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DYNAMIC

management of risk at operational incidents

Health and Safety

Scottish Office

Home Office

Northern Ireland

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ISBN 0 11 341221 5

London: The Stationery Office

Printed in the UK for The Stationery Office
J55076 C800 9/98

Published by The Stationery Office and available from:

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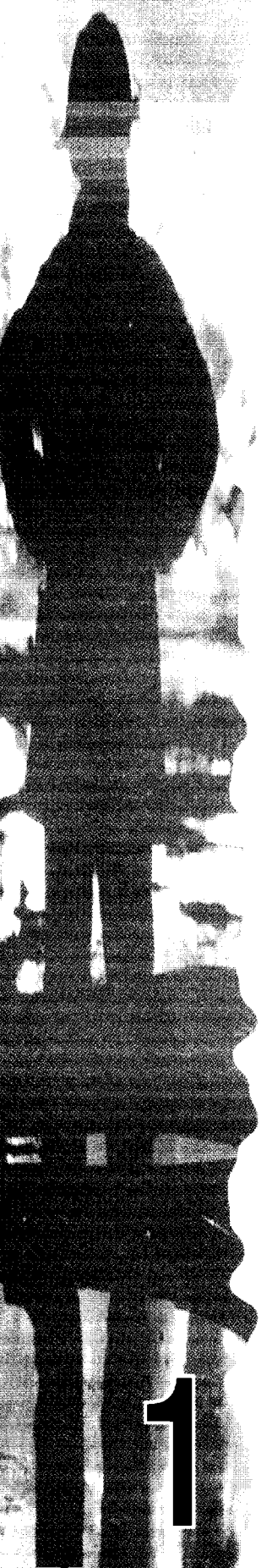
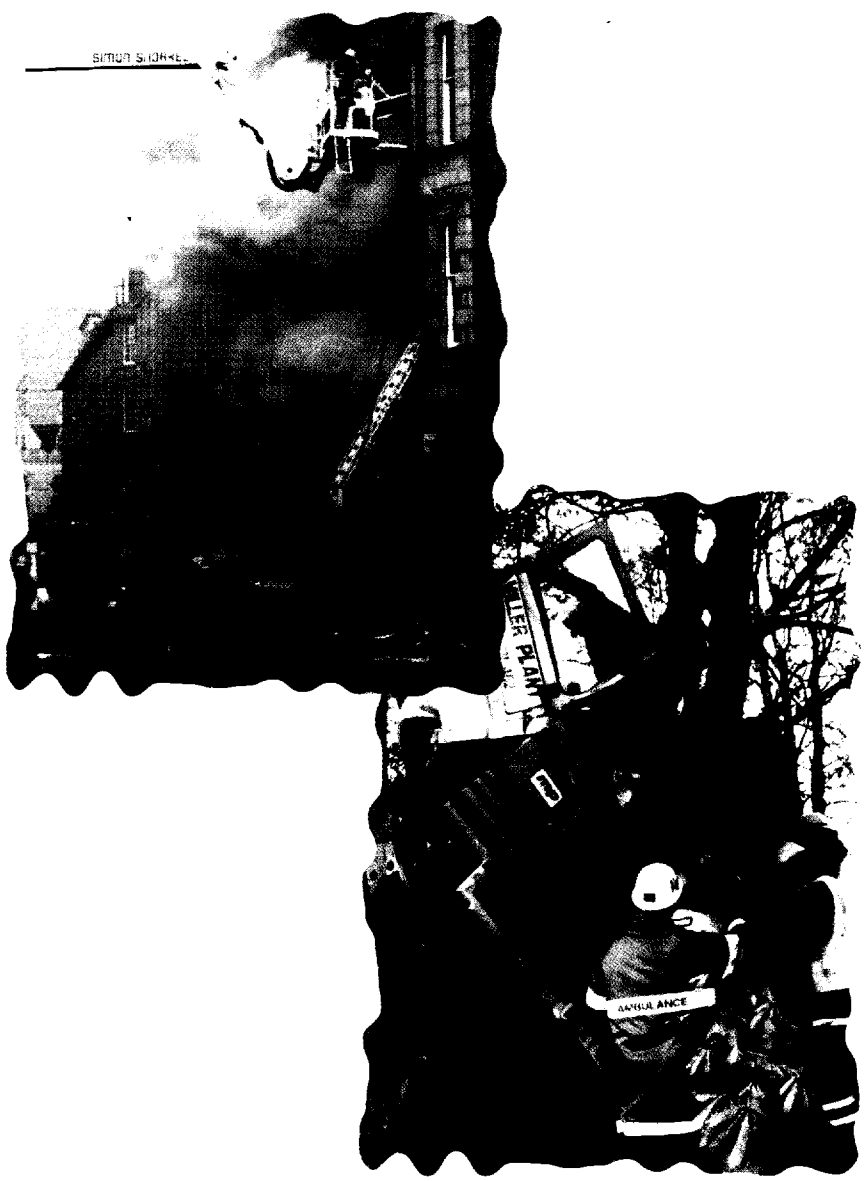
Acknowledgement

The authors wish to acknowledge the contribution of the H.S.E. Crown, Fire and Police National Interest Group, whose comments were of great assistance in the conceptual development of this guide.





