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Safety Performance Measurement. Edited by Jacques van Steen for the European Process Safety Center. I Chem E 1996. ISBN 0 8595 382 8. £44.00.

The spate of disasters in the 1980's motivated more formal approaches to safety management. For example following the Bhopal disaster in 1984, the American Institution of Chemical Engineers set up the Center for Process Safety, CCPS. Subsequently CCPS published a number of books dealing with different aspects of process safety management. In 1992 the European Process Safety Centre (EPSC) was established and a number of Working Parties formed. One of these focused on safety management systems, and in 1994 EPSC published a booklet entitled Safety Management Systems.

The EPSC book on 'safety performance measurement' (SPM) is the sequel to the 1994 publication. The purpose of the books is to:

- clarify the meaning and potential of SPM; and
- show the breadth of techniques and approaches to SPM.

The emphasis is on current and developing practice. It is not a manual of techniques for SPM, but a collection of 'examples' from EPSC members covering different aspects of SPM. In essence the book is a series of short articles dovetailed together to provide a fairly coherent whole. The companies involved (e.g. Bayer, Hoechst, TUV, DNV, Borealis, ICI, Dow, Exxon, BP, BASF, AEA Technology, Shell, DuPont, Norsk Hydro) provide useful insights into how a company could tailor the various approaches which are outlined to meet their own particular needs.

Following the introductory chapter, Chapter 2 provides an outline of SPM and presents a framework for SPM. This is a three by three matrix defining the inputs (plant and equipment, systems and procedures, and people) to safety management and methods of monitoring them (Inspections and audits by local staff, Assessments of specific aspects by specialists, Overview assessments by independent assessors). Subsequent chapters contain specific examples or themes, suitably positioned within the overall framework. Chapter 3, 'Measuring plant and Equipment: Practical Examples' covers monitoring techniques such as inspections, audits, condition measurement, and incident recording. The differing roles of operators, experts and regulators are discussed. The importance of a well structured and comprehensive approach to auditing is stressed e.g. Hoechst use 18 audit modules. The contribution from TUV on audit programme design

notes “the interlinking of the procedures, rules and other management tools to form a functioning safety management system is currently in its infancy”.

Chapter 4 deals with “Measuring Systems and Procedures: practical examples”. ICI consider the “monitoring the implementation of local procedures” or “operational auditing”. The audit process is outlined. Examples of the annual plan, audit checklist and report form are given. Dow describe a system of self-audit covering 13 areas; management of change is illustrated. Exxon deal with self assessment of the performance of risk management systems, focusing on system design, implementation status and effectiveness. BP outline their integrated approach to health, safety and environmental (HSE) management systems. This is a very useful contribution giving insights into how the company develops the assurance that its systems and procedures are fit for purpose. Questionnaires are used for auditing the systems and the results are used to develop operational HSE programmes, a process called ‘footprinting’. Examples of the footprinting process are given. Overall this is a very useful chapter.

Chapter 5 covers “Measuring People: practical examples”. Monitoring includes behavioural observation and feedback; attitude surveys, and overall management audits. BASF and DNV describe their experience of the behavioural approach. AEA outline a tool for assessing safety culture. A contribution from Shell outlines the Tripod approach to incident analysis. Finally DuPont cover SPM; people aspects being viewed as an integral part of all aspects of business. Four steps to SPM are discussed i.e. establishing a safety culture; providing management leadership and commitment; implementing a comprehensive SPM programme; and achieving operating excellence.

Chapter 6 covers “Measuring the Outputs: practical examples”. This is essential to providing assurance that the implementation of the “plan-do-check-improve cycle” approach to risk management is working. Norsk Hydro discuss their approach to measuring injury rates and auditing. Dow consider the costs and economic benefits of safety and conclude that the benefit from a successful safety management system can be quantified.

There is no doubt in my mind that this book is a useful contribution to the developing field of safety management. In concluding the Editor recognises the limitations of the approach taken i.e. the examples used are only a part of the overall system of a particular company and derive from different approaches to safety management and performance measurement, which of necessity have to be tailored to the needs and characteristics of the particular organisation. In some ways this limitation is also a strength as the approach encourages lateral thinking. At the end of the day any approach to safety and performance measurement has to be adapted to the organisation. This process is much easier if one starts off on the right track. In my view this book is helpful here and will be useful to those pursuing continuous improvement of their systems for managing safety and for SPM.

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