

- Regulation of air contaminants is discussed. Included in the list of air contaminants are O<sub>3</sub>, NO<sub>x</sub>, VOCs, Pb, PM-10 and PM-2.5. (Not on the list, however, is SO<sub>2</sub>.)

The above criticism aside, I found the book well-written and generally complete in its coverage. If I were teaching a course to engineers or scientists, I would seriously consider adopting the text to illustrate environmental law to these students.

As a final comment, I note that Goldsteen has referred the reader to appropriate sections in the US Code.

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### **Wastewater and Biosolids Treatment Technologies: The Comprehensive Reference for Plant Managers and Operators**

Nicholas P. Cheremisinoff, ABS Consulting, Rockville, MD, 2003, 368 pp., US\$ 129.00, ISBN 0-86587-946-X

This book is a condensed reference guide to 36 different treatment technologies. The author notes that the book is “written from a technical engineering perspective, the technology descriptions. . . provide current and aspiring environmental professionals with chemical diagrams, advanced instruction, and detailed diagrams of technology equipment. Each description also includes the general background for the technology, procedures, advantages, disadvantages, health hazards, applications, applicable laws and regulations, design considerations, equipment options, and operations for each. In addition, each description ends with a list of resources for additional information.”

Some sections are much longer than others, especially in relation to their relative importance in the field.

Unfortunately, the information provided in this book is very limited. Moreover, the references are in many cases, dated and spotty. Some references seem to be totally unrelated to the section in which they are cited. For example, the chapter on nitrification contains references to activated carbon adsorption and biofiltration for air pollution control. Their relevance to the chapter is not evident. Another problem with the references is that they are simply listed at the end of the chapter and not cited in the text.

The author notes that “as a bonus feature, this book also includes a comprehensive glossary of more than 1100 terms used in wastewater and biosolids-sludge treatment operation.” The 65 pages used for this purpose, in my opinion, contribute nothing to the book.

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### **Principles of Radiological Health and Safety**

James E. Martin and Chul Lee, John Wiley & Sons Inc., Hoboken, NJ, 2003, US\$ 89.95, 539 pp., ISBN: 0-471-25429-0

This book was written by a professor and research associate at the University of Michigan, School of Public Health. These authors have been teaching a course on the basic principles

of radiological health and radiation protection. The book “. . . is intended as a resource text for safety personnel who are increasingly expected to serve as radiation safety officers and manage protection programs that include radioactive materials. Real-world problems and the resource data to solve them are thus presented in a manner that can be understood and applied without specializing in radiological sciences . . . .”

Each chapter is followed by problems for the students. Answers to selected problems are found in the Appendix.

The book begins with a review (Chapter 1) of the basic structure of the atom as an energy system . . . . The major discoveries in nuclear physics are revisited in Chapter 2 . . . . Radioactive transformation and the major sources of radiation are addressed in Chapters 3 and 4 with an emphasis on the special condition of radioactive transformation (or disintegration) of atoms with excess energy . . . .

Interactions of radiation with matter are covered in Chapter 5, along with the corollary subjects of radiation exposure and dose and the various parameters that are needed to calculate them. Radiation dose which has the potential to produce bioeffects is discussed in Chapter 6 along with radiation risk coefficients. Radiation shielding is described in Chapter 7 along with methods for calculating exposure and dose for several common sources and geometries. The remaining chapters are given as follows:

- measurement of radiation;
- internal radiation dosimetry;
- radiation protection standards;
- radiation protection programs;
- environmental radiological assessment;
- radon—a public health issue;
- radioactive wastes.

Personally, I was particularly interested in Chapter 10, entitled “Radiation Protection Standards,” as it discusses radiation at nuclear power plants and radioactive-material contaminated sites. I have had contact with both. Also discussed in the chapter are standards for radionuclides in both air and drinking water. Radon, which is of concern in Ohio where I reside, is briefly discussed in that chapter also. A fuller discussion of radon, its health effects, sources, measurement and control is found in Chapter 13, “Radon—A Public Health Issue.”

Taking a topic from air pollution control books, Martin and Lee discuss atmospheric dispersion modeling in Chapter 12, “Environmental Radiological Assessment.” All the normal equations and variables found in air pollution control texts are discussed to allow the student to calculate radiological exposure from emissions.

“Radiological Waste” is the title of the final chapter as might be expected. The determination of what to do with the radioactive materials discarded is discussed. Several designs for radioactive waste disposal facilities are shown. Unfortunately, the problem of public fear and opposition to radioactive disposal sites is not solved except to address the concept of using large government sites, such as Yucca Mountain.

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