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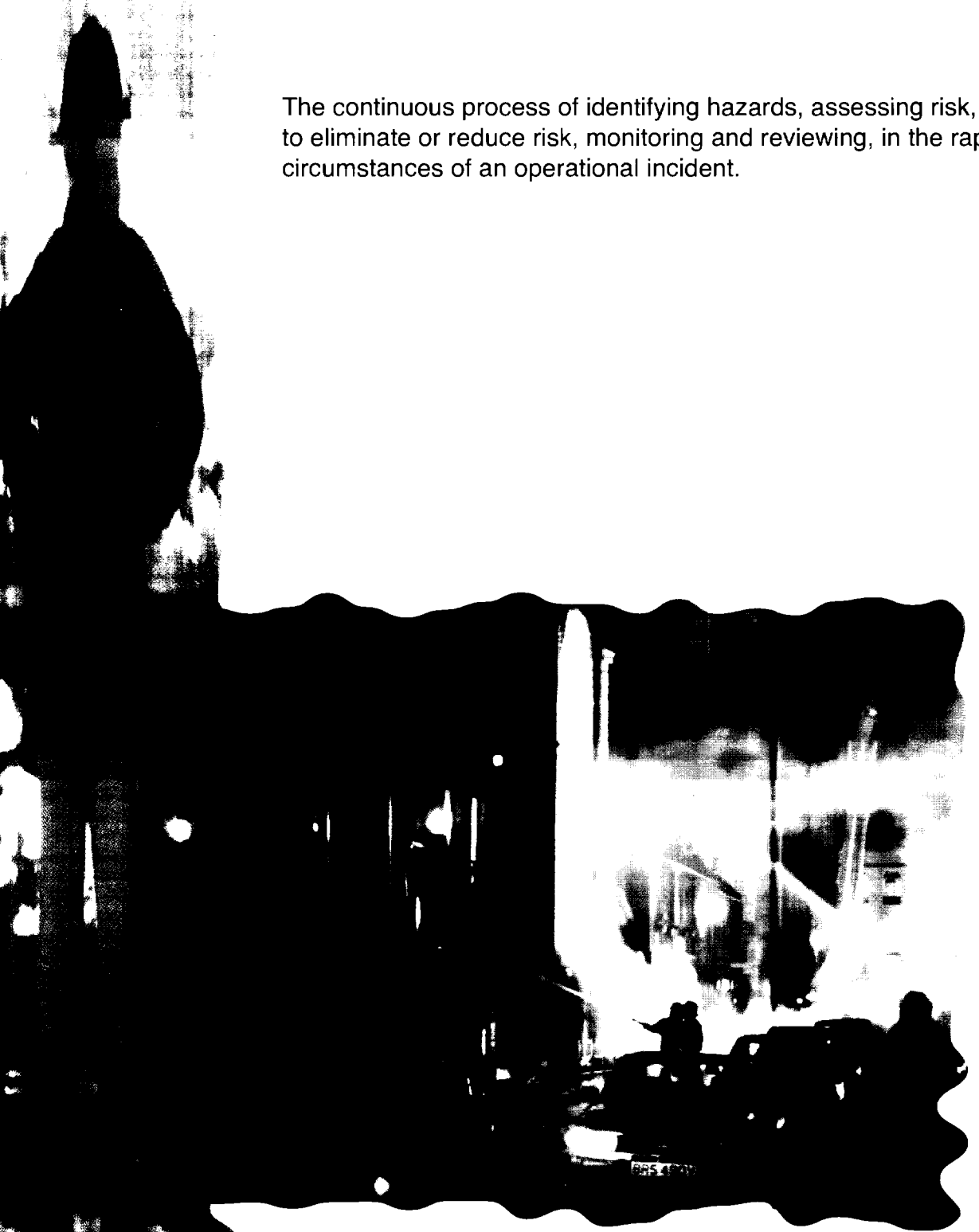
Dynamic Management of Risk

The continuous process of identifying hazards, assessing risk, taking action to eliminate or reduce risk, monitoring and reviewing, in the rapidly changing circumstances of an operational incident.



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Foreword

Firefighters acknowledge that their work will occasionally put them in hazardous situations and they are willing to accept some risk to their personal safety in order to protect the communities that they serve. They have, however, always sought to minimise the risk and it is, therefore, no surprise to find that many of the procedures detailed in this guide reflect current good practice.

Bringing the information together in a logical order in one publication will assist all personnel to make the appropriate contribution to achieving and maintaining acceptable levels of safety in dangerous environments where risk cannot be completely eliminated. It will also help fire authorities to comply with the legal requirement to formalise their procedures.

We hope that the information contained within these pages will be accepted as a valuable asset in the fight to constantly improve safety standards and reduce both the human and the financial costs of operational incidents.

Henry McLeish George Howarth Alf Dubbs

Ministers with responsibility for Fire Service matters at The Scottish Office, Home Office and Department of the Environment (Northern Ireland).

