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.

Earthquake Protection of Essential Building Equipment

Author Gary L. McGavin

Publisher John Wiley & Sons, Inc.
Somerset, New Jersey (1981)

Pages 464

Price $35.00

Reviewer George W. Housner

The author of this book was educated as a geologist (BA) and an architect (MA), and he is currently working in an architectural firm. The Preface states that the book will be found useful by design professionals such as architects and electrical, mechanical, plumbing, and structural engineers, as well as building owners, facility operators, equipment manufacturers, building departments, inspectors, and students. The treatment of the subject is at an introductory level and is not suitable for those responsible for the design of nuclear power plants. Chapter 1 consists of 15 pages of discussion about the nature of earthquakes; Chap. 2 contains 15 pages devoted to earthquake resistant design-basic principles. (Equation 2.6 needs correction and Eq. 2.10 needs an explanation that pounds, inches, and seconds are the units.) Chapter 3 (231 pages) and Chap. 4 (79 pages) form the main part of the book. Chapter 3 (essential facilities, qualification programs, systems, and equipment) contains photographs and discussions of a wide variety of equipment, etc., whose integrity during earthquakes might be of concern. Chapter 4, anchorage and installation details, contains many architect-type drawings of equipment showing how it might be supported and anchored, but no sizes are indicated. Appendix 1 (62 pages) discusses codes and specifications and their relation to seismic design of equipment. Appendix 2 (16 pages) lists many equipment manufacturers. Appendix 3 (24 pages) presents more detailed architectural drawings of equipment supports. The reviewer thinks that this book would be useful for architects, equipment manufacturers, and others who do not have technical training but who need to understand the nature of the problem.

George W. Housner is C. F. Braun Professor of Engineering at the California Institute of Technology. He is past-president of the Earthquake Engineering Research Institute, the Seismological Society of America, and the International Association for Earthquake Engineering, and is well known for his research in earthquake ground shaking and the behavior of structures.

Heat Transfer in Nuclear Reactor Safety

Editors S. George Bankoff and N. H. Afgan

Publisher Hemisphere Publishing Corporation
New York (1982)

Pages 964

Price $95.00

Reviewer Joel Weisman

This volume contains the 59 papers that were presented at the International Centre for Heat and Mass Transfer Seminar on Nuclear Reactor Heat Transfer. The proceedings of the conference, which took place in Dubrovnik, Yugoslavia, in September 1980, join a growing list of texts that present a series of loosely connected research papers on heat transfer, two-phase flow, reactor safety, etc., which one might normally expect to find in the journal literature. A review of such a volume therefore presents the same sort of problems one would encounter if asked to review a complete issue of *Nuclear Technology*.

Bankoff and Afgan have made an effort to present an up-to-date summary of the state of the art by inviting 11 papers on large-scale experiments and computational efforts from the several countries involved in this area of research. In addition, they were able to achieve substantial participation from representatives from China and of the Eastern bloc countries, including the Soviet Union. As a result, the present volume provides a more international perspective of current research than is generally seen.

The 11 invited papers are primarily general review papers covering such subjects as modeling of a small break loss-of-coolant accident, current Japanese reactor safety heat transfer research, liquid-metal fast breeder reactor (LMFBR) safety, and mathematical modeling. These papers present little that is completely new but do provide an interesting overall perspective on the areas discussed. The views of the Japanese and Soviet contributors are particularly noteworthy. However, the use of the Cyrillic alphabet by most of the Soviet authors for listing the Russian references limits the usefulness of their reviews.

The majority of the volume is devoted to light water reactor (LWR) safety heat transfer and related topics. Forty of the contributed papers fall into this category. Nearly all of these papers represent original contributions to the field. However, there are a few review papers, most notably that of Noailly on Framatome research in reactor thermal hydraulics. As may be expected, there is a wide range in the quality of the contributed papers.

Research applicable to other reactor types receives only limited attention. Seven papers on LMFBR studies are included and only one paper on gas-cooled reactors is presented. Obviously, the coverage on these areas cannot be considered comprehensive.

This volume will be a useful reference for those working with, or wishing to learn about, the thermohydraulic problems associated with LWR safety. While most individuals will probably not wish to add this text to their personal library, the book is certainly recommended for acquisition by the library of any organization or educational institution with programs in the nuclear area.

Dr. Weisman is professor of nuclear engineering at the University of Cincinnati. Prior to joining the university in 1968, Weisman spent 18 years in industry. His last industrial position was manager of thermal and hydraulic analysis for the Westinghouse PWR Division. Dr. Weisman is author of numerous papers on heat transfer and fluid flow subjects but is perhaps best known as the coauthor of the American Nuclear Society monograph Thermal Analysis of Pressurized Water Reactors, *2nd ed., 1979.*

Energy Reviews: Nuclear Power Systems—Vol. 1

Editor	L. A. Melentiev
Publisher	Harwood Academic Publishers (1982)
Pages	334
Price	$175.00
Reviewer	Emin Yilmaz

The book is part of *Soviet Technology Reviews, Section-A*. Articles in this volume are primarily written by power engineers working in branches of the USSR Academy of Sciences and Ministry of Energy. The book in general is a review of work done and planned to be done in the United Electrical Power System (UEPS) of the Soviet Union. Therefore a more appropriate title for the book would have been *Power Systems.* Material given in the book is very general and is applicable to all types of power plants. About 85% of the material is devoted to UEPS, whereas nuclear related material is less than ~3%. Although there are (a) several figures with no units, (b) several figures and tables not well formatted and hard to follow, (c) several sentences hard to understand or not understandable at all, (d) a lot of repetition throughout the book, (e) some disagreed information, and (f) some material not quite up to date, in general, the book is well written and easy to read and understand. The book contains valuable information for those who are interested in electrical power distribution systems and multipurpose power plants (mainly heat and electric production).

In Chap. 1 a brief outline of current trends in energy production in the Soviet Union is presented. Chapter 2 is mainly devoted to the UEPS of the Soviet Union. The present structure and characteristics of the system and operating conditions of the electrical power plants in the system are presented and discussed with respect to the initial planning, operations, and automatic control. A review of nontraditional energy sources and systems (mostly magnetohydrodynamic, geothermal, and solar) are given in Chap. 3. In Chap. 4, mathematical models for the development and operation of electrical power systems are discussed without going into details. Equations given are simplified and easy to understand. Several optimization techniques are given for the operation of UEPS. The last chapter is a review of district heating plants and centralized heating in the Soviet Union. Technical and economic foundations of district heating and centralized heat supply as well as the methods of studying thermal energy sources and heat networks are presented.

Emin Yilmaz is a visiting professor of nuclear engineering at the University of Oklahoma on leave from the Middle East Technical University, Ankara, Turkey. He obtained his PhD degree in nuclear engineering from the University of Michigan in 1974. His BS and MS degrees are from M.E.T.U. in mechanical engineering. When on leave, he spent four months at the construction of Karachi Nuclear Power Plant (1970), three months at IRALCO Aluminum Plant (1979), four months at the University of Illinois (1982), and about a year and a half at the University of Oklahoma. His main interests are in the areas of two-phase flow, nuclear reactor safety, and nuclear power systems.