

FIG. 8 - The temperature response of the valve in the GRP composite enclosure and the actuator in the all-metal enclosure

Alan Bleeze, HM Principal Inspector of Factories
HSE's Accident Prevention Advisory Unit, Bootle

The principles for the effective management of occupational health and safety are described to assist managers who wish to improve their organisation's health and safety performance. The issues which need to be addressed and which can be used for self audit and assessment, and for developing programmes for improvement, are set out. The principles described are applicable to all organisations but the extent of action required will vary with the size of the organisation, the hazards presented by its' activities, products or services and the adequacy of existing arrangements.

Policy; Planning; Organising; Measuring; Reviewing; Monitoring;
Auditing.

A common feature of the onshore chemical industry and the oil industry is the likelihood of high hazard low probability events and the consequences both in financial and human terms of failure to control risks.

This need to control risks by an effective health and safety management system has been advocated over recent years by prominent members of this Institution and by the Health and Safety Executive (HSE). The Accident Prevention Advisory Unit (APAU) in which I work is HSE's focus for health and safety management issues. Much has been said about the power and influence of the boardroom in establishing the pattern to promote health and safety at work¹. Many Publications^{2,4} have emphasised that the vast majority of accidents could have been prevented by management action. It has also been recognised that the majority of accidents in industry are generally in some way attributable to human (behavioural) as well as technical factors⁵. There has also been increasing evidence from official reports of the public enquiries following recent disasters that while errors of an individual or individuals in the workplace may trigger events, the basic causes of accidents generally lie in flawed organisational systems. Organisations are encouraged to develop a safety culture which promotes and rewards the safe behaviour of employees, eliminating unacceptable practices and at the same time developing organisational structures and control measures which identify hazards, control risks and minimise losses.

In parallel to this the application of sound management principles to health and safety has been incorporated into legislative requirements, firstly with regard to major hazard sites on-shore (CIMAH Regulations) and latterly for operations in the North Sea. Safety

cases for each of these activities must specify information relating to the safety management system. Additionally the proposed Health and Safety (General Provisions) Regulations, due to come into force on 1 January 1993 stipulate the need for effective arrangements for planning, organisation, control, monitoring and review of protective and preventive measures⁶.

To suggest to, and demand of, industry and those in control what is to be achieved is one thing but how can these objectives be achieved? What do organisations need to do? What issues do directors, managers, and safety professionals need to address?

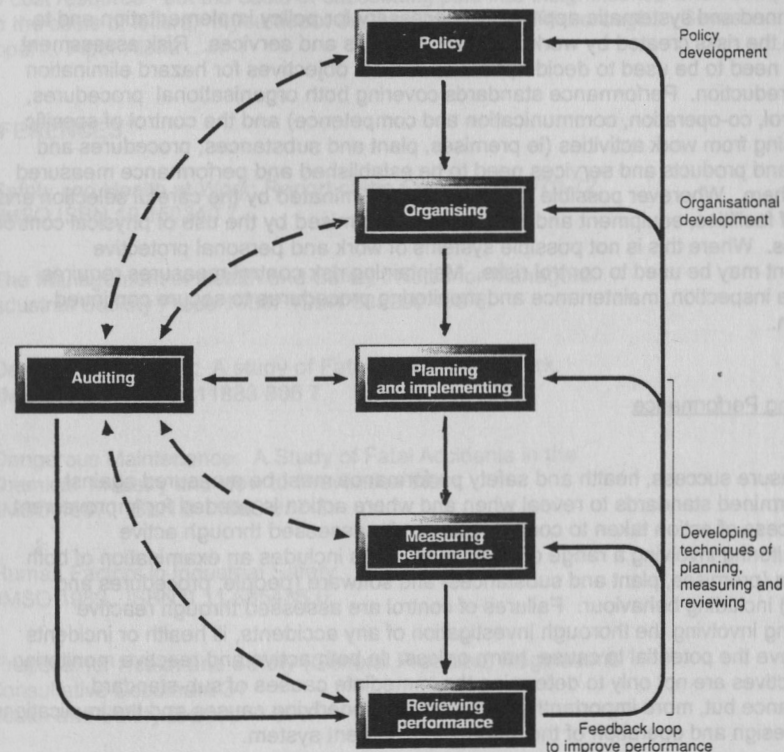
When published "Effective Policies for Health and Safety"⁷, "Managing Safety"⁸ and "Monitoring Safety"⁹ represented the best available guidance on the management of health and safety based on the experience of APAU. However in the 10 years since the publication of "Managing Safety" there have been significant developments in how health and safety is managed. Quality initiatives (TQM, BS5750 etc) have led certain organisations to be more rigorous and systematic in their approach to health and safety. There has been a growth in the availability of proprietary health and safety monitoring and auditing tools. There has also been an increased recognition of the importance of organisational and behavioural factors in accident prevention. In a new publication, "Successful Health and Safety Management"¹⁰, APAU have built on their earlier work to provide more specific direction and detail on the key issues with regard to good health and safety management. What is new is the framework of analysis which is essentially a simplified systems view of the management processes necessary to manage health and safety successfully.

