

of bioremediation and natural attenuation". My assessment of these chapters is that they are a most excellent review of the topic and are a very good review of the state of current technology.

In contrast to the preceding chapters, these two chapters on bioremediation are short on mathematics but long on discussion being well illustrated with diagrams of treatment systems and presentation of real-life case studies. Prominent in the Reference section are citations of the excellent proceedings published by Battelle Press for their international conferences on in situ and on-site bio-reclamation symposiums (these conferences were held every second year from 1991 to 1999).

In conclusion, my assessment is that this is an excellent book. The topic is important; both theory and state-of-the-art are well discussed and well described. I agree with the statement on the back cover of the book which says: "This book provides, under one cover, the current methodologies needed by groundwater scientists and engineers in their efforts to evaluate subsurface contamination problems, to estimate risk to human health and ecosystems through mathematical models, and to design and formulate appropriate remediation strategies".

Gary F. Bennett*

*Department of Chemical and Environmental Engineering,
University of Toledo, Mail Stop 305, Toledo,
OH 43606-3390, United States*

*Tel.: +1 419 531 1322; fax: +1 419 530 8086.

E-mail address: gbenett@eng.utoledo.edu

10 January 2006

Available online 28 February 2006

doi: 10.1016/j.jhazmat.2006.01.072

Hazardous Materials Characterization: Evaluation Methods, Procedures, and Considerations, D.A. Shafer, Wiley-Interscience, Hoboken, NJ (2006). (378 pp., US\$ 74.95, ISBN 0-471-46257-8).

Hazardous materials are ubiquitous substances found in almost every work place. Knowledge of their potential hazards is essential. This book, to some extent, supplies that knowledge. However, as a text, it adds very little to the body of literature on hazardous materials that I am familiar with as most of the book is a discussion that is relatively simplistic (although in the author's defense, the material he supplies is probably relatively useful to the non-safety professional). The book appears to have been written for lower level supervisors, i.e., those in industry who do not have a scientific background. Indeed, I found the writing clear. Missing, however, (for one who has been involved with many research papers on hazardous materials published in this journal and elsewhere) were references to the literature. Indeed, the one extensive reference was a list of hazardous chemicals with their CAS Numbers. That list was 17 pages long but really supplies the reader with little information.

Chapter 4, entitled "Hazards Characterization and Site Evaluation," contains five excellent checklists:

1. Environmental Health and Safety (Hazardous/regulated materials, Hazardous/regulated wastes, Wastewater, and Air, and Environmental reporting);
2. Hazardous Materials Communication;
3. Respiratory Protection;
4. Confined Space Entry;
5. Ventilation.

In Chapter 9, the author does a decent job of describing the hazards of biological agents such as viruses, bacteria, fungi, and pathogenic parasites. Selected biohazards that were covered included anthrax, avian flu, blood borne pathogens, botulism, smallpox, and viral hemorrhagic fevers. He also included AIDs, which surprised me.

Other problems I found included the mention of a BLEVE which is a hazard resulting from fire impinging upon propane tanks. That certainly is a chemical hazard that deserves treatment, but unfortunately the amount of information given by the author was, in my opinion, inadequate. There were several pictures in the book, but almost all were limited to examples of responders in protective gear.

The book "breaks some new ground" in the final two chapters entitled: (1) Disaster site work and (2) Characterization of CBRNE terrorist threats and weapons of mass destruction (WMD). Given the impact on the health of responders to the September 11 terrorist attack in New York City and the subsequent world-wide concern for terrorism-caused incidents, these two chapters are extremely important. The author is to be commended for their inclusion.

The book ends with a complete 17-page glossary.

Gary F. Bennett*

*University of Toledo, Department of Chemical and
Environment Engineering, Mail Stop 305, Toledo,
OH 43606-3390, United States*

*Tel.: +1 419 531 1322; fax: +1 419 530 8086.

E-mail address: gbenett@eng.utoledo.edu

17 January 2006

Available online 28 February 2006

doi: 10.1016/j.jhazmat.2006.01.073

L. Theodore, Nanotechnology: Basic Calculations for Engineers and Scientists, Wiley/Interscience, Hoboken, NJ, 2006 (US\$ 82.50, 479 pages, ISBN 0-471-73951-0).

A citation from microbiology I recall notes "... the role of the infinitely small is infinitely large." What is true for microbes is also true for particles—nanoparticles. Nanotechnology is a rapidly developing field and the topic of a second book that