Scottish Office Home Office Northern Ireland

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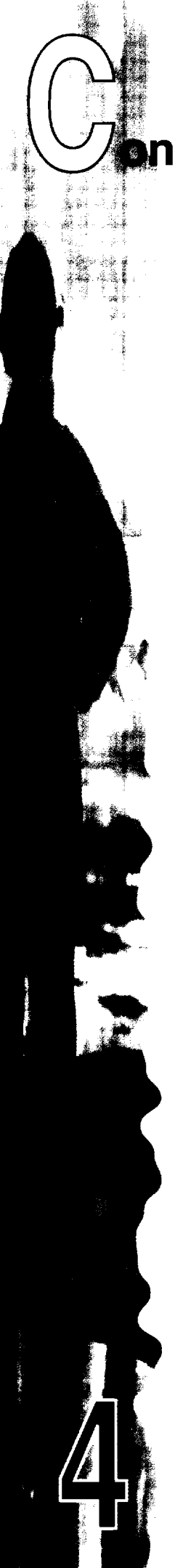
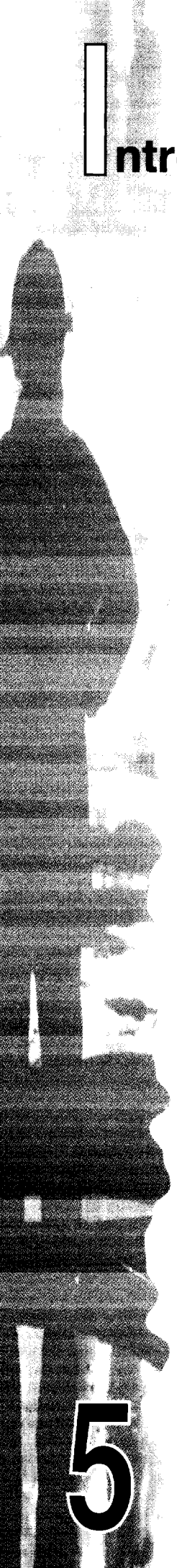




Introduction

There are moral, economic and legal reasons for the Fire Service to take the management of health and safety seriously.

MORAL

As caring employers, brigades want to ensure the safety of their employees at all times.
As professional bodies, brigades aim to discharge their duties to the community to the highest possible standards at all times.

ECONOMIC

Good health and safety management is always cost effective. The time and money invested in safety is always outweighed by the savings in legal costs, compensation and the need to replace equipment.

LEGAL

Fire authorities, in common with other employers*, have many legal duties in respect of safety. The most relevant to this document are those imposed by Sections 2 and 3 of the Health and Safety at Work etc. Act 1974 and Regulations 3 and 4 of the Management of Health and Safety at Work Regulations, 1992. These require employers to ensure, so far as is reasonably practicable*, the health, safety and welfare of employees and others affected by their work activities. In order to achieve this, they must carry out and record suitable and sufficient risk assessments, then implement the control measures necessary to ensure an acceptable level of safety. Both the risk assessments and the control measures must be regularly monitored and reviewed to confirm their continuing validity.

Employees have a legal duty to take care of their own safety and that of others who may be affected by their acts or omissions. They must also co-operate with their employer in health and safety matters.

***'employer'** *can, depending upon circumstances, mean anyone responsible for the work of others.*

****'so far as is reasonably practicable'** means that the degree of risk in a particular activity can be balanced against the time, trouble, cost and physical difficulty of taking measures to avoid the risk. The greater the risk, the more likely it is that it is reasonable to go to very substantial expense, trouble and invention to reduce it.*

Levels of Operational Risk Management

In order to provide an acceptable level of protection at operational incidents, brigade health and safety management must operate successfully at three levels - Strategic, Systematic and Dynamic.

STRATEGIC

Strategic health and safety management is carried out by Brigade Command and the Fire Authority. They demonstrate management's commitment to safety by setting the organisation's health and safety policy, deciding priorities, providing resources, and promoting a positive health and safety culture.

SYSTEMATIC

Systematic health and safety management is carried out by brigade departments. Initially, risk assessors identify the hazards* likely to be encountered at the various types of operational incident and assess the level of risk* presented by these hazards.

Brigade Command acts upon the results of the risk assessments and commissions brigade departments to develop and implement additional control measures. These could include, for example, information, personal protective equipment (PPE), equipment, systems of work, instruction, training and safety supervision.

DYNAMIC

Dynamic risk management is carried out by all personnel at an operational incident. The main responsibility lies with the Incident Commander who must identify the hazards, assess the risks, then make professional judgments in order to use the available resources in such a way as to achieve an acceptable level of safety during work activities.

