

Book reviews

Understanding Radioactive Waste

Raymond L. Murray, fifth edition; Battelle Press, Columbus, OH, 2003, 256 pages, soft cover, ISBN 1-57477-135-3, US\$ 12.95

Worldwide energy supply is one of society's major concerns. But how to supply needed energy to industrialized and industrializing countries is the question. Reserves of fossil fuels (coal, gas, and oil) are finite and their combustion yields polluting by-products. Environmentalists favor non-polluting energy sources such as wind or solar radiation, but these generating processes have limited capacity and currently relatively high cost.

Nuclear power production is attractive from a capacity standpoint as well as the minimal amount of polluting by-products. However, the by-product waste of nuclear energy is dangerous and long-lasting, and these properties cause great concern among the public. Unfortunately, much of the opposing rhetoric to utilization of nuclear power is designed to frighten the public while those who support nuclear power downplay the problems. Accompanying the problem is that the reports on the topic are generally written for sophisticated readers. Conversely, *Understanding Radioactive Waste*, however, is written in clear, concise, understandable non-technical language for the layman.

The press release accompanying the book says the following: "The author rejects exaggerated statements about the waste problem at both poles of the debate—assertions by proponents that it is merely a matter of politics, by opponents that technical solution is impossible." In this book, Dr. Murray

- "explains clearly the origin and nature of nuclear by-products;
- explains clearly the origin and nature of nuclear by-products;
- provides facts and figures about nuclear waste and the actions being planned on a national basis;
- provides perspective on the safety of waste isolation systems;
- distinguishes knowledge from opinion whenever possible, in an unbiased and candid manner."

In the first chapter, Dr. Murray notes that in his book he tries to answer questions the reader might have. I was tempted to reproduce the list of 22 questions he addressed, but in the interest of brevity have not done so other than to reproduce the first and last questions on his list. The first

question is "What is radioactivity?" and the last question is "Is the problem of nuclear waste disposal overemphasized compared with other national problems?"

The book is thoroughly up to date with a list of the world's nuclear power plants operating as of 31 December 2002. The United States leads nuclear power production with 99,000 operating kilowatts out of the world's total of 364,000. Discussed at length are, nuclear waste handling and disposal and the safety thereof. Also described are experiments that were undertaken to test the integrity of shipping containers in accidents. Disposal of low-level waste at the waste isolation pilot plant (WIPP) and the proposed high-level disposal site in Nevada are discussed.

New in this edition of the book are discussions of:

- transportation of spent fuel and other nuclear wastes;
- high-level radioactive waste regulations;
- licensing of the proposed repository at Yucca Mountain, Nevada;
- protecting nuclear facilities against terrorist attack.

My overall impressions of this book is that it is well written in very understandable language and clearly is an objective review of the topic by a distinguished scientist.

Gary F. Bennett

doi: 10.1016/j.jhazmat.2003.12.003

Environmental Impact Assessment: Practical Solutions to Recurrent Problems

David P. Lawrence; John Wiley & Sons, Inc., New York, NY, 2003, 575 pp., ISBN 0-471-45722-1, US\$ 99/95

Prior to reviewing this book, I thought of Environmental Impact Assessment in the narrow sense as outlined by the United States law that requires an evaluation of the impact of major construction on the environment. In this book, the author goes much further as illustrated by the material on the book's cover that says: "When a proposed action threatens the physical, biological, social, or economic environment, a thorough assessment is done and measures are identified to prevent and offset the adverse environmental impacts. This practice is called an Environmental Impact Assessment (EIA), which has regularly been treated, studied, and practiced as a singular process . . . until now."