

Land Disposal of Hazardous Waste: Engineering and Environmental Issues, edited by J.R. Gronow, A.M. Schofield and R.K. Jain, Ellis Horwood Publishers, Chichester, UK, 1988, ISBN 0-7458-0348-2, 311 pp., US \$39.50.

This book is the result of a workshop conducted in the fall of 1987 at the University of Cambridge to: (1) discuss major issues related to land disposal of hazardous toxic wastes and engineering, and environmental issues related to the disposal and (2) to assess emerging technologies and research efforts focusing on hazardous waste management. An invited group of scientists and engineers from both the United States and Europe gave presentations. These presentations were divided into five major areas:

1. Introduction to the Problem – 3 papers,
2. Monitoring of Pollution – 4 papers,
3. Risk Assessment and Modelling – 8 papers,
4. Remedial Action and Case Histories – 5 papers,
5. Design for the Future – 5 papers.

In addition to the prepared papers, rapporteurs have provided a 10-page introduction and summary of the discussion of each of the five sessions. The editors are to be commended for their efficiency in getting this book published within one year of the conference. Rapid publication was made possible by photo-reproduction of the manuscripts that led, unfortunately, but almost unavoidably, to some inconsistencies in the authors' use or (non-use) of headings, indexes (or non-indexes) of abstracts, reference style, etc.

The wide variety of papers make for interesting reading. They span the technology from problem definition through solution as revolutionary as the above ground containment. Perhaps, the strongest area of the book, not coincidentally the area with the largest number of papers, is the section on modelling and migration.

GARY F. BENNETT

How to Prevent Spills of Hazardous Substances, by W. Unterberg, K.S. Roos, R.W. Melvold and P.A. Scofield, Noyes Data Corp., Park Ridge, NJ, 1988, ISBN 0-8155-1177-9, 185 pp., US \$39.

Of all the areas of hazardous materials, I am most keenly interested in spill prevention. So, when I picked up this book, it was with real enthusiasm and with much expectation. Unfortunately, I was totally disappointed. There was little in the book of use and virtually nothing new. The first 80 pages were simply a list of 700 chemicals designated as hazardous substances by the Comprehensive Environmental Response Compensation and Liability Act (CER-

CLA). Data given included chemical class, CAS number, hazard and behavior in water.

What I thought would be the heart of the book: (1) facilities spill prevention, practices, and (2) preventive engineering practices was limited to approximately 20 pages. It was not that the right concepts are not covered within these 20 pages; it is just that those topics are not covered in enough detail. I wished for much more.

The book ends with a long (70 pages) appendix, describing fixed facilities, chemical process equipment components, such as pumps, valves, piping heat exchangers, etc. Just why the author included a description of commonly used process equipment is not clear to me at all. It is really a very common material.

In summary, a great title, but inside great disappointment with many unfulfilled expectations.

GARY F. BENNETT

Toxic Waste Minimization in The Printed Circuit Board Industry, by T. Nunno, S. Palmer, M. Arienti and M. Breton, Noyes Data Corp., Park Ridge, NJ, 1989, ISBN 0-8155-1183-3, 162 pp., US \$39.

In support of the mandates found in the 1984 Hazardous and Solid Waste Amendments (HWSA) to the Resource Conservation and Recovery Act, the U.S. Environmental Protection Agency is evaluating the future of landfilling of many hazardous waste streams. The potential treatment or detoxication of those streams that will be allowed to be landfilled is discussed as well as the potential for onsite waste minimization.

The book is the result of U.S. EPA's study (really a contractor's study) of the waste generation practices of the printed circuit board industry, a growth-oriented industry that ranks in the top 20 industries generating solvent wastes.

There are six case studies in the book of the two largest circuit board industry waste streams: (1) sludges from electroplating operations, and (2) spent halogenated solvents (CFCs) and still bottoms from the recovery of these solvents. Each case study used the results of analytical methods to evaluate the performance of each methodology and to measure process residuals and other discharges. Finally, an assessment of the economics of each technology is also given to assist the cost evaluation comparisons.

GARY F. BENNETT