These key elements are set out below and the relationship between them is outlined in Diagram 1:

Policy

To be successful in achieving high standards of health and safety, the health and safety policy should contribute to business performance whilst meeting the organisation's responsibilities to people and the environment in a way which fulfils both the spirit and the letter of the law. In this way the expectations of shareholders, employees, customers and society at large are satisfied. Policies need to be cost effective and aimed at achieving the preservation and development of physical and human resources and reductions in financial losses and liabilities. The health and safety policy should influence all activities and decisions, including those to do with the selection of resources and information, the design and operation of working systems, the design and delivery of products and services, and the control and disposal of waste. In other words it should work with the grain of what the rest of the organisation is doing - not against it.

Diagram 1 Key elements of successful health and safety management



Organising

To put a health and safety policy into practice requires an effective structure for an organisation. This is helped by the creation of a positive safety culture which secures involvement and participation at all levels. It is sustained by effective communications and, importantly, the promotion of competence which enables all employees to make a responsible and informed contribution to the health and safety effort. Control is secured by managers who lead by example which is visible and active. There also needs to be clear allocation of responsibilities and systems for ensuring that individuals are held accountable for these health and safety responsibilities and are motivated by systems of target setting and positive reinforcement. The aim should not be simply to avoid accidents, but to motivate and empower people to work safely. By this means the vision, values and beliefs of leaders become the shared "common knowledge" of all.

Planning

A planned and systematic approach is necessary for policy implementation and to minimise the risks created by work activities, products and services. Risk assessment methods need to be used to decide priorities and set objectives for hazard elimination and risk reduction. Performance standards covering both organisational procedures, (for control, co-operation, communication and competence) and the control of specific risks arising from work activities (ie premises, plant and substances, procedures and people) and products and services need to be established and performance measured against them. Wherever possible risks should be eliminated by the careful selection and design of facilities, equipment and processes or minimised by the use of physical control measures. Where this is not possible systems of work and personal protective equipment may be used to control risks. Maintaining risk control measures requires adequate inspection, maintenance and monitoring procedures to secure continued operation.

Measuring Performance

To ensure success, health and safety performance must be measured against pre-determined standards to reveal when and where action is needed for improvement. The success of action taken to control risks can be assessed through active self-monitoring involving a range of techniques. This includes an examination of both hardware (premises, plant and substances) and software (people, procedures and systems) including behaviour. Failures of control are assessed through reactive monitoring involving the thorough investigation of any accidents, ill health or incidents which have the potential to cause harm or loss. In both active and reactive monitoring the objectives are not only to determine the immediate causes of sub-standard performance but, more importantly, to identify the underlying causes and the implications for the design and operation of the safety management system.

Auditing and Reviewing Performance

Learning from all relevant experience and applying the lessons learned are important elements in effective health and safety management. This needs to be done systematically through regular reviews of performance based on data both from monitoring activities and from independent audits of the whole health and safety management system. These form the basis for self-regulation and for securing compliance with the Health and Safety at Work etc Act 1974, ss 2 to 6. Commitment to continuous improvement involves the constant development of policies, approaches to implementation and techniques of risk control. To achieve high standards of health and safety an organisation's performance should be assessed by internal reference to key performance indicators and by external comparison with the performance of business competitors.

These five steps to success which I have just outlined are all essential elements of a coherent system - if one is neglected the system fails. They are not easy to implement - and cost resource - but the costs of succeeding pale into insignificance when compared with the costs of failure. If you doubt this just think about Flixborough ... Seveso ... Bhopal ... Piper Alpha

REFERENCES

- 1 Safety and Health at Work: Report of the Committee 1970-72.
HMSO ISBN 10 150340 7
- 2 The Management of Health and Safety : Notes for Managers.
Industrial Society Press 1988. ISBN 085290 409 6.
- 3 Deadly Maintenance: A study of Fatal Accidents at Work.
HMSO 1985. ISBN 011883 806 7.
- 4 Dangerous Maintenance: A Study of Fatal Accidents in the
Chemical Industry and How to Prevention them.
HMSO 1987. ISBN 0 11883 957 8.
- 5 Human Factors in Industrial Safety.
HMSO 1989. ISBN 0 11 885486 0.
- 6 Proposal for Health and Safety (General Provision) Regulations
Consultative Document 34
Health and Safety Executive 1991.
- 7 Effective Policies for Health and Safety.
HMSO (3rd impression) 1986. ISBN 0 11883 254 9.
- 8 Managing Safety: A Review of the role of Management in
Occupational Health and Safety by the Accident Prevention
Advisory Unit of HM Factory Inspectorate.
HMSO 1981. ISBN 0 11883 443 6.
- 9 Monitoring Safety.
HMSO 1985. ISBN 0 11 8837834.
- 10 Successful Health and Safety Management HS(G)65
HMSO 1991. ISBN 011 8859889.