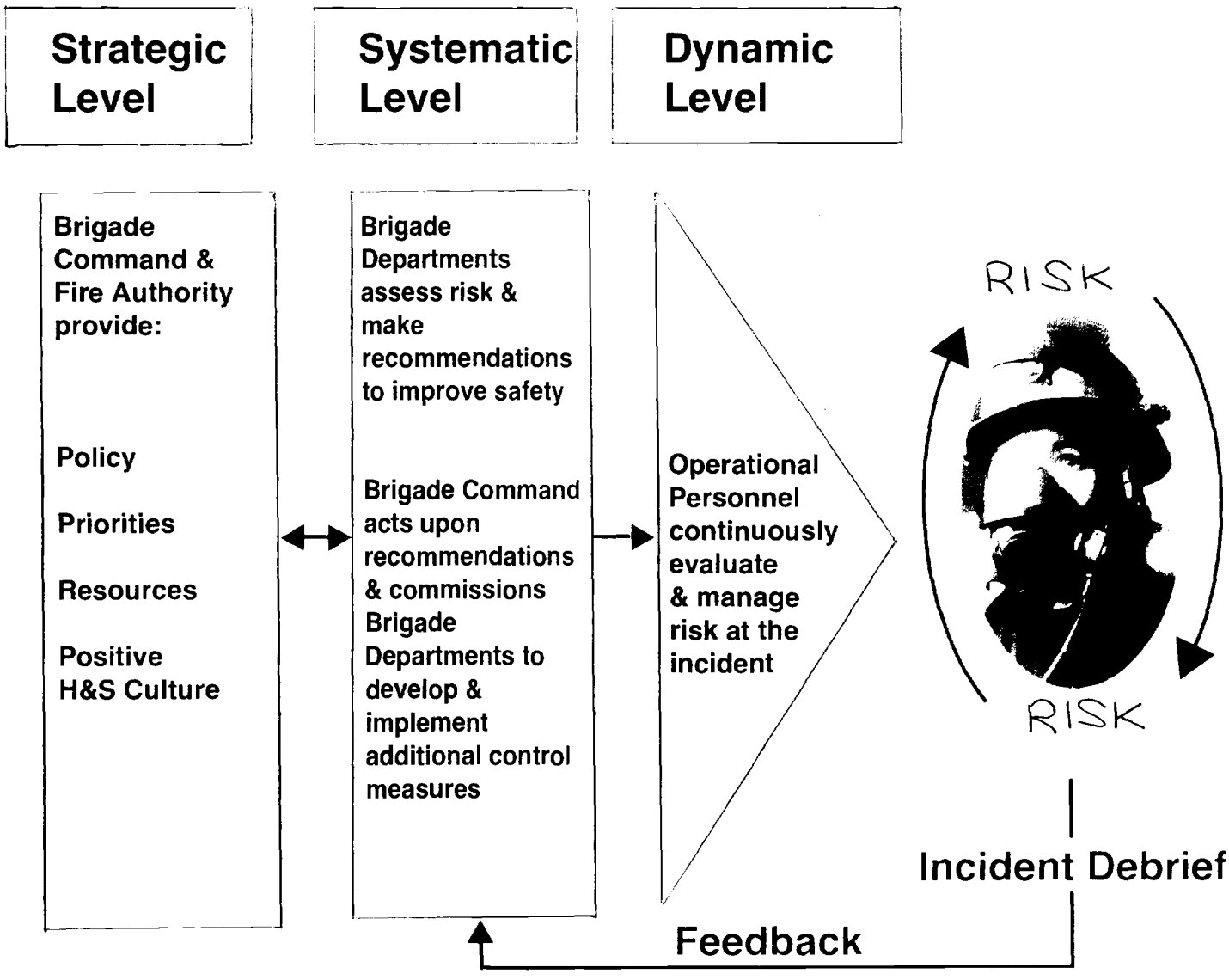
An important part of risk management at this level is the post incident review. This allows relevant information to be recorded and fed back into the Strategic decision making process via the Systematic level in order that safety standards can be constantly improved.

The whole process is shown diagrammatically on the facing page.

'Hazard**' Something with the potential to cause harm. This could be anything from a slippery domestic kitchen floor to a radiation leak from a nuclear reactor.*

'Risk**' A measure of the likelihood that the harm from a particular hazard will occur, taking into account the possible severity of the harm.*

