

this right of concurrence is preferable to having Congress confer on the states the authority to "veto" repository projects (although the only difference would seem to be that, with the consultation and concurrence process, no state would be expected to reject a site precipitously).

The IRG recommended against relying on a single geologic repository through the end of the century as present policy contemplates. Instead, it called for two or three repositories, each in a different region. "With [the] single-repository approach," the report observes, "the near-term construction and operating costs might be less. However, the need to transport wastes from all over the United States to a single facility could add significantly to cost and would result in numerous political and other institutional problems during site selection and operation."

The National Governors' Association had itself proposed the consultation and concurrence concept, and its reaction to the IRG draft report was enthusiastic. The chairman of this group's Nuclear Power Subcommittee, Governor James B. Edwards of South Carolina, dispatched a telegram to Deutch commending the IRG for taking a "most un-bureaucratic and refreshingly productive" approach to the waste management problem. In past years Edwards has been concerned lest an attempt be made to commit the high-level military wastes now in temporary storage at the DOE's Savannah River plant to a bedrock formation that underlies one of the most important freshwater aquifers in the Southeast.

Two environmental groups deeply involved with the radioactive waste issue, the Union of Concerned Scientists and the Natural Resources Defense Council, issued a joint statement hailing the IRG report as a "positive and welcome change from the tired rhetoric of waste management reports of previous administrations." But these groups qualified their praise by saying that the IRG had failed to address the question whether more wastes should be generated in the absence of a convincing demonstration that the problem of ultimate disposal will be solved.

They also complained that the report does not evaluate the controversial Waste Isolation Pilot Project (WIPP) for transuranic defense wastes—and possibly an intermediate scale experimental venture with spent fuel—which the DOE has hoped to carry out near Carlsbad, New Mexico, if its site investigations there turn up positive. In their view,

WIPP is plainly inconsistent with siting criteria set out in the report. They say, for instance, that, whereas the report indicates that sites should be selected with a view to minimizing the possibility of human intrusions during the thousands of years the wastes remain hazardous, the presence of potash deposits in the vicinity of the WIPP site is an invitation to such intrusions.

The past performance of the DOE and its predecessor agencies in waste management has been such as to inspire proposals in Congress and elsewhere that the department be relieved of responsibility in this field by establishing an independent agency. But the IRG indicated in its report that to set up a new agency would lead to more delay in getting on with the job and to a loss of the appropriate perspective of waste management viewed in relation to energy production and other energy-related environmental issues.

It recommended that the DOE develop and implement waste management plans subject to the regulations and licensing authority of the Nuclear Regulatory Commission. The report makes no mention of the proposal put forward recently by the "Keystone group" (an ad hoc nuclear waste discussion group made up of environmentalists, academicians, and industry people) to have the President's science adviser serve temporarily as the top policy-maker in this field (*Science*, 6 October).

A policy issue considered inconclusively by the IRG was whether all new post-reprocessing facilities to be built by the DOE for high level military wastes should be licensed by the NRC. These facilities would include vitrification and encapsulation plants and tanks for the temporary storage of HLW. Although the congressional armed services committees are resisting proposals to extend NRC licensing to new defense waste facilities, some IRG member agencies (such as the Council on Environmental Quality) felt that all such facilities should be licensed. Final repositories for HLW must be licensed even under existing law.

The IRG report and that of its subgroup encompass such a wide range of technical and policy issues related to both commercial nuclear power and military wastes that only the highlights are summarized here. But some of the incidental findings, such as the one holding that whether spent fuel is reprocessed or not is not a question "fundamentally related" to safe waste disposal, are also weighty in their implications for waste management in the United States and abroad.—LUTHER J. CARTER

RECENT DEATHS

Geary F. Eppley, 82; former professor of agronomy, University of Maryland; 17 June.

N. B. Everett, 62; former chairman of biological structure, University of Washington School of Medicine; 23 May.

Roxana S. Ferris, 83; curator emerita, Dudley Herbarium, Stanford University; 30 June.

Rudolf Grah, 62; professor of forestry and conservation, University of California, Berkeley; 25 May.

Karl F. Herzfeld, 86; former chairman of physics, Catholic University; 3 June.

George H. M. Lawrence, 67; director emeritus, Hunt Institute for Botanical Documentation, Carnegie-Mellon University; 11 June.

K. Lucille McCluskey, 86; professor emeritus of chemistry, St. Xavier College; 16 June.

Walter R. Miles, 93; retired professor of psychology, Yale University; 15 May.

Glenn Murphy, 70; former chairman of nuclear engineering, Iowa State University; 2 April.

Wayne W. Panyan, 37; associate professor of engineering, University of Detroit; 9 June.

Robert Parent, 61; professor of electrical engineering, University of Wisconsin, Madison; 23 June.

Giuseppe Parravano, 60; professor of chemical engineering, University of Michigan; 1 April.

Thomas C. Poulter, 81; physicist and senior scientific adviser, Stanford Research Institute International; 14 June.

Emil Prout, 58; professor of metallurgical engineering, Cleveland State University; 11 June.

Dennis E. Pulestron, 38; associate professor of anthropology, University of Minnesota; 29 June.

Oscar K. Rice, 75; professor emeritus of chemistry, University of North Carolina, Chapel Hill; 7 May.

Lloyd L. Smith, Jr., 68; professor of entomology, University of Minnesota; 17 June.

Russell P. Smith, 80; former chairman of physics, Grove City College; 14 May.

Edmund M. Spieker, 83; professor emeritus of geology and mineralogy, Ohio State University; 6 March.

James T. Wilson, 63; geologist and seismologist and director, Institute of Science and Technology, University of Michigan; 25 May.

Edgar W. Woolard, 79; meteorologist and director, Nautical Almanac Office, U.S. Naval Observatory; 17 June.