

# BOOK REVIEWS

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.



## **Low Probability/High Consequence Risk Analysis—Issues, Methods and Case Studies**

*Editors* R. A. Waller and V. T. Covello  
*Publisher* Plenum Publishing Corporation (1984)  
*Pages* 571  
*Price* \$75.00  
*Reviewer* Gerald A. Schlapper

The accident at Chernobyl has again increased public concern regarding events that have a low probability of occurrence but pose a significant threat to public and private sectors of the environment. This concern has resulted in an increased emphasis on the need to anticipate, prevent, and/or reduce the risk of such events. The purpose of this volume is to focus on questions generic to the analysis of low-probability/high-performance consequence (LP/HC) risks in such areas as nuclear power plants, the chemical industry, and the transportation industry. Because these complex problems require cooperative efforts by specialists in many fields, the editors have included discussions by biologists, geneticists, statisticians, chemists, engineers, lawyers, sociologists, economists, philosophers, and others.

The 40 papers in this volume include at least one by authors in each of these areas of specialization and focus on questions related to the adequacy of our knowledge base, methods for estimating LP/HC risks to include the effects of uncertainty on decision making, the factors influencing individual perceptions of risk and the incorporation of these perceptions into public policy, considerations related to the balancing of needs and social justice, and criteria for comparing and evaluating different methods of risk analysis and management. Most engineers and scientists who read this volume will be surprised (and enlightened) by some of the statements made by the "nontechnical" contributors. Review of these papers provides those of us associated with the nuclear industry a better insight into why the public in general feels that the nuclear industry requires close observation and "tight" regulation.

The articles published in this volume were first presented at the *International Workshop on Low-Probability/High Consequence Risk Analysis*, which was jointly sponsored by the Society for Risk Analysis, the U.S. Nuclear Regulatory

Commission, the U.S. Department of Energy, and the U.S. Environmental Protection Agency. Although this conference was held June 15–17, 1982, and thus the papers do not address the recent event in the Soviet Union, review of the contents of this volume reveals that it remains timely.

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## **Reliability Engineering for Nuclear and Other High Technology Systems**

*Authors* A. Lakner and R. T. Anderson  
*Publisher* Elsevier Science Publishing Company, Inc. (1985)  
*Pages* 400  
*Price* \$82.50  
*Reviewer* Gerald A. Schlapper

This text presents an integrated system approach for reliability engineering to include the design, manufacture, procurement, installation, testing, and operational phases of the equipment life cycle. Numerous examples are used to illustrate the applicability of the techniques discussed to space, military, and other high-technology programs. The authors correctly emphasize throughout this publication the fact that reliability and safety must be treated as an integrated methodology.

The book is organized into six chapters, the first of which provides a general introduction to the field of system reliability analysis. A discussion of the theory and basic engineering foundations of system reliability follows. Chapter 3 emphasizes the need for cost-effectiveness and discusses the tailoring of a program to meet the needs of the organization.