whether still another review is warranted. Nevertheless, without question, still another review of pesticides, in this instance a restatement of what is well known about carbamates and organophosphates, is surely not warranted. What is needed, possibly, is a thorough review of either new classes of pesticides, or which there are some, or an approach to pesticide biodegradation that has not been discussed ad nauseam in countless other reviews.

Remediation applies to remedies. It deals with the seeking of ways of controlling problems or the applications of actions to cure a problem. Many competent researchers confuse remediation with pontification. In instances in which there is a large body of literature, it is worth bearing in mind Voltaire's ultimate comment in Candide, "It is well said, but let us cultivate our gardens." Too many statements have been made, too many pontiffical pronouncements have been advanced, and too few well defined approaches have followed from these pious utterances.

Largely or entirely lacking in the book, one that presumably encompasses bioremediation, are the approaches, the literature, and the concepts of the engineer, soil scientist, environmental toxicologist, and hydrogeologist, all representing disciplines that are critical for an actual remediation. Little information is cited about successful bioremediations, and there have been many, nor are there citations of failures in bioremediation, of which there also have been, unfortunately, many. Lacking also are discussions of the actual field problems, the constraints on bioremediation as viewed by individuals familiar with the actual processes implemented under field conditions, the problems related to sorption and to nonaqueous-phase liquids, and the frequent inability of bioremediation to meet regulatory standards.

For the reader who wishes still another book on biodegradation and the microbiology or biochemistry of particular pathways for transformation of toxic and related compounds, this is a somewhat worthwhile compendium. However, the field of bioremediation needs not only a restatement of the microbiology, biochemistry, and genetics, but also definitive approaches to increasing the frequency of success, avoiding pitfalls, and minimizing the frequency of failures. — MARTIN ALEXANDER, Department of Soil, Crop, and Atmospheric Sciences, Cornell University, Ithaca, NY 14853.

**Auditing for Environmental Quality Leadership: Beyond Compliance to Environmental Excellence**


Environmental auditing used to be an exercise in compliance, that is, what was the minimum that needed to be done to satisfy current regulations. In today's business world, environmental auditing is an exercise in compliance as well as an exercise in achieving and maintaining the perception of being environmentally sound. The perception is important to customers and investors who will continue to deal with a company if their policies and practices are environmentally friendly and do not place the company at financial risk. Corporate environmental attitudes can be handled in accordance with total quality management principles or, as this book points out, total quality environmental management (TQEM) principles.

This book was sponsored by the Environmental Auditing Roundtable and presents topics related to defining, conducting, assessing, and improving environmental audits. It is a compilation of chapters written by leaders in the field of environmental auditing. The book has six sections and a total of 29 chapters and three appendices. The first section describes auditing for environmental excellence and ties in the role of management in obtaining environmental excellence. The second section describes several TQEM initiatives that are driving change. These include the Global Environmental Management Initiative Environmental Self-Assessment Program, the International Standards Organization (ISO) 9000 standard, the European Eco-label and Audit Scheme, American Society for Testing and Materials standards, and the developing ISO 14000 standard. The third section deals with how one assesses the success of auditing programs, and the fourth and fifth sections describe planning and conducting quality management audits, respectively. Included in these sections are rather specific details on desirable auditor qualifications and characteristics and on preparing audit reports. The final section deals with information technology and its role in the auditing process. Of the 29 chapters, only three are identified as case studies, although numerous real examples are used throughout the book. The first appendix is a reprint of the Federal Register announcement for the USEPA Environmental Leadership Program request for pilot project proposals. The final two appendices are documents providing an update of the pilot projects and an announcement for extending the deadline for submission of proposals along with a list of regional and state contacts.

Given that the book is a compilation of chapters authored separately and presents both factual information and opinion, it does not represent as clear and concise an approach to the topic as possible, and it generally does not go into a great level of detail. There is a small problem with redundancy, and a reader looking for a scientific presentation will be disappointed. A clear strength of the book is variety of approaches that are presented including several European examples and, as such, represents an excellent source of ideas. Overall, the book is a good synopsis of all aspects of environmental auditing and would be useful addition to the library of anyone interested in the topic. — GARY M. PIERZYNSKI, Department of Agronomy, Kansas State University, Manhattan, KS 66506-5501 (gpjii@ksu.edu).

**Recycling and Reuse of Industrial Wastes**

*Lawrence Smith, Jeffrey Means, and Edwin Barth, Battelle Press, 505 King Ave., Columbus, OH 43201. 1995. 102 p. $34.95. ISBN 0-935470-89-1.*

Recycling and reuse is a better way of handling wastes than depositing them in disposal sites. Technologies used for recycling vary greatly, however, depending on the waste materials involved and site characteristics. Often there are many technologies available from which to choose, so an individual must have an understanding of the principles and problems of the various technologies to make a wise choice. This handbook was prepared to outline specific technologies suitable for use in recycling and reuse of materials, and can be used for remediation of contaminated (Superfund) sites.

This handbook contains five chapters. All are written in a clear and direct style and are easy to read with little technical jargon. The second chapter consists of an extensive checklisting of waste types and applicable recycling technologies. This listing provides a quick check for identifying acceptable technologies for a given situation. In Chapter 3, which constitutes the bulk of the book, 37 of these technologies are discussed, from energy recovery to recycling transformers and ballasts. Discussion for each technology includes brief but pointed comments on usefulness, process description, process