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Book Reviews

Guidelines for Safe Storage and Handling of High Toxic Hazard Materials, by Arthur D. Little, Inc. and R. Levine, Center for Chemical Engineers*, AIChE, New York, NY, ISBN No. 0-8169-0406-6, 1988, 199 pp., price US $75.00; AIChE members US $40.00.

This guide is one of the books published by AIChE on process safety. The topic is timely and the information is very useful for practicing environmental engineers. The book will be helpful in emergency planning to meet the requirements of new regulations.

The book is divided in ten chapters:

1. Introduction
2. Assessment of Potential Risks
3. Design Considerations for a New Facility
4. Design of Storage and Piping Systems
5. Loading and Unloading Facilities
6. Instrumentation/Controls and Detection
7. Insolation and Containment
8. Preventive Maintenance and Inspection
9. Operating Procedures and Training
10. Emergency Preparedness Planning

The guidelines are outlined for storage facilities that handle highly toxic chemicals. The first chapter clearly defines the scope of the book. Major elements of a typical risk assessment program are outlined in Chapter 2. This chapter also discusses different indexes which could be used for estimating the relative toxic hazard of chemicals. An interesting analysis on worst accidental scenario is included in Chapter 2.

The design topics such as plant layout, basic practices and general considerations for a new facility are given in Chapter 3. Detailed design guidelines for storage tanks and piping systems are included in Chapter 4. The design codes from the American Petroleum Institute and the American Society of Mechanical Engineers are also a part of discussion in this chapter. A list of codes from other associations such as the American National Standard Institute, the National Fire Protection Association, the Chlorine Institute, Inc. and the National Association of Corrosion Engineers given in Chapter 4 will be of

*This title is available in Europe, the Middle East and Africa from: Clarke Associates-Europe Ltd., Unit 2 Pool Road Trading Estate, West Molesey KT8 0HE, England.

help to the reader. A short list of codes from two associations in the United Kingdom are also included.

Since loading and unloading facilities are generally incorporated in storage and handling systems, the guidelines for rail car and tank truck facilities, marine transfer facilities and non-permanent storage are covered in Chapter 5. A summary of instruments, control systems, electrical systems and devices for release detection is presented in Chapter 6.

A brief discussion on the use of isolation values, vent headers, enclosures, double-walled tanks, disposal systems and release countermeasures for minimizing the impact of releases is given in Chapter 7. For extensive details on these topics the reader will have to look at the references. From a management point of view, the procedures for establishing a preventive maintenance and inspection program for avoiding major accidents are described in Chapter 8.

The emphasis is placed on development of operating procedures and training in Chapter 9. The idea is to minimize accidents caused by human errors. Chapter 10 gives an overview of emergency planning requirements, available government publications and industrial assistance. Ten planning rules are given for emergency staff.

The references are kept to a minimum in each chapter. However, a carefully compiled list of references is given in Appendix A. Appendix B provides details on the chemical exposure index developed by Dow Chemical Company. A Contents list is available for the reader at the end of the book.

The book is a group effort and is well written. It includes a glossary which will be helpful for a casual reader. The book will also serve as a continuing education tool for environmental scientists, environmental lawyers and environmental managers.

ASHOK KUMAR

Mobile Waste Processing Systems and Treatment Technologies, by W. Glynn, C. Baker, A. LoRe and Quaglieri, Noyes Publications, Park Ridge, NJ, 1987, ISBN No. 0-8155-1139-6, 136 pp., US $36.00.

The book addresses one of the most interesting aspects of hazardous waste treatment systems–mobile processing technology. One reason for the increased focus on mobile systems is the growing concern about long-term environmental risk with land-based methods of waste disposal. Particularly, for large quantities of hazardous wastes, on-site treatment with mobile units may be more practicable than shipping wastes off-site. The book discusses methods of avoiding off-site treatment by bringing the treatment system to the waste instead of the usual practice of taking the waste to the treatment system. Discussed are the following technologies, for which mobile systems are available:

- Thermal Treatment – incinerators, pyrolizers, wet oxidation