

pollution problem than Pullen does. Hence, I found the six-page introduction too short. Next, I assign problems on stack sampling for the students to solve. At the end, Pullen did treat the topic of source testing (Chapter 9), but he did not include a well-worked-out numerical example as he did in the rest of the text, nor did he give problems to be assigned to the students. Finally, the text lacks a discussion of dispersion modelling, which I believe is fundamental to the air pollution control problem/solution.

However, put this criticism aside, as the text discusses the fundamental principles well and gives an excellent mathematical approach to the design of fabric filters, cyclones, scrubbers, electrostatic precipitators and adsorption systems.

GARY F. BENNETT

Safety Cases - Within the Control of Industrial Major Accident Hazards (CI-MAH) Regulations 1984, edited by F.P. Lees and M.L. Ang, Butterworth, London, 1989, ISBN 0-408-02708-8, 363 pp. £60.00 (\$120).

The editors have collected a series of reviews of safety cases done by practitioners in various industries. Chapter 1 is a review of major chemical hazards and a prediction of their consequences. The author discusses the broad range of harmful effects, pointing out that more than death, physical injury and environmental damage needs to be considered. The authors of Chapter 2 review the Safety Report Regulations in the Netherlands. The Dutch regulations require a more quantitative risk assessment than most other countries. Chapter 3 reviews more recent legislation in the USA, indicating that several states are rapidly catching up to some of the European countries, as well as pointing out that some measures may be so strict that companies will not be able to afford to stay in business.

Chapter 4 does not deal with a Safety Case, but instead discusses some of the planning issues involved in locating hazardous operations and plants. The author reviews the major approval steps required in Britain, highlighting the advantages of a full and open risk assessment process. The next chapter reviews Britain's methods of assessing 'consultation distances' (zones where there might be significant risk), discussing 3 specific cases, namely; LPG installations, toxic liquified gases and high pressure gas transmission pipelines. Chapter 6 is a reprint of a paper dealing with a number of points needed for effectively managing a hazardous installation.

The next chapter reviews 4 companies' approaches to the Safety Case, while Chapters 8 and 9 review guidance notes from industrial associations - the Chlorine Users Group of the Chemical Industries Association and the Fertilizer Manufacturers Association. Chapter 10 very briefly discusses the role of quantitative assessment from a report of the Advisory Committee on Major

Hazards. Probably the greatest value of the book comes from Chapter 11, which reviews various computer programs that can be used to make a quantitative assessment analysis. Chapter 12 discusses some aids that are used by Britain's Health and Safety Executive, while Chapter 13 illustrates how an industry should prepare a Safety Case. The last two chapters are comments from two inspectors in Britain discussing some of the shortcomings of the procedures. The book concludes with an excellent bibliography and collection of references, followed by text giving the complete CIMAH regulations of 1984. The book is obviously slanted for importance in Britain, but does give food for thought for people in other countries as well.

LESLIE E. LATHI

Guidelines for Technical Management of Chemical Process Safety, by the Center for Chemical Process Safety, American Institute of Chemical Engineers, New York, NY, 1989, ISBN 0-8169-0-8169-0423-5, 169 pp.

These guidelines are intended as an expansion of 12 elements of a model proposed in an earlier publication entitled "A Challenge to Commitment" published by the Center for Chemical Process Safety (CCPS), formed by the American Institute of Chemical Engineers in 1985. This particular document was prepared by a committee together with whom the peer review team, claim over 500 years of professional experience in chemical process safety. It has been written for all managers with responsibility for chemical processes, including not only the senior corporate managers, but also the line supervisors at processing plants. A separate chapter is devoted to each of the 12 elements which the committee feels is a convenient way of organizing the subject of safety management.

An overview of management systems is presented and the important functions of planning, organizing, implementing and controlling in any organization is highlighted. The first element discussed is accountability. It is considered a vital component of any system in order to ensure that conflicting views can be resolved successfully. Another chapter is devoted to process knowledge and documentation of pertinent information. Often simple maintenance tasks significantly change an operation over a period of time and may lead to trouble if appropriate systems are not in place to guard against it. One chapter provides guidelines for comprehensive process safety reviews during major capital projects. The need to manage process risk and change is clearly explained in two separate chapters.

A further chapter is devoted to the elements of process and equipment integrity, including reliability and maintenance. Excellent examples of work permits and safety checklists are provided. Additional chapters are devoted to