

release. In the conclusion, the authors stress that technical competence must be combined with political knowledge and sensitivity to the needs of persons who are affected by the disaster.

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Human and Environmental Risks of Chlorinated Dioxins and Related Compounds, by Richard E. Tucker, Alvin L. Long, and Allan P. Gray (Eds.), Plenum Publishing Corp., New York and London, 1983, 823 pages, \$95.00.

This book records 56 papers and panel reports presented to an International Symposium on Chlorinated Dioxins and Related Compounds, held October 25–29, 1981 in Arlington, Virginia. Participants from 20 countries representing a wide spectrum of academic disciplines contributed to insuring a balanced “update” on these compounds. As more is known of the human and ecological effects, even at the very low (ppb and ppt) levels, this book will doubtlessly serve as a reference point to what was understood in 1981.

Nine major topics are covered by the papers and reports:

1. Definition of the Problem (5 papers)
2. Analytical Chemistry (6 papers)
3. Environmental Chemistry (8 papers)
4. Environmental Toxicology (6 papers)
5. Biochemistry and Metabolism (8 papers)
6. Animal Toxicology (3 papers)
7. Human Observations (5 papers)
8. Risk Assessment (5 papers)
9. Laboratory Safety and Waste Management (9 papers), plus seven panel reports.

As D.G. Barnes of USEPA noted in his paper, there is considerable confusion and misunderstanding in use of the term “dioxin”: while the 2,3,7,8-tetrachlorodibenzo-dioxin (TCDD) is a very serious candidate for concern, other substances in the family of dioxins do not possess the same degree of toxicity. For that reason, care must be exercised as to exact data and generalizations. No attempt was made to white-wash the potential problems: the Vietnam exposures to Agent Orange containing small amounts of dioxin (TCDD) and industrial exposures both in the United States and in Seveso, Italy are analyzed in terms of human and environmental impact.

The risk assessment section is especially interesting, since ultimately laws and regulations are evolved, hopefully with the best scientific judgment available. How this judgment evolves for toxic materials, such as TCDD, is enumerated in detail by L. Mark Wine, a lawyer. The importance of human data is stressed, even though the data may lack adequate dose–response data.

A decision-tree for estimating human risk from exposure to toxic chemicals was introduced to the Symposium, and the estimated doses of TCDD received by pesticide applicators and farmworkers are presented. Disposal methods are discussed in some detail.

This book contains much to recommend it to serious students.

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Reducing Hazardous Waste Generation: An Evaluation and a Call for Action, Committee on Institutional Considerations in Reducing the Generation of Hazardous Industrial Wastes, Environmental Studies Board, National Research Council, National Academy Press, Washington, D.C., 1985, 76 pages, \$4.95.

While much attention has been given to the clean-up of hazardous waste sites in the U.S., relatively little literature has appeared on the reduction of waste generation as a practical and cost-effective contribution to the problems of the future. This report, by a highly qualified committee, was asked to examine the public policy approaches that may lead industries to reduce generation of hazardous waste, and has outlined the measures which should advance that goal. It was noted that the development of industrial waste reduction programs is a dynamic process that can be expected to grow in three phases: first, consideration of opportunities for low-cost waste reduction opportunities, such as "good housekeeping" and separation of waste streams; second, the development phase by review and implementation of more comprehensive strategies; third, confronting the political, economic, and technical limits of waste reduction activities. Nontechnical considerations critical to waste reduction decisions vary in importance as waste management programs become more sophisticated (including dissemination of information, fostering of competition for novel means to reduce generation, public demonstration of existing methods, and assistance to waste exchanges).

The committee recommends it is essential to increase the cost of land disposal options, such as landfills and surface impoundments, to bring their costs more in line with the true social costs of such options; that waste reduction should not be viewed as an end itself, policies appropriate to the initial phase of waste reduction are now needed; and regulations must play a continuing role in the overall waste treatment policy, but nonregulatory means are currently most likely to lead to waste reduction.

This report should be of interest to industry, to academics, and to environmental groups who are concerned with the long-range fate of chemicals.

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