fuel. The policy was also extended to foreign countries, on a "limited basis," as part of American nonproliferation policy, to induce selected nations to store their spent fuel at secure sites in this country.

The policy did not, however, offer any new insight into the question of how permanent waste disposal will be accomplished, a question which State and Energy Department officials acknowledged at the briefing is still unresolved. Nevertheless spokesmen for the nuclear industry cautiously welcomed the announcement, although many said privately that their support will depend on the final terms and fee schedules.

The amount of spent fuel at reactor sites is building up quickly. According to the Nuclear Regulatory Commission, 2000 metric tons of spent fuel are now being stored at reactor sites across the country, and the amount is expected to increase at the rate of 1000 tons per year (30 tons per reactor). Fuel storage facilities are expected to reach the limits of capacity by the mid-1980's, if not sooner.

Under the new policy, utilities that transport their spent fuel to a government center can turn it over for a one-time storage fee. Utility companies will not receive any credit for the energy value of plutonium and unburned uranium in the fuel rods, but they could receive a partial refund if the rods were reprocessed at some later date.

Department of Energy officials say they do not yet know how many storage facilities will be needed, whether they will be privately or federally owned, or what the facilities will cost. Privately funded storage facilities have been built by General Electric at Morris, Illinois, and by Allied General Nuclear Services at Barnwell, South Carolina. The DOE official in charge of the program, George W. Cunningham, said that a federal storage unit could cost $50 to $100 million.

Several aspects of the policy may become matters for vigorous political debate. The policy will require an unprecedented amount of long-distance transportation of highly radioactive material, which is already prohibited from passing through New York City. Questions about the safety standards for the facility are raised by the DOE contention that formal Nuclear Regulatory Commission licensing is not needed if the facility is government-owned.

What the fair price should be is a question that "no one pretends will be easy to answer," according to one high Administration official. The cost suggested by the DOE is $100 per kilogram, or about $3 million per reactor per year. "It will be extremely difficult to estimate without error" the full costs for services with so many technical uncertainties, according to knowledgeable observers on Capitol Hill. Since recalculation of the fee retroactively would be prohibited under the program, Congress is sure to raise the question whether the public may not end up paying high costs for which the industry should be responsible. Finally, the plan to store foreign fuel in U.S. facilities may raise unprecedented opposition. When Britain announced plans several years ago to reprocess Japanese fuel, it was called an effort to turn the country into the "world's nuclear dustbin." Similar charges are already being made in the United States.—W.D.M.

have no funds for their efforts on behalf of public safety while the legal preparation of the pro-nuclear case is supported by utility ratepayers. Some of the players in the nuclear industry oppose intervenor financing because they think it should be applied equally to all federal regulatory processes. Others argue bluntly that intervenor activities do not attempt to make nuclear power safer but are obstructionist and should therefore not be publicly supported.

The Carter Administration has made some strong pledges to its environmental constituency and the inclusion of intervenor funding is apparently a prerequisite before the White House will sign off on any bill. The Department of Energy (DOE) is scuffling with the more environmentally oriented agencies now over the bill. "The DOE bill would have the effect of cutting back on citizen participation," says Gus Speth, a member of the Council on Environmental Quality, which has recently taken the unusually strong position that nuclear licensing should cease at some agreed-upon future date if progress is not demonstrated in waste disposal. One of the council's concerns is that in the so-called Track 3 case (a blend of a preapproved site and previously referenced design) "there should be a hearing to determine whether you still need the power and whether anything has happened to suggest that a reactor on that site is unwise."

Other groups oppose the DOE bill on the grounds that it will shift the crucial questions to the states, where there will be no guarantee of intervenor financing or of adjudicatory hearings, which allow full rights of cross examination. "Nuclear plant debates begin and end on the issue of need," says Anthony Roisman, at the Natural Resources Defense Council. "We're not well disposed toward a bill that provides intervenor funding for the first time and then transfers the crucial questions to the states where [funding] may or may not be available." Roisman, along with five other environmental leaders, thinks that the bill has many other problems, including a strong role for the DOE in the licensing process, which they suggest raises anew the issue of the suitability of a single agency's promoting and regulating nuclear power. The six,

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## If They Held a Meeting There'd Be No One to Come

Last month, the National Library of Medicine canceled the quarterly meeting of its board of regents because there are no regents to meet. When University of Alabama chancellor Joseph F. Volker rotated off the board at the end of September, having completed a 4-year term, no one was left. Why? Because the Nixon and Ford administrations, which should have been naming replacements as individuals rotated off since 1973, made no appointments; and because the Carter Administration has not gotten around to doing anything about it either.