Operational Risk Management Model



The Safe Person Concept

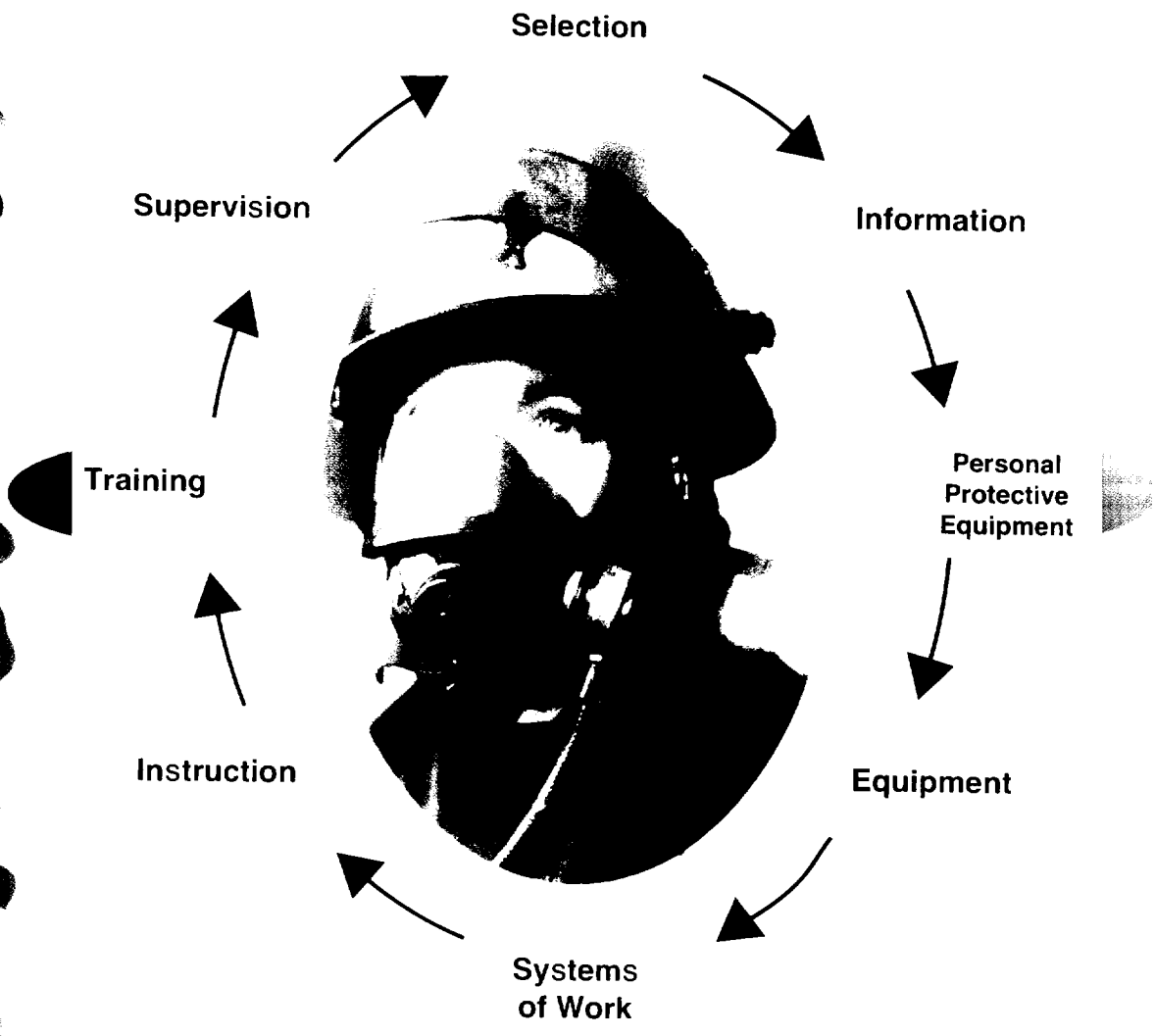
In normal safety management, the intent is to make the workplace safe, because this safeguards everyone. However, an operational incident can be an inherently dangerous workplace and may be impossible to make safe. Brigades must, therefore, direct their efforts to making the firefighter safe. This approach is known as the Safe Person Concept.

There are two aspects to this concept - organisational responsibility and personal responsibility.

ORGANISATIONAL RESPONSIBILITY

The organisation must provide the support necessary to ensure that personnel are able to remain safe in a hostile environment.

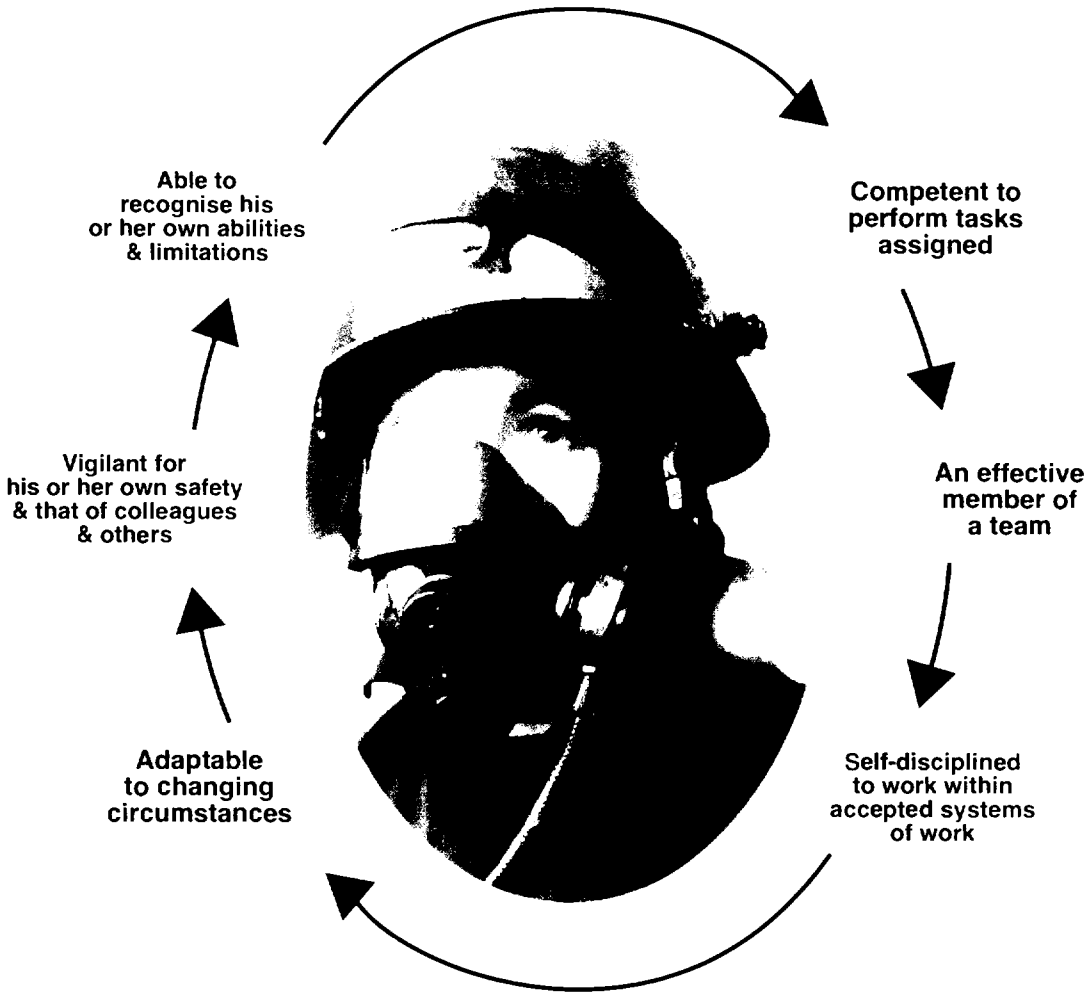
This will include:



