

considerations and decontamination procedures for sampling equipment. The book concludes with an extensive glossary.

I strongly recommend this book to anyone actively involved in ground-water monitoring. It will serve both as a text book for newcomers and a reference for experienced professionals. The heavy emphasis on quantitative aspects and comprehensive nature of the offerings are a welcome addition to the current literature and a good counterpoint to books written on specific programmatic themes such as site restoration or waste disposal. This book should have an excellent shelf life.

GAYNOR DAWSON

*Standard Handbook for Solid and Hazardous Waste Facility Assessments*, by Martin N. Sara, Lewis Publishers, 1994, 925 pp., US\$ 89.95, ISBN 0-87371-318-4

This book is one of the first true handbooks available on the techniques and technology applied to conduct assessments of contaminated sites and sites at which new facilities may be constructed. The assessments addressed here are site characterization studies as opposed to compliance assessments. As such, the technologies discussed include sampling and analysis, geophysical surveys, aquifer testing and other means of describing the chemical and physical site characteristics that affect the fate and transport of chemicals in the environment. The text provides detailed diagrams and descriptions of the various methods available for characterization as well as comparative information to assist in the selection of the best approach for a given situation.

The chapters are organized to flow in the order that activities are typically undertaken during an assessment. After a brief introduction, the text moves right into a description of different elements of site assessments such as site reconnaissance, the preliminary conceptual model, the Phase I report, greenfield siting, monitoring system evaluations, and environmental audits and property acquisition reviews. Under Phase II surficial field investigations, the narrative covers the technical aspects of topographic mapping, soils classification, geologic mapping, geophysical surveys, hydrology, land use mapping, field ecology surveys, historic and archaeologic surveys, and fault investigations. The chapter on subsurface investigations similarly covers the full range of parameters and methods of interest. Chapter 5 on environmental testing describes the methods used to measure key properties such as hydraulic conductivity, unsaturated conductivity, aquitard leakage, and soils characteristics.

Other chapters are devoted to fractured rock assessments, data interpretation techniques, development of a conceptual model, monitoring system design, organization and assessment of water quality data, and reporting. Appended materials include a glossary, models for writing a request for proposal, a scope of work and a statement of work; chemical parameter lists for various regulatory programs; and model specifications for wells and ground-water supply systems.

This is a comprehensive piece of work that can be of use to all levels of professionals involved in conducting site assessments. I recommend it enthusiastically for ready access on your desk top.

GAYNOR DAWSON

*Geological Aspects of Hazardous Waste Managements*, by S.M. Testa, Lewis Publishers, 1994, 537, pp., US\$ 59.95, ISBN 0-87371-630-2

As implied by the title, this book focuses on the problems of hazardous waste management and the role of the geologist in addressing those problems. It covers both historic problems as related to restoration of contaminated environmental media, and contemporary problems associated with siting new disposal facilities. The author notes that waste management is an interdisciplinary activity. As such, the book presents information beyond the geological aspects to introduce key interfaces with chemistry, engineering and regulatory concerns.

The text consists of 13 chapters and three appendices. The first chapter is introductory and defines the subject matter of subsequent chapters. The second chapter provides a synopsis of the regulatory programs with which the practitioner should be familiar. The next two chapters summarize the relevant principles of geology and hydrogeology, respectively. These chapters are quite technical in nature and sufficiently quantitative to serve as general text books for introductory geological courses on environmental applications. Chapter 5 addresses techniques for subsurface characterization. Descriptions are provided for drilling techniques, penetrometer surveys, and soil vapor monitoring. Soil classification methods are described and guidelines for production of boring/well construction logs provided.

Chapter 6 summarizes both surface and downhole geophysical exploration methods. Chapter 7 provides a summary of waste characterization regulations and related considerations. This is followed by a chapter on the fate and transport process that occur in the subsurface. A separate discussion of dense nonaqueous phase liquids (DNAPLs) is provided in Chapter 9.

The remaining chapters discuss the four basic waste disposal technologies: landfilling, underground injection, placement in underground repositories, and ocean discharging. The chapter on landfills includes design considerations, siting criteria and case studies. The discussion of underground injection is focused on design considerations and the fate of injected contaminants. Chapter 12 on geologic repositories describes host rock types and summarizes design considerations. The ocean disposal chapter is directed to a description of waste types and the relevant oceanic processes that must be considered. Appended materials include conversion tables, a glossary and reference materials on preservation times/conditions for various analytical methods.

This book is written for geologists and those familiar with geological terms. The text includes a significant amount of technical jargon that may discourage the novice reader. Several of the nongeological topics are touched on only lightly and will require