

propellents and explosives, rubber goods, polymers, plastic fluffs, metal-containing solutions, soils, sludges and sediment, foundry sand, ashes, batteries and mercury-containing compounds.

Chapter 2 starts the recycling discussion by using two tables to illustrate recycling technology options and two summary tables to help the user quickly identify candidates for recycling and technologies for waste material, i.e., liquid organic solvents could be treated by the following applicable recycling technologies:

- distillation (3.1)
- energy recovery (3.2 and 3.3)
- decanting (3.4).

The number following the technology refers the reader to the next chapter (3) and section (1, 2, etc.) where the technology is discussed.

The second table of the chapter reverses the order (of the first chapter) and presents the technology first (i.e., distillation) and then records the contaminants in columns (it is useful for media, end-use and limitations). There are 37 discussed technologies and 137 cited references.

Chapter 4 discusses the need for product quality specifications for petroleum refining, organic chemistry, metals for reuse, hydrometallurgical processing, etc.

Chapter 5 is perhaps the most useful (for me, at least). It was a most interesting discussion of eight successful case studies of examples of commercial recycling of complex waste materials. The studies were:

- Use of spent abrasive blasting media as aggregate in asphalt.
- Use of spent abrasive blasting media as a raw material for Portland cement making.
- Physical separation to recover lead particulate from soils at small-arms practice ranges.
- Processing lead-containing wastes from Superfund sites in a secondary smelter.
- A treatment train for recovery of petroleum from an oily sludge.
- Solvent recovery using small onsite distillation units.
- Thermal desorption to clean soil for reuse.
- Pumping to recover coal tar liquids.

Each case study includes sections on site and waste description, technology description, recycling benefits, economic characteristics, and limitations.

G. F. BENNETT

Environmental Law Handbook, 13th edition, by Thomas F.P. Sullivan (Ed.), Government Institutes, Inc., Rockville, MD, 1995, 538 pp., \$79, ISBN: 0-86587-450-6

Recently, an attorney told me that the U.S. Environmental Law encompasses more pages in the Code of Federal Regulations than the tax regulations. Given the pervasiveness and complexity of the U.S. tax code, this is a sobering thought. Given also that one can be fined extremely heavily or even be imprisoned for

violation of federal regulations, knowledge of environmental law becomes very, very important.

As I have stated in previous reviews of the Government Institute's *Environmental Law Handbook*, it is a key resource I have used in attempting to keep current with the ever-changing (should I say ever-expanding) U.S. environmental law.

Thus, the 13th edition comes 22 years after the appearance of the first edition, and is written by 15 experts (the aforementioned attorney and I agreed that it is impossible for any one person to keep up with the details of all aspects of environmental law and/or technology). However, the goal of the *Environmental Law Handbook* "... has remained constant through all its editions: to give its users reliable, accurate and practical compliance information from some of the most respected people in the fields in each subject area – all presented in a clear, concise manual, with a minimum of legal jargon." In this reviewer's opinion, the goal has been reached again, as it has in previous editions of this most useful handbook.

As in previous editions, this one begins with a chapter on the "Fundamentals of Environmental Law" to provide the (non-legal) reader with a foundation for understanding the basics of law. Terms like torts, nuisance, trespass and strict liability are discussed. The brief (43 pp.) but very useful introduction ends with the following admonition (which better my discussion above of the need for knowledge of environmental law):

"The need for a working understanding of the environmental law system is probably more crucial now than it ever has been. Our actions and inactions, what we know and – perhaps most importantly – what we ought to know, can have dramatic effects on the financial well-being of organizations as well as the financial and personal futures of the individuals who work for them. Failure to know is no excuse. Under the legal theory of constructive knowledge, for those involved in the environmental field, knowledge may be presumed.

Knowledge of and strict adherence to the mandates of the environmental laws is not a luxury for companies and organizations. Financial viability and profitability – the bottom line for businesses – and personal freedom – the bottom line for individuals – may rest on this knowledge and how we use it. I hope this handbook will be helpful in that connection and that you aggressively seek more information and learning in the future."

Each major (U.S.) environmental health and safety law and issue is covered in an individual chapter. The chapter titles are:

1. Fundamentals of Environmental Law
2. Resource Conservation and Recovery Act
3. Underground Storage Tanks
4. Clean Air Act
5. Clean Water Act
6. Oil Pollution Act
7. Safe Drinking Water Act
8. Comprehensive Environmental Response, Compensation and Liability Act
9. Emergency Planning and Community Right-To-Know Act
10. National Environmental Policy Act

11. Federal Facility Compliance Act
12. Toxic Substances Control Act
13. Pesticides
14. Pollution Prevention Act
15. Occupational Safety and Health Act
16. Liabilities and Enforcement

To assist readers, a comprehensive table of contents and index are provided.

GARY F. BENNETT

Environmental Oxidants, by J.O. Nraigu and M.S. Simmons (Eds.), Wiley, New York, NY, \$100.00, 1994, 630 pp., ISBN: 0-471-57928-9

This book provides a broad overview of the environmental chemistry and toxicology of oxidants and their role in pollution/pollution control. The topics covered include the evolution, production, distribution and fate of oxidants in the atmosphere, hydrosphere and biosphere; the influence of human activities on oxidative processes in the atmosphere; oxidative stress at the cellular, systemic and ecosystem levels; and the use of oxidants in wastewater treatment processes.

The book has 20 separate chapters of approximately equal length (30 pp. each) covering (as noted above) a wide variety of topics.

I was particularly interested in the two chapters near the end since I am cognizant of the literature in those two areas:

- (1) Use of ozone and other strong oxidants for hazardous waste management
- (2) The selective catalytic reduction of NO_x emissions from utility boilers.

Both chapters were well-done, but due to space limitations shorter (and less complete) than I would have liked.

Other chapters discuss:

- (1) Photosynthetic oxygen evolution
- (2) Oxidants in the unpolluted marine atmosphere
- (3) Ozone formation in urban plumes
- (4) The impact of dynamics and transport on stratospheric ozone and other constituents
- (5) Health effects and toxicology of ozone and nitrogen dioxide
- (6) Some hematological effects of oxidants.

GARY F. BENNETT

Remediation of Hazardous Waste Contaminated Soils, by D.L. Wise and D.J. Trantolo (Eds.), Marcel Dekker, Inc. New York, NY, 1994, \$195.00, 952 pp., ISBN: 0-8247-9160-6

This book is the eighth volume of Marcel Dekker's Environmental Science and Pollution Control Series. It contains 36 diverse chapters written by over 70 contributors on a wide variety of timely remediation topics.