At the National Institutes of Health (NIH), the situation with respect to appointments to advisory boards and councils is not quite so dire. Nevertheless, the NIH director's advisory council is 9 members short. As of 1 November, when terms for new members begin, there were 44 vacancies—among some 200 positions—despite the fact that the names of individuals to fill most of those spots have been forwarded by NIH to Health, Education, and Welfare Secretary Joseph A. Califano, Jr., some of them as long ago as April.

The holdup on the Library's board of regents, who must be nominated by the President and confirmed by the Senate, is in the White House. On 3 March, Califano's office submitted a list of candidates but so far no one on the White House staff has acted on it. The delay in getting individuals named to the NIH councils lies with Califano himself, who apparently just has not waded through the paperwork in which the nominees' papers are included. NIH staffers say that inquiries to Califano's office occasionally elicit assurances that the names of proposed advisory council members are "on the Secretary's desk," but as one of them put it, "The Secretary must have a desk the size of a football field."

During the Nixon Administration, NIH had a particularly rough time getting persons named to the councils and boards that advise the NIH director and the directors of each of the individual institutes on broad policy issues. The reasons were political. For 3 consecutive years, for instance, political appointees in the Secretary's office rejected every candidate—scientist or lay—whose name was submitted by NIH (*Science*, 31 October 1975). Needless to say, there were high hopes that things would go better when the Carter people took over. So far, they haven't.

"Just when you think it can't get worse, it does," one NIH official told *Science*. "The reasons appear to be different. The Republicans let partisan politics get in the way a lot. The Carter people don't seem to be playing partisan politics on this at all, though we do get asked to nominate more minorities and women. The new Administration seems not to be well organized on this yet. Even if the explanation for the delay is benign, the result is the same now as it was then—no new people on the advisory councils."

## Will Russell Peterson Be OTA's New Direction?

"Dr. Russell W. Peterson, former Governor of Delaware and Chairman of the White House Council on Environmental Quality (CEQ), has been offered the Directorship of the Congressional Office of Technology Assessment (OTA)." So said a 27 October press release from OTA, issued before Peterson, who was traveling in Asia, even got official word himself. The offer "is being transmitted to Governor Peterson in New Delhi," the press release revealed. "It is expected that [he] will announce his decision on the post in mid-November after he has returned to the United States." Peterson met with the OTA board on 21 October.

In Washington, the OTA announcement took many of Peterson's colleagues at New Directions by surprise, as did the OTA gambit of announcing the job offer by press release. Although Peterson is said to have given OTA permission to issue the release, OTA's doing so is regarded as a move to pressure him into taking the job. Peterson is the third person to have been offered the $52,000-a-year post since Emilio Q. Daddario announced his resignation (*Science*, 3 June).

Former Nixon energy czar John Sawhill offered the job as, it is rumored, was Russell Train, former head of the Environmental Protection Agency.)

Peterson, who made a very favorable

representing groups from Ralph Nader's Congress Watch to the Sierra Club, wrote to President Carter urging that he terminate the Energy Department's leadership in the licensing reform effort.

The amount of citizen participation may be slightly reduced, but it will nevertheless be ample according to Hendrie at the NRC, which prepared much of the draft language in the present bill. Even under Track 3, according to Hendrie, there will not be less opportunity for the public to comment on the safety of a preapproved design, but only for "Joe Smith who might live within 50 miles of the reactor" and might not have seen the notices of hearings that determined preapproval. "Society cannot stand still and relitigate at the option of every citizen on every matter," Hendrie says, but for the more vocal, national groups access will not actually be limited. For site approval, full local hearings would be held.

The new bill, which channels money for state licensing activities through the Energy Department, will give the DOE "a certain amount of leverage over the states," the regulatory commission chairman thinks, "but the states have the mood of the Congress behind them."

