

BOOK REVIEW

Selection of books for review is based on the editor's opinions regarding possible reader interest and on the availability of the book to the editor. Occasional selections may include books on topics somewhat peripheral to the subject matter ordinarily considered acceptable.



Nuclear Imperatives and Public Trust: Dealing with Radioactive Waste

<i>Author</i>	Luther J. Carter
<i>Publisher</i>	Resources for the Future, Inc. 1616 P Street, NW, Washington, D.C. 20036
<i>Pages</i>	475
<i>Price</i>	\$25.00
<i>Reviewer</i>	Raymond L. Murray

This book is said to have influenced legislation that pinpointed Yucca Mountain for the high-level waste (HLW) repository. The author gives a strong argument, based on time and money, for characterizing one site only.

Luther Carter has been an observer, student, and writer on the subject of waste disposal for many years. He has frequently contributed articles on wastes to the magazine *Science*. As he notes in his preface, the book is based on extensive interviewing in person and by telephone. It took more than 6 years to write and rewrite.

This reviewer regards the book as very worthwhile reading for anyone in the nuclear field or interested in radioactive waste disposal, but finds the book to be excessively critical of U.S. waste disposal efforts.

Part 1 starts with an overview of the general problem of waste disposal, then goes back into the history of reactor development, reprocessing, and waste disposal under the U.S. Atomic Energy Commission. Descriptions of problems at Hanford, West Valley, Morris, Lyons (Kansas), and Barnwell are given. The rise of the antinuclear movement is reviewed, with special attention to the situation in California. The controversy about reprocessing and plutonium is aired, and the International Fuel Cycle Evaluation (INFCE) is described.

Part 2 covers the U.S. Department of Energy's (DOE's) efforts to find a disposal site for HLW in various geologic media—salt, basalt, and tuff. Special emphasis is given to the negative public reactions everywhere. The history of the Waste Isolation Pilot Plant (WIPP) is detailed and the political maneuvers leading to the Nuclear Waste Policy Act of 1982 are revealed.

Part 3 is in the nature of a digression to depict the situations abroad with respect to nuclear power, reprocessing, and waste disposal. Special attention is given to leading nuclear countries—the United Kingdom, Federal Republic of Germany, France, Sweden, and Japan. Although interesting and important for a comprehensive global picture, the material is not directly relevant to the U.S. waste problem.

Part 4, entitled "A Time to Act," describes the selection of three sites in Texas (salt), Washington State (basalt), and Nevada (tuff). The decision of the DOE to suspend search for a site in crystalline rock in the East is discussed. The desirability of concentrating on Yucca Mountain in Nevada as the most promising site is based on perceived defects in the hydrogeological settings in the other locations, along with the expected billions of dollars cost of each site characterization. Carter emphasizes the urgent need for consensus among the many parties concerned and the importance of economical, safe, and secure disposal of plutonium-bearing materials.

The book is almost exclusively about the disposal of spent fuel and HLW from reprocessing. Low-level waste disposal is only briefly mentioned. Thus, the book does not reveal the full complexities of the technical-political waste problem, including the interaction that exists between high- and low-level disposal, at least in the minds of citizens.

The author is meticulous in crediting his sources, yet maintains a high level of reader interest in the unfolding scene. He is to be applauded for the wealth of information and the manner in which he makes otherwise dry details interesting.

Carter has, however, a tendency to give much weight to the views of critics of the waste disposal programs. Few of those responsible for the programs were consulted to obtain alternative explanations for events or trends. No doubt many mistakes have been made over the years. But Carter evidences no appreciation for the industrial and governmental leaders who surely tried hard to solve a difficult problem. Nor is credit given to those scientists and engineers whose research and development will be applied to successful disposal.

Commendations of the book on its dust jacket are revealing. The book is praised by Frank von Hippel, a dedicated opponent of nuclear power; Henry W. Kendall of the Union of Concerned Scientists; Philip H. Abelson of *Science*; Gus Speth, formerly of the Council on Environmental Quality; and surprisingly, Alvin Weinberg, nuclear power pioneer, administrator, and philosopher. He considers the book to be "must" reading, and this reviewer tends to agree. Weinberg's

laudatory comments surely must have been accompanied by a complaint about the highly negative tone of the book.

Carter's book epitomizes the modern trend for people who have no responsibility for action to criticize those who do. Unfortunately, nuclear critics are unwilling to admit anything good about the U.S. nuclear industry, choosing to ignore its excellent record of productivity and safety, even including Three Mile Island. Nuclear power is called a "failure," in spite of its contribution of nearly one-fifth of the nation's electricity. Critics are needed, but so too are advocates, who make the real improvements in this world.

Raymond L. Murray is professor emeritus of nuclear engineering at North Carolina State University, joining the faculty in 1950. He assisted in the development of the first nuclear engineering curriculum and the first university nuclear reactor. He is vice-chairman of the North Carolina Low-Level Radioactive Waste Management Authority and chairman of the Nuclear Energy Public Information Committee of the Triangle J Council of Governments. He currently provides reactor analysis related to criticality prevention in the Three Mile Island Unit 2 recovery program and lectures on radioactive waste management.