

Gas, Dust and Hybrid Explosions (Fundamental Studies in Engineering Vol. 5), by W.E. Baker and M.J. Tang, Elsevier, Amsterdam, 1991, ISBN 0-444-88150-6, xx + 256 pp., Dfl. 185.00.

The first author of the text, W.E. Baker, was a distinguished scholar in the area of the science of explosions and a member of the editorial advisory board. Unfortunately, he passed away as this book was being published. His demise was a great loss to this *Journal*, as well as to the field of explosion science.

The authors' goal in writing the book was an attempt to gather and present the available material for explosions in air of the "non-ideal" explosion sources most often encountered in industrial accidents. With this purpose they discussed both theoretical and experimental approaches to these classes of explosions with rather complete descriptions of the physical processes known or believed to occur. Types of explosion sources discussed include: Dust explosions, (including grain elevator explosions), reactor gas explosions (including unconfined vapor cloud explosions), hybrid explosions (such as may occur when combustible dusts and gases are mixed with air in strong, vented or unvented enclosures and then are ignited), non-reactive gas and flash evaporating fluid explosions (often referred to as a single pressure burst), and finally liquid propellant explosion.

Each chapter follows the general form when the authors discuss fundamentals (theory) scaling (or scale-up), testing methods, and control methods.

This reviewer is clearly not an expert in the field of explosion science. But Baker was and this most excellent book is a testimony to his expertise.

GARY F. BENNETT

Surface Impoundments: Design, Construction and Operation, by R.P. Hartley, Noyes Data Corp., Park Ridge, NJ, 1992, ISBN 0-8155-1302-X, 183 pp., \$45.00.

This book was produced by the author, a member of the consulting firm of P.E.I. Associates, for the U.S. Environmental Protection Agency. The goal of the book is to provide "up-to-date" information on the design, construction, and operation of surface impoundments used for the treatment, storage, or disposal of hazardous and non-hazardous wastes.

The topic is an important one as in a 1983 study; the U.S. EPA identifies over 180,000 surface impoundments. The concern of course is their potential impact on groundwater quality if they leak. Leak prevention is the key to their safe operation and that is accomplished by preservation of the integrity of their hydraulic barriers: Polymeric membranes and low permeability soil. To this end, the Resource Conservation and Recovery Act's "minimum technology requirements" specify double-lined structures with a leak collection and removal layer.

To assist engineers in complying with these requirements, the book has the following chapters:

- Pre-design requirements
- Design requirements
- Construction requirements
- Operation, maintenance, and monitoring
- Contingency planning
- Closure and post-closure care

An excellent (extensive) bibliography is provided.

GARY F. BENNETT

Organization for Hazardous Materials Emergencies: (1) Hazard Analysis, (2) The Emergency Plan, and (3) Exercises, Three videotapes: 28, 22 and 29 minutes long, respectively; Emergency Film Group, Plymouth, MA, 1992, VHS; \$265/tape; \$645/set of three tapes.

Title III of SARA (the Superfund Amendments and Reauthorization Act) passed by the U.S. Congress in 1986 requires planning and training for hazardous materials emergencies. Guided by a State Emergency Response Committee, planning is undertaken at the local level by Local Emergency Planning Committees (LEPC). In the state of Ohio, this local planning occurs at the County level — and this reviewer co-chairs his county LEPC. This excellent set of videotapes, *Organization for Hazardous Materials Emergencies*, is designed to assist the LEPCs and the chemical plants in their communities in meeting the requests of SARA. My impression is that the tapes do that very well, although they describe, in my opinion, a somewhat idealistic process, beginning with the first tape, *Hazard Analysis*. In this tape, the commentator explains what Hazard Analysis is and how to conduct one. The commentator uses case studies to teach hazard identification vulnerability analysis and probability analysis, stressing the difference between hazard and risk. As reading (supplemental) material the tape is accompanied by FEMA/DOT/U.S. EPA's book, *Handbook of Chemical Analyses Procedures*. The goal is for community planners to identify the hazard potential of chemical/industries.

Part two, *The Emergency Plan*, outlines the responsibility of companies, response personnel, and community groups within the framework of the emergency plan. This videotape outlines five steps: (1) reviewing existing plans, (2) conducting hazards analysis, (3) assessing response capabilities, (4) developing the plan, and (5) testing, revising, and monitoring the plan. The tape is accompanied by the National Response Team's *Hazardous Materials Emergency Plan Guide*.

The final (and for me the most useful tape, probably because I am so devoid of experience in that area) is entitled *Exercises*. It is designed to help communities and industries carry out comprehensive exercise programs to test and evaluate