Radwaste Bill: Everything but the Kitchen Sink

Although high-level radioactive waste has been collecting for more than 35 years in the United States, Congress has never enacted a program for permanently isolating this waste. Last week, by a 69 to 9 vote, the Senate passed a bill that provides for three types of facilities to handle high-level nuclear waste and establishes an accelerated timetable for carrying out the program. The bill also calls for a mandatory fee of 1 cent per 10 kilowatt-hours on nuclear-generated electricity to cover the full cost of interim management and ultimate disposal of nuclear waste.

"The overriding Federal responsibility for the disposal of nuclear waste is clear," said Sen. James A. McClure (R-Idaho), who shepherded the bill through the Senate. "In the absence of this legislation, a Federal program for nuclear waste disposal would proceed, but it would do so without clear guidelines for utility planning; without a requirement for detailed controls on the selection and development of sites for geologic repositories; without a mechanism for user financing and a procedure for substantive State participation."

Ed Davis, a vice president of the American Nuclear Energy Council, says the nuclear industry is very happy with the Senate bill. It provides a comprehensive program, he says, that includes temporary away-from-reactor storage for spent fuel, permanent geologic repositories and monitored retrievable storage facilities in case of unforeseen time delays in the geologic disposal program.

David Berick of the Environmental Policy Center says the bill is a real disappointment. If the bill is enacted, he says, "in three or four years' time, we'll be right back where we are right now."

Berick says the bill was designed to establish certainty for the nuclear industry that the waste problem will be solved. "We're going to have long-term storage and short-term storage. We'll have licensed geologic repositories and unlicensed geologic repositories. We're going to throw the kitchen sink at the problem," Berick says. "It's focusing on the political problem. It's not focusing on the long-term success of any of those options, certainly not on the long-term success of the geologic program."

However, a nuclear waste program is far from being enacted. In the House, three committees have failed to agree on a compromise bill after more than a year of negotiations. Members of the Energy and Commerce Committee are still struggling with several basic issues, including away-from-reactor storage of spent fuel. The committee must also decide on a suitable timetable and whether to allow interim operating licenses for geologic repositories. There is a consensus in the House that geologic disposal is the preferred method, and the House bill contains no mention of monitored retrievable storage.

Davis says, "I think the prospects are very good for getting a bill in the House, particularly given the fact that the Senate has acted so expeditiously in getting it to the Senate floor and passed." A House subcommittee staff member says, "It's becoming less likely, but it's foreseeable."

Even if the House passes a nuclear waste bill, too little time may remain in the session to iron out differences between the Senate and House versions of the legislation. Both the House and the Senate passed waste management bills late in 1980, but failed to agree on a compromise text in the short time left in that session.

Pressure is mounting to resolve the conflicts. Last week, President Reagan, in a letter to the Senate, urged prompt enactment of legislation in both houses. In a significant policy shift, Reagan indicated a willingness to accept away-from-reactor storage and endorsed monitored retrievable storage as an option.

One key issue is the timetable for establishing a geologic repository. The Senate bill calls for an operating facility by 1988, 10 years sooner than the Department of Energy's original timetable (SN: 1/2/82, p. 9). Critics argue that this accelerated program restricts the choices to three sites already being studied (basalt in Washington, welded tuff in Nevada and salt in the South) and eliminates other possibilities for the first repository, such as a granite site. Philip Garon, an Energy Department spokesman, says the department thinks it can meet the schedule from a technical point of view, but delays may arise during the Nuclear Regulatory Commission's licensing procedure. "In general, the Senate bill is one we can live with," says Garon.

The political problems remain. South Carolina Governor Richard Riley once stated his law of political-physics: "Nuclear waste stays where it is first put." Sen. Pete V. Domenici (R-N.M.) said, during the Senate debate, "Everyone wants to proceed, but they want the other fellow to take the waste." —*I. Peterson*

TMI: Uncertainty is causing chronic stress

Almost three years after the accident at the Three Mile Island nuclear power plant, residents of the surrounding Pennsylvania community continued to experience stress, according to research conducted for the Nuclear Regulatory Commission. The mild but persistent brand of stress appears to stem from a sense of uncertainty uniquely associated with the conditions surrounding the TMI incident.

According to psychologist Andrew Baum of the Uniformed Services University of the Health Sciences in Maryland, research beginning in July 1980 — some 16 months after the TMI accident — and extending through January 1982 indicates that local residents have remained abnormally high on both psychological and physiological measures of stress. Baum and a team of psychologists began their research in order to assess the effects of the proposed venting of radioactive gas in 1980, and had tentatively concluded that the level of stress had risen in anticipation of the venting. But subsequent assessments throughout 1981 and in 1982 have shown that although stress declined following the venting, it has returned and stayed at the 1980 level, suggesting a chronic form of stress, according to Baum.

Of particular interest is the discovery that TMI locals have elevated urine levels of catecholamines — brain chemicals secreted in response to nervous arousal — when compared to control subjects, Baum says. In the face of acute stress very little of one catecholamine, epinephrine, is secreted, while significant amounts of another, norepinephrine, are secreted. In the TMI subjects, the urine levels of *both* catecholamines were elevated, suggesting a form of stress related to uncertainty rather than immediate fear. "Three Mile Island is different from other disasters," Baum concludes. "When a tornado or earthquake occurs, the worst is usually over quickly. At TMI there is no clear sign that the worst is over. For all they know, the worst is yet to come." By comparing the TMI subjects to residents in the vicinity of an undamaged nuclear plant, the researchers have also shown that the chronic stress is affecting specifically TMI locals and not all who live near a nuclear plant.

Baum emphasizes that not all TMI subjects are experiencing chronic stress; some are stress-free and others are coping well. He also emphasizes that the stress is mild; very little is known about the effects of such chronic stress, he says, but it is conceivable that it may be more harmful the longer it persists.

Baum's findings emerge at a time when the NRC is under court order to estimate the psychological impact of restarting TMI. Although common sense may suggest that restart would increase stress, Baum says, such a conclusion cannot be drawn from the data now available. —*W. Herbert*