Chapter 23 discusses the remediation of mine tailings which are the primary residuals of uranium milling operations that separate uranium from uranium ore. These sites are being addressed pursuant to the 1978 act of the U.S. congress, the Uranium Mill Tailings Radiation Control Act (UMTRCA). The U.S. DOE is responsible for cleaning up mill sites. Cleanup processes being considered are in situ leaching, aquifer restoration, site reclamation, pile location and configuration and radon barriers.

High Level Waste Treatment is the topic of Chapter 13. Much of the DOE's high level waste is liquid waste stored in 332 underground storage tanks at DOE complexes. These tanks range in size from 5,0000 to 1,300,000 gal at five DOE sites.

The treatment of mixed waste which is radioactivity contaminated hazardous waste is the subject of the 14th chapter. DOE has more than 130,000 cubic meters of mixed waste stored at 48 sites in 22 states. Much of this waste is highly heterogeneous. Pretreatment processes discussed are incineration, plasma hearth furnace thermal treatment, steam reforming and vitrification, among others.

The final chapter (15) discusses low-level waste treatment. Included are discussions of volume reduction technologies and chemical treatment/conditioning technology.The book ends with approximately 60 pages of appendices devoted to:

1. DOE Long-Term Expenditures
2. DOE Addresses and Telephone numbers
3. Foreign Nuclear Waste Management Organizations and Activities
4. Acronyms
5. Biblioqraphy

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Hazardous Materials and Waste Management: A Guide for the Professional Hazards Manager, by N.P. Cheremisinoff and P.N. Cheremisinoff, Noyes Data Corp., Park Ridge, NJ, 1995, $54.00, 265 pp., ISBN: 0-8155-1372-0

In a gross understatement, the preface of the book notes that the management of hazardous materials and industrial waste is complex, requiring a high degree of knowledge over very broad technical and legal subject areas. Given that complexity, the Cheremisinoffs wrote this book as a desk reference for the Professional Hazards Manager, who has the responsibility of insuring that his/her facility is in compliance with environmental statutes and regulations. To do so requires a knowledge of the very complex aspects of federal, state and local environmental regulations and working knowledge of the best available remediation and pollution control activities and their cost.

The initial part of the book describes waste treatment systems — hazardous waste, wastewater, sludge and recovery systems. Of what use this material is I am not sure: the discussion is terribly basic and simplistic and **old** — I recognize many diagrams that have long rested in my files.

More useful, I feel, are the subsequent chapters on waste treatment, Recovery Systems From Wastes Disposal and Waste Minimization.

Chapter 8 discusses methods of working with hazardous materials — how to recognize hazards, abnormal operation, toxicity, hazard evaluation, exposure, process and material hazards and biological and infectious hazards.

I found Chapter 9 intriguing, being entitled "Estimating Releases to the Environment", which is an important component of required federal emission calculations. However, the technical discussions are very basic, even simplistic. Several calculation methods are discussed, but there was little tabulated basic engineering data (tables) to assist an engineer in this task.

The last three chapters are entitled:

- Regulatory compliance, an overview of worker protection and right-to-know
- Regulation of hazardous wastes
- Managing environmental compliance

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