PERSONAL RESPONSIBILITY

The individual must have the ability to make professional judgments about the appropriate use of available resources, in order to control the risks inherent in the unique circumstances of any emergency situation.

Every operational firefighter must, therefore, be:



Dynamic Management of Risk

Dynamic management of risk is the continuous assessment and control of risk in the rapidly changing circumstances of an operational incident.

The overall responsibility for this lies with the Incident Commander. He or she must ensure that safe practices are followed and that, so far as is reasonably practicable under the circumstances, risks are eliminated or, if not, reduced to the minimum commensurate with the needs of the task. However, because personnel may be working in small autonomous teams, everyone must be constantly aware of their own safety as well as that of their colleagues and others who may be affected by the incident or work activity.

It must be clearly understood that all ranks have the authority, as well as the duty, to take immediate action in the interest of safety. This is a fundamental part of the safe person concept.

Although dynamic management of risk must be continuous throughout the incident, different matters will have to be considered as the incident progresses. It is, therefore, useful to look at the process during three separate stages:

Initial

Development

Closing

Initial Stage of Incident

Upon the arrival of the initial attendance the first task of the Incident Commander must be to gather information, evaluate the situation and then apply professional judgement to decide the most appropriate course of action. Hazards must be identified and the risks to firefighters, the public and the environment considered. The benefits of proceeding with a task must be weighed carefully against the risks. It is important to ***think before you act rather than act before you think.*** The consequences of a wrong decision at this stage may be irreversible.

The thought process must begin when the first details are received from Control during mobilisation and should take into account any operational intelligence which is carried on appliances. It is important, however, not to place too much reliance on such information until its accuracy has been confirmed at the incident.

Although there are usually time constraints on decision making in an operational environment, this should not be used as a reason for accepting the unacceptable. The maxim highlighted below demonstrates the correct attitude towards safety:

> **"We may risk our lives a lot, in a highly calculated manner, to protect saveable lives.**
>
> **We may risk our lives a little, in a highly calculated manner, to protect saveable property.**
>
> **We will not risk our lives at all for lives or property that are already lost."**

If, after implementing all available control measures, the cost of proceeding with a task still outweighs the benefit, **DO NOT PROCEED**, but consider viable alternatives.

Dynamic Assessment Method

EVALUATE THE SITUATION, TASKS AND PERSONS AT RISK

Consider questions, such as:

- What operational intelligence is available e.g. risk cards, 1(1)(d) sheets, fire safety plans; is it current and reliable?
- What tasks need to be carried out?
- What hazards are there in carrying out the tasks in this situation?
- What risks are associated with these hazards - to firefighters, other emergency service personnel, the public and the environment?
- What resources are available e.g. experienced personnel, appliances and equipment, specialist advice?

SELECT SYSTEMS OF WORK

- Consider the possible systems of work and choose the most appropriate for the situation.
- The starting point for consideration must be procedures that have been agreed in pre-planning and training.
- Ensure that personnel are competent to carry out the tasks that they have been allocated.

ASSESS THE CHOSEN SYSTEMS OF WORK

Assess the chosen systems of work. Are the risks proportional to the benefits?

- If **YES** proceed with the tasks after ensuring that:
  - Goals, both individual and team are understood.
  - Responsibilities have been clearly allocated.
  - Safety measures and procedures are understood.
- If **NO** continue as below.

INTRODUCE ADDITIONAL CONTROLS

Eliminate, or reduce, any remaining risks to an acceptable level, if possible, by introducing additional control measures, such as:

