

Earlier volumes that appeared in 1990, 1991 and 1993 focussed on advances in hazardous waste management. This volume extends the coverage into complementary areas with new information and applications not previously emphasized. The 18 chapters in the book were selected (by peer review) from the 100 manuscripts submitted for review; the conference itself heard 242 presentations. Given that number, less than 10% of the papers given at the conference are published – a very highly selective process.

This book contains papers in three major areas:

- Remedial Technologies for Soils and Sediments
 - vapor extraction
 - electrokinetic remediation
 - bioavailability and biodegradation of phenols and alkylphenols
 - mobilization of metals (Bi, Cd, Pb, Th, and U) ions
- Waste Minimization and Management Technologies
 - artificial intelligence
 - crystallization of pulp mill effluents
 - microemulsion liquid membrane mercury extraction
 - gas vapor biofiltration
 - low SO₂-emitting fuel production
 - organo-oxide sorption of aqueous-borne nonionic organics
 - electron-beam irradiation of TCE
 - Fenton's reagent enhanced PCB biodegradation
 - s-triazine pesticide oxidation
- Radioactive and Mixed-Waste Management
 - cyclic releases at Hanford
 - mechanistic thermal chemistry studies of Hanford wastes
 - rate of hydrolysis of phenylboronic acid
 - sulfur polymer cementation of radioactive wastes.

GARY F. BENNETT

Fluid Mechanics for Industrial Safety and Environmental Protection, T.K. Flannelop, Elsevier, Amsterdam, 1994, Dfl 425.00, US \$242.75, 546 pp., ISBN: 0-444-89863-8

This book focusses on the applications of the principles of fluid mechanics to the twin fields of environmental protection and industrial safety. The material is logically organized if an accident happens, chain-of-events sequence starting with the loss-of-containment of a hazardous fluid going on to the spreading and mixing processes in water and air, and ending with the damage caused by explosion, fire or toxic chemical release.

The emphasis is on analytical methods that will be useful for students of fluid mechanics interested in mathematical applications outside the traditional engineering field. Given the material in the book has been used by the author in teaching his

course in fluid mechanics, I am sure the text will be adopted by many faculty members who will find very useful problems they can assign at the end of each chapter.

The book has 18 well-written (and very well mathematically documented) chapters as follows:

- The role of fluid mechanics in safety and environmental protection
- Properties and phenomena characterizing nonhomogeneous flows
- Steady and quasi-steady outflow due to gravity
- Unsteady outflow driven by gravity
- Outflow from pressurized containers and pipelines
- Liquid spills on the ground – spreading and evaporation
- Liquid spills on water – the problem of oil pollution
- Unsteady diffusion from a finite volume
- Passive dispersion from steady sources in a turbulent environment
- Steady and unsteady buoyant releases in the atmosphere
- Jets and plumes in crossflow
- Gravity-driven flows with large changes in buoyancy
- Heavy-gas dispersion in the laboratory and in the atmosphere
- The effects of plume-surface interactions
- Fire, combustion processes and combustion waves
- Explosions and pressure waves
- Theoretical solutions for strong explosions
- Damage criteria and damage assessment.

GARY F. BENNETT

Case Reopened: Reassessing Refillable Bottles, D. Saphire, Inform, New York, NY, 1994, \$25.00, 366 pp., ISBN: 0-918780-62-4

The advertising brochure for this book presents a startling statistic:

“US residents emptied 120 billion beer and soft drink containers in 1990: 95% of them went into the waste stream—more than 5% of the total waste handled in the United States that year.” [But Table 1-1 p. 2, shows only 4.0% and Table 1-3 p. 4 shows 5.5% in 1990.]

Inform’s corporate goal is waste reduction. Hence, promotion of refillable bottle reuse promotes that goal. But “is refilling better than recycling” the author asks rhetorically in the preface.

Today only 5–7% of the containers for beer and soft drinks are refillable. In this report, Inform concludes that refilling can be beneficial, moving the country towards a more sustainable society. Inform calculates that under a scenario in which the 1990 market share of aluminum cans remained constant and all glass and polyethylene terephthalate (PET) bottles were refilled and reused 25–35 times, the weight of beer and soft drink container waste would be reduced by 73.0% from 1990 levels. [A personal comment: Why does an author give three-figure accuracy to his/her results, i.e., 73.0%, when the calculations are based on only one figure accuracy, i.e., 7% or a range, i.e., 25 to 35%?]