The 5-month dispute within the Administration over procedural matters may only presage a much broader debate when the bill is sent to Congress, where two other licensing reform bills have already been introduced and four committees are claiming jurisdiction over the matter.

In addition to the environmentalists' calls for strengthening safety enforcement, other nuclear issues not included in the bill itself may become linked to the debate. The fuel storage policy, export control bill, and breeder development issue will all probably be before the Congress next year. In addition to the possibility that these issues may become linked and the licensing bill held hostage to other measures, Democrats running for reelection may not find it very comfortable to be put in the position of supporting more nuclear plants faster with less public participation.

For many reasons, it may be difficult for the Administration to deliver on its promise to give the nuclear industry improved licensing.—WILLIAM D. METZ

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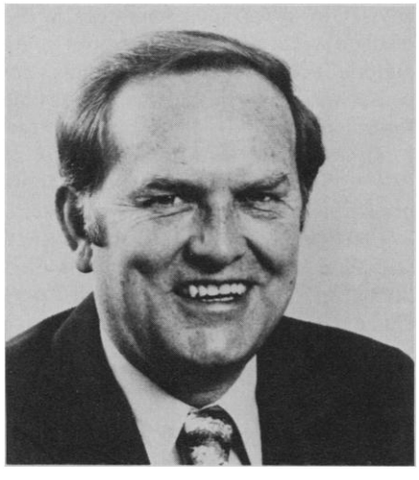
impression on environmentalists during his tenure at CEQ, has not only considerable experience in science policy but also a useful political credential. He is a Republican, something that is regarded as a plus because OTA—meant to be a



bipartisan congressional unit—has been accused of being dominated by Democrats, particularly OTA board chairman Edward M. Kennedy.

If Peterson decides to accept the OTA offer, it will mean leaving New Directions, a brand new organization, after barely more than a year. New Directions, billed as a "citizens lobby on world problems," was founded in 1976 with four lofty goals: "to help the poorest of the poor to help themselves; to protect and enhance the environment; to reduce the risk of war and violence; and to safeguard basic human rights." It is modeled after Common Cause, with an international bent. So far, Peterson is reported to have spent more time fund-raising than directing.

When Peterson left the White House to head New Directions, he told *Science*, "I'm quitting because of a great opportunity," and added, "If I sat down to write what I wanted to do for the rest of my career, I couldn't have done better" (*Science*, 24 September 1976). Peterson is reported to be genuinely undecided about whether OTA is "better."

## U.S. Refuses to Back Soviets on Dissidents and Psychiatry

In the course of discussions on the renewal of U.S.–U.S.S.R. agreements on health research, Soviet doctors late last month pressed American negotiators to sign a joint statement denying that the Soviets subvert psychiatry by incarcerating dissidents in mental hospitals. But the Americans refused to go along.

The Soviet document was written in response to a resolution of the general assembly of the World Psychiatric Association, which voted in September to condemn the Soviet Union for "systematic abuse of psychiatry for political purposes."

The Soviets wanted U.S. health officials to affirm the Soviet declaration calling the Psychiatric Association's charges "irresponsible" and "unfounded." Furthermore, the United States was asked to agree that, if former mental patients (read dissidents) emigrate, they should receive psychiatric care, and that American and Soviet doctors should exchange information about them with "preservation of medical secrecy guided exclusively by protecting" the patient's health.

The issue came up during a review of the U.S.–U.S.S.R. cooperative study of the organic basis of schizophrenia, according to psychiatrist Julius Richmond who, as assistant secretary for health, headed the U.S. delegation. Annual meetings to review the health agreements have been held since 1972, when they were first negotiated as part of détente. Richmond told *Science* that, as far as he knows, the issue of abuse of psychiatry has not been raised in previous meetings. Richmond reports that the "whole thing was discussed very quietly," and says he told the Soviets that their request was "irrelevant" to the negotiation of cooperative programs on substantive research issues.

The new agreement as signed—minus U.S. affirmation of the Soviet document—is an extension for 5 years of a previous pact that provides for cooperation between the countries in research on cancer, heart and infectious diseases, including the flu, and environmental protection. In the mental health field, the agreement calls for continued cooperation in basic research on schizophrenia, and lets it go at that. Generally speaking, American researchers report that the U.S.–U.S.S.R. exchanges are of greater value scientifically to the Soviets than to us.

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