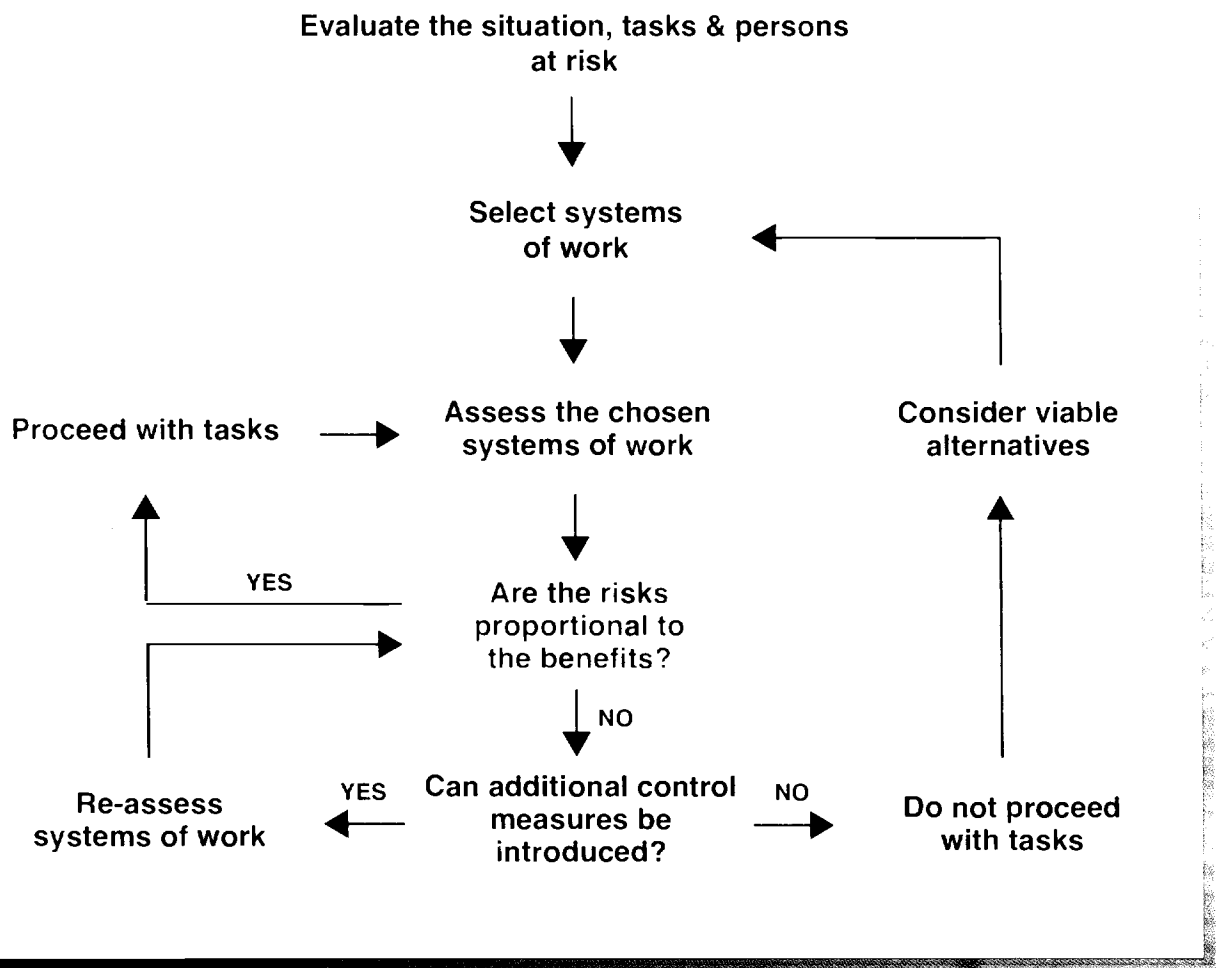
- Use of PPE eg. safety glasses, safety harnesses
- Use of BA
- Use of specialist equipment e.g. HP, TL
- Use of Safety Officer(s)

RE-ASSESS SYSTEMS OF WORK AND ADDITIONAL CONTROL MEASURES

If any risks remain, does the benefit gained from carrying out the tasks outweigh the possible consequences if the risks are realised?

- If the benefits outweigh the risks, proceed with the tasks.
- If the risks outweigh the benefit do NOT proceed with the tasks, but consider viable alternatives.

Dynamic Assessment Flowchart



Development Stage of Incident

As the incident develops additional factors may make the original course of action inappropriate, for example:

- Decision making may change from being pro-active to being reactive as conditions change in unforeseen ways.
- New hazards and their associated risks may arise e.g. the effects of fire on building stability.
- Existing hazards may present different risks.
- Operational activities may produce risks to people and/or the environment.
- Personnel may need to be monitored for signs of fatigue.

The Incident Commander, therefore, needs to **manage** safety by constantly monitoring the situation and reviewing the effectiveness of existing control measures.

There are three significant ways in which the actions of operational personnel can threaten safety as the incident develops.

POOR COMMUNICATION SYSTEMS

At large incidents, lines of communication increase and become more complex. It is essential that the Incident Commander implements and maintains good communication systems both to and from all parts of the incident ground and between parts of the incident ground where actions in one sector may affect the safety of personnel in an adjacent sector. If, for example, BA wearers are working inside a building, it will be necessary to obtain permission before directing water from the monitor of an aerial appliance into the building.

DISORDERS OF DECISION MAKING

It is well known that stress can adversely affect the quality of decision making. All personnel must be aware of this and be able to recognise the signs of deterioration in the decision making processes of both themselves and their colleagues.

Three specific disorders of decision making, which may apply to both individual and group decisions have often been found to contribute to failure in emergency situations.

- Concentrating on achieving one goal before moving on to another, then another, and so on. This can lead to failure because, in complex situations, many goals may need to be attempted at the same time.
- Concentrating on one aspect that individuals believe that they have the competence to achieve, at the expense of other necessary tasks.
- Inability to make decisions, either because of an overload of information or responsibilities, or because of undefined responsibilities.

