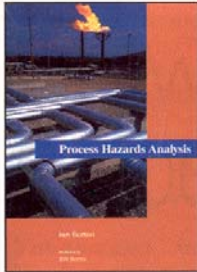


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Process Hazards Analysis. By Ian Sutton, SW Books, 2437 Bay Area Blvd., PMB 195, Houston, TX 77058. Web: swbooks.com. 2001. 314 pages. \$65.

Reviewed by Karel Kapoun, ENSR International, Westford, Mass.

Over the last 30 years, process hazard analysis (PHA) has become a standard operating procedure for many health and safety managers in the chemical process industries (CPI). Meanwhile, a large number of publications, both technical articles and books, have been published, and an even larger number of PHA training sessions have been held. However, most of the publications and training courses were either too specific or general. Ian Sutton's book seems to fill the gap. The book is well-written and the content is suitable for use as reference material for PHA leaders, practicing chemical engineers and plant safety professionals alike.

Chapter 1 starts with a brief history of the development of operational hazard evaluation and provides an introduction to various PHA techniques. Of particular interest is a section dealing with risk and risk-related matrices.

The organization of a PHA is discussed in Chapter 2. This chapter contains a large number of useful practical topics ranging from corporate management and guidance to the use of pens and markers. The author is well aware of the various problems frequently associated with a typical PHA session and his recommendations are based on "real world" experience.

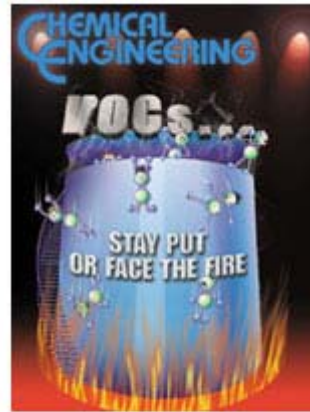
The most commonly used PHA techniques are outlined in Chapters 3 through 6. Chapter 3 covers the Hazard and Operability (HAZOP) method, while Chapter 4 describes the What-If method. Both methods, which are widely used in the industry and represent a classical team-based approach, are discussed in detail and presented in an easy-to-follow format.

Chapter 5 covers Checklists and Failure Modes & Effects Analysis (FMEA). The Checklist and FMEA represents an alternative approach based on accumulated industry experience and expert knowledge. However, both the Checklist and FMEA methodologies need better explanation.

The complex and highly analytical Fault Tree Analysis (FTA) technique is discussed in Chapter 6. Fault Tree Analysis is typically used for selected system safety analysis and is conducted by one or two highly trained and experienced professionals. As in the previous chapters, the material is based on a practical, experience-based approach.

Chapter 7 deals with reporting and followup activities. Report writing guidelines and pitfalls are well presented and organized. Again, this chapter is written with PHA leaders, practicing chemical engineers and plant safety professionals in mind.

Chapter 8 follows up with applicable regulations, standards and legal issues. It is a good background and supplement to the Process Safety Management (PSM) program of the U.S. Occupational Safety and Health Administration and the Risk Management Program



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(RMP) regulations of the U.S. Environmental Protection Agency. These topics are further explored in Chapter 9.

In summary, Sutton's book provides a very good introduction to the subject of PHA. Most of the material covered in it accurately describes my own experience obtained during numerous PHA sessions. His book contains sufficient information to provide any chemical engineer, an operating company, engineering contractor or consulting firm with an excellent basic understanding of the subject. □