

*A Guide to Underground Storage Tanks. Evaluation, Site Assessment, and Remediation*, by P.N. Cheremisinoff, Prentice-Hall, Englewood Cliffs, NJ 07632, 1992, ISBN 0-13-369976-5, 367 pp., \$59.00 (plus postage).

Groundwater contamination from underground storage tanks continues to be a major environmental, legal, and economic concern. Tanks store a wide variety of liquids, including gasoline, oil, other fuels, process chemicals, hazardous and toxic materials and waste.

This is a very realistic and practical volume, printed in relatively large type, which reviews the overall problems and also many details. Beginning with the federal legislation in the US (RCRA Subtitle I — Regulation of Underground Storage Tanks (USTs)) and updated to April 17, 1987 when EPA proposed regulation of such tanks to control the major causes of releases from such systems, it considers corrosion controls, proper installation requirements, and spill and overfill prevention measures. These requirements are presented in a tabular form easy to read and understand. The recommendations of the US National Fire Protection Association are also discussed.

Piping details for the tanks are plainly outlined, and the piping and the piping arrangement of external pumps is noted in detail to prevent future failure modes. Physical and chemical properties of toxic gasoline components are tabulated, and plumes are drawn showing methods by which groundwater can be contaminated. Several leak-monitoring techniques are discussed and compared. Corrosion from external as well as internal sources are analyzed in detail. Selection of the proper tank materials of construction is tabulated for nearly 100 chemicals, with specific ratings for various tanks/contents. Positive action for correction of misadventures is given, as is water testing and treatment. A detailed glossary of 14 pages and an index complete the volume.

This is a highly legible volume on the subject of underground storage tanks and should be widely read and referenced by engineers, technicians, metallurgists, chemists and contractors. Without reservation we recommend it.

HOWARD H. FAWCETT

*Fundamentals of Environmental Science and Technology*, by Porter C. Knowles (Ed.), Government Institutes, Rockville, MD, 1992, ISBN 0-86587-302-X, 131 pp., \$24.95.

*Fundamentals of Environmental Science and Technology* is intended as a basic primer for those working in many different positions of environmental responsibility often with different backgrounds. The concept is an excellent one. The contributors are all from Dames and Moore, a major U.S. environmental consulting firm. There is a series of 12 short (approximately 10-page)

essays on a variety of pollution and pollution control topics. Given the length of each chapter, the book makes for easy reading — it is one that can be picked up, a chapter read in a short time and then put down for later perusal.

The Editor must have faced a major task in trying to simultaneously cover a very broad, technical topic, yet keeping the presentation short and understandable. Knowles starts the challenge this way:

“... to effectively bridge both the science and technology involved; to offer coverage of the topic that is broad but sufficiently detailed to be of value, and, in doing so, not to needlessly envelope this detail in needless jargon.”

He did broadly cover the topic and was able to avoid most jargon (and acronyms), but unfortunately — from my perspective — the book has a number of major problems starting with the Editor.

1. He did not exercise sufficient control over his draft chapter outlines (if he required them) to prevent overlaps. For example, the chapter on basic environmental chemistry of hazardous and solid wastes omits a discussion of the EP toxicity test (U.S. EPA) but gets into disposal and then spends a lot of time on air pollution.

2. There is no chapter devoted to municipal or industrial wastewater treatment, a major surprise to me given, I believe, that this area is a major strength of Dames and Moore. Perhaps the solicited draft chapter on wastewater never appeared.

3. There was insufficient use of diagrams and many of the ones used were ill-labeled, i.e., the chapter on air pollution control has schematic drawings of a cyclone and baghouse but both are poorly labeled to show air flow and particle removal. A scrubber is never shown, nor is a landfill with liners and leachate collection system. Given the Editor's goals were to simplify matters, the old adage that *a picture is worth a thousand words* is appropriate here.

4. At least two of the chapters I read were not terribly well written — or edited. The contributors made the same mistake many student engineers do — lack of flow in writing or the omission of transition from one section (or one sentence) to another.

5. Many of the sections had insufficient references and many of the references given were to Government Institutes publications that seem self-serving; moreover, I do not feel that most of Government Institutes' books are technically strong in comparison to their excellent books on the legal aspects. I feel that given the book was an overview, the reference sections should have been more complete than they were.

I'd strongly urge the Editor to take another “crack at it”. Review, critique, and then redirect his contribution to produce a second, more useful edition, to meet the goals he set.