

divided into two major sections: Logic framework (five chapters); Measurement (seven chapters).

In the summary, the editors wrote:

“Risk assessment is based on the principle that if sufficient information is known about a system and the various factors that affect it, then the probability of certain adverse events happening can be estimated with some degree of confidence. This principle is the foundation upon which the entire insurance industry is built, and it is the same principle that forms the basis for human and ecological risk assessment.

While relatively simple in concept, risk assessments can be difficult to carry out, particularly for complex systems where adequate information may not exist. This is frequently the case for ecological systems, which are usually characterized by many interacting species that vary over time and space, and which may be subject to multiple, competing risks at the same time.”

Indeed, risk assessment is complex, but the process, and especially the development of a scientific base, for it are well-described by the contributors to this book.

GARY F. BENNETT

PII: S0304-3894(99)00017-5

*Semiconductor Safety Handbook: Safety and Health in the Semiconductor Industry*,  
Richard A. Bolmen, Fr., Ed., Noyes Publications, Park Ridge, NJ, 1998, \$86.00,  
610 pp., ISBN: 0-8155-1418-2

Computers have revolutionized our way of life and given that “computer chips: are the essential component of computers,” it is not surprising that the industry that produces them has flourished—and so have its own, unique environmental health safety (EH&S) problems. Thus, this book, whose purpose is to “provide a current, single source reference for many of the primary semiconductor EH&S technologies and disciplines.” To this end, the editor solicited manuscripts from 17 experts.

It has the following 11 Chapters:

- Injury and Illness of Semiconductor Workers: Experience and Epidemiologic Studies
- Environmental Compliance in the Semiconductor Industry: Detection, Correction and Prevention
- Chemical Hazards in Semiconductor Operations
- Industrial Hygiene
- Electrical Hazards
- Radiation Safety
- Recognition, Evaluation and control of Some Plasma Processing Hazards
- Fire Protection Technology for Semiconductor Operations
- Building and Fire Codes Impacting the Semiconductor Industry
- Gases and Gas Equipment
- Toxic Gas Monitoring

Clearly, this is a narrow book with a single industry focus. As such, it will not have, I believe, a major number of sales. It will, however, be a 'must' for those in the field.

GARY F. BENNETT

PII: S0304-3894(99)00018-7

*Groundwater Remediation and Treatment Technologies*, N.P. Cheremisinoff, Noyes Publications, Park Ridge, NJ, 1998, US\$68.00, 395 pp., ISBN: 0-8155-1411-5

The intended audience of the book is practicing engineers who deal with groundwater and leachate remediation. Much of the information in the book came from U.S. EPA publications as evidenced by the author's reproduction of U.S. EPA fact sheets in the 40-page first appendix.

The book begins with a primer on geology (a topic that has not normally been discussed in other books on engineering). Cheremisinoff's *Principles of Geology* is followed by two companion chapters: *Relationship Between Groundwater and Surface Water* and *Principles of Hydrogeology*.

Having established background (the fundamentals of the medium contaminated), the author moves to the topic at hand: *Groundwater Contamination*. Described are sources, probable causes and movement (migration).

Solving the contaminant problem begins in Chapter 5: *Groundwater Restoration Through In-Situ and Ex-Situ Practices*. I was disappointed in the references used as none was less than 8 years old and the average publication date was 14 years ago.

Subsequent chapters are entitled:

- Pump-and-Treat Remediation Technology
- Treating Contaminated Groundwater and Leachate

In addition to the EPA fact (process description) sheets, the appendix contains (1) water solubility, vapor pressure, Henry's Law Constant,  $K_{oc}$  and  $K_{ow}$  data (for more than 400 chemicals), (2) viscosity and density data and (3) short site-specific summaries of pump-and-treat application.

GARY F. BENNETT

PII: S0304-3894(99)00019-9

*Fundamentals of Environmental Engineering*, Danny D. Reible, Lewis Publishers, Boca Raton, FL, 1999, \$69.95, 526 pp., ISBN: 0-56670-047-7

*Fundamentals of Environmental Engineering* is the third book to have been written recently by a faculty member of the Department of Chemical Engineering of Louisiana State University (LSU). All three published books are excellent.

The first book from this group was *Environmental Chemodynamics* by L.J. Thibodeaux (now in its second edition). The second book was *Elements of Environmental Engineering: Thermodynamics and Kinetics* by K.T. Valsaraj (reviewed previously in this journal).

The unique aspect of Reible's book is that it was written for chemical (environmental) engineering students. In a field dominated by civil engineers, it is a pleasure for this