

the plan. To me, this is the key to the whole emergency planning process. How to design tabletop, functional and field exercises is discussed. Covered too, are the tasks of writing the emergency test scenario. The control plan, dealing with the media and the neighborhood, assessing the effectiveness of the team, finding support from governments and private agencies and followup activities are all thoroughly discussed. The tape is accompanied by two federally written publications:

- *Developing a Hazardous Materials Exercise Program*, put out by the Material Response Team
- *Hazardous Material Exercise Evaluation Methodology Manual*, put out by FEMA.

I strongly recommend the tape to all those involved in community emergency planning. One may not (probably will not) follow all their suggestions, but one cannot avoid being helped by them. They neatly review the process of emergency planning and gives many helpful tips to accomplish it.

GARY F. BENNETT

Mobility and Degradation of Organic Contaminants in Subsurface Environments, by Warren J. Lyman, Patrick J. Reidy, and Benjamin Levy, C.K. Smoley, Inc., Lewis Publishers, 121 South Main Street, Chelsea, MI 48118, 1992, ISBN 0-87371-800-3, 367 pp., plus index, \$59.95.

This book provides a relatively complete summary of the current understanding of how organic contaminants move and transform in the environment. The book is an outgrowth of work by Camp Dresser & McKee, Inc. performed under a U.S. Environmental Protection Agency contract focussed on control of leakage from underground storage tanks (USTs). As such, it focusses on petroleum products with data and examples restricted to gasoline and constituent chemicals found in gasoline. However, the phenomena described and the equations provided for calculating fate and transport can be applied to most low density organic contaminants given the required input data. The book begins with a description of the thirteen different locations or states in which a low density organic contaminant can be found in the subsurface environment: (1) vapor within unsaturated zone soil gas; (2) liquid film on “water-dry” soil particles; (3) dissolved chemical in the water film around soil particles in the unsaturated zone; (4) chemical sorbed onto “water-wet” solids (saturated or unsaturated zone); (5) liquid between particles in the saturated zone; (6) liquid between particles in the unsaturated zone; (7) liquid floating on the water table; (8) dissolved chemical in saturated zone ground-water; (9) chemical adsorbed onto colloidal particles in soil water (saturated and unsaturated zone); (10) chemical diffused into solid particles (either zone); (11) chemical sorbed onto microbiota (either zone); (12) dissolved chemical in

mobile pore water in the unsaturated zone; and (13) liquid in rock fractures (either zone).

The remainder of the book consists of a chapter addressing each of the thirteen locations/states. The chapters are developed around a set format beginning with a description of the subject locations/state and a discussion of the fate and transport phenomena that will determine the effectiveness of remediation. Equations are provided to numerically describe phase transfer and transformation processes. Tables are included providing the input data for gasoline chemical constituents to be used in the equations. Means of estimating the average and maximum storage capacity in the location are presented along with example calculations. The chapters conclude with a summary of the relative importance of the location/state to overall remediation. In addition to being a good text on fate and transport mechanisms, the book is an excellent reference on the properties of common gasoline constituents. I recommend the book to anyone who deals with the fate, transport and/or remediation of gasoline releases.

GAYNOR DAWSON

Bioremediation of Hazardous Wastes, by Office of Research and Development, U.S. Environmental Protection Agency, Washington, D.C., Report No. EPA/600R-92/126, August 1992, 119 pp. (No price/no ISBN.)

This short book contains synopses of papers presented at the U.S. EPA's Fifth Annual Symposium on Bioremediation of Hazardous Wastes. The symposium was held in Chicago, Illinois in May 1992. Presented were 28 papers and 9 poster exhibitions, reporting on recent U.S. EPA bioremediation research program achievements and results of research projects aimed at bringing bioremediation into widespread use.

The proceedings are comprised of an executive summary, an introduction and then brief summaries of the papers and poster presentation categories as follows:

1. Site Characterization (4 entries): The four papers discuss research on petroleum spill cleanup, the efficiency of *Pseudomonas* bacteria to remediate chemical contamination, and on constraints to the proposed use of methane-oxidizing bacteria for a TCE plume.
2. Bioremediation Field Introduction (10 entries): The eight papers and two poster exhibits covered the field evaluations underway at sites utilizing bioventing, biochemical techniques, and bioremediation under a variety of aerobic and anaerobic conditions.
3. Performance Evaluation (4 articles): The topic deals with the development of bioremediation approaches that protect public health. The four papers presented discuss the risks related to bioremediation and potential genotoxicity.