An excellent guide (reference) to information sources on the environmental impact of chemicals is found in Chapter 12. At the end of that chapter, the author gives a list (but one I found devoid of completeness) of periodicals dealing with the topic at hand. Given the ever changing nature of publications (both periodicals and books) that quickly go out of date, I'd hesitate to include such a list in a book.

Gary F. Bennett

Environmental Control in Petroleum Engineering. J.C. Reis, Gulf publishing, Houston, TX, 1996, $65.00, 274 pages, ISBN: 1-88415-273-I.

Like all manufacturing, the petroleum industry has come under increasing environmental regulation/scrutiny. The goal of this government (and environmental groups) oversight is to minimize the environmental impact of the petroleum industry's operations.

The author's goal in writing this book was to collect, collate and present information on environmental topics affecting petroleum operations. It is written from an academic viewpoint based on the course notes of the author. It is intended for those persons with little or no training in the environmental issues facing the petroleum industry.

The first chapter is an introduction to environmental control in the industry. It contains an overview and discussion of environmental impact, migration management, and management of waste. Site cleanup, environmental regulations and a final section discussing the new 'environmental' attitude complete the chapter.

The second chapter begins at the beginning; Drilling and production Operations. Included is a discussion of the chemistry, physical properties and environmental impact of drilling fluids. Even an emission from internal combustion engines used in the drilling process and fugitive emissions from valves are covered. The third chapter is a further discussion of the environmental impacts of the releases discussed in the prior chapter.

The Environmental Transport of Petroleum Wastes is the fourth (very short) chapter. Discussed are surface, subsurface and atmospheric pathways of transport. Chapter 5 is a forward looking chapter that outlines future plans (or planning) for environmental protection. Topics included here include audits, waste management plans, contingency plans, and employee training.

Waste treatment methods are the focus of chapter 6. Both wastewater treatment and air pollution control techniques are discussed, albeit qualitatively and briefly. Given the topics are a major area of interest to me, its not surprising I found the discussion lacking in detail and not providing numerical information on effluent quality, percent removal of pollutants by various treatment processes and design data.

Waste Disposal Methods (Chapter 7) and Contaminated Site Remediation (Chapter 8) are short. Both are useful but, again, I found them shorter and containing less data than I would have liked. I do, however, commend the author for the latter chapter; he does discuss current remediation methods and pump-and-treat technology, vaporization, soil

flushing and bioremediation. Topics new to me included a discussion of brine- and sulfate-contaminated sites.

The book ends with four appendices: (1) Environmental Regulations, (2) Sensitive Habitats, (3) Major U.S. Chemical Waste Exchanges and (4) Offshore Releases of Oil.

Gary F. Bennett

Mixed Waste: Proceedings of the Third Biennial Symposium, Baltimore, Maryland, Aug. 1995, ASME, A.A. Moghissi, B. Love and R.K. Blauvelt, (Ed.), Cognizant Communication Corporation, Elmsford, NY, 1995, $75.00, 800 + pages, ISBN: 1-88-2345-04-5.

U.S. government regulations governing the handling and disposal of hazardous waste and radioactive waste emanate from very different laws (RCRA and AEA); both sets of regulations are at the least onerous to comply with. But when a waste contains both radioactive and hazardous waste compounds, the regulations become very complex. And so does treatment. For example, treatment technologies that are applicable to radioactive waste are not necessarily useful for chemical waste.

This volume, the third in a series, contains 74 peer-reviewed and edited papers presented in August 1995 at an ASME-sponsored conference are classified by topic as follows:

- Program Activities
- Characterization
- Regulatory Activities
- Emerging/Innovative Treatment Technologies
- Vitrification
- Solidification/Stabilization
- Wet Oxidation
- Environmental Restoration/Decontamination and Decommissioning
- Storage and Disposal/Waste Minimization
- Treatment/Treatment Systems

The editors are to be complimented on the quality of the proceedings. The utilization of desk top publishing methods plus, I am sure, a good job by the editors resulted in a timely, yet attractive proceedings volume.

Gary F. Bennett

Biotechnology for Waste and Wastewater Treatment, N.P. Cheremisinoff, Noyes Publishing, Park Ridge, NJ, 1997, $64.00, 231 pages, ISBN: 1-8155-1409-3.