WEAKNESSES IN THE SYSTEM OF COMMAND

The system of command itself may increase risk, particularly where large numbers of personnel are involved.

The Incident Commander must be able to obtain reliable and up to date information about how the incident is developing in every sector of operations. All officers must, therefore, realise the importance of constantly gathering and relaying such information. Failure in this task may result in a loss of control of the incident.

Equally, in a rapidly changing hazardous environment, Sector Commanders must be given the authority to take autonomous action if circumstances make this necessary. Within the severe time constraints of an emergency situation, immediate action may be the only way to retain control.

Closing Stage of Incident

During the closing stage of an incident, personnel must not become complacent. The process of task and hazard identification, assessment of risk, planning, organisation, control, monitoring and review of the preventive and protective measures must continue until the last appliance leaves the incident ground.

There are usually fewer reasons for accepting risks at this stage because there are fewer benefits to be gained from the tasks being carried out. Officers should, therefore, have no hesitation in halting work in order to maintain safety.

As the urgency of the situation diminishes, the Incident Commander should also nominate an officer to gather information for the post incident review. Whenever possible, this officer should debrief crews before they leave the incident, whilst events are still fresh in their minds.

Details of all 'near misses' i.e. occurrences that could have caused injury but did not in this instance, must be recorded because experience has shown that there are many near misses for every accident that causes harm. If, therefore, we fail to eradicate the causes of a near miss, we will probably fail to prevent injury or damage in the future.

INCIDENT DEBRIEF

Following an incident any significant information gained, or lessons learned, must be fed back into the Strategic decision making process via the Systematic level in order to:

- review
- re-evaluate
- refine
- modify

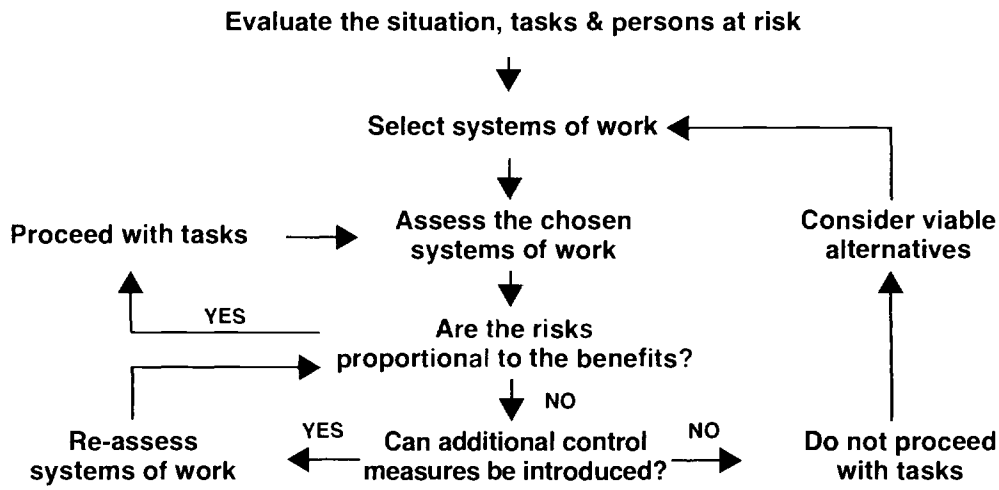
existing information, personal protective equipment, equipment, systems of work, instruction, training, and levels of safety supervision etc.

It is important to highlight any unconventional system or procedure used which was successful or made the working environment safe.

It is equally important to highlight all equipment, systems or procedures which did NOT work satisfactorily, or made the working environment unsafe.

Summary

Initial Attendance Stage of Incident

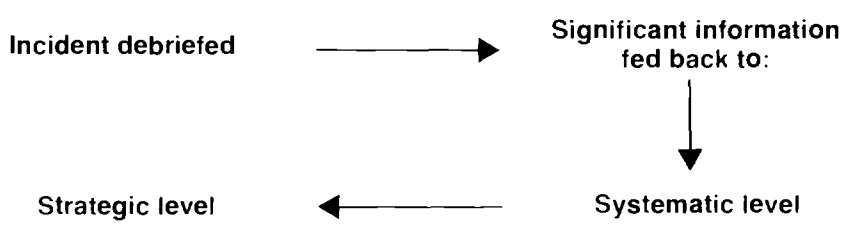


Development Stage of Incident

As the incident develops, re-evaluate the situation, tasks & persons at risk. Apply above model to take account of any new hazards & introduce control measures as necessary to allow existing or new tasks to proceed. Halt tasks completely if the risk outweighs the benefits to be gained.

Closing Stage of Incident

Maintain the process of task & hazard identification, assessment of risk, planning, organisation, control, monitoring & review of the preventive & protective measures.



Glossary

TASK
A specific piece of work to achieve an objective.

HAZARD
Something with the potential to cause harm. This could be anything from a slippery domestic kitchen floor to a radiation leak from a nuclear reactor.

RISK
A measure of the likelihood that the harm from a particular hazard will occur, taking into account the possible severity of the harm.

HARM
This includes death, injury, physical or mental ill-health, damage to property, loss of production/service, or any combination of these.

CONTROL MEASURE
An intervention technique to reduce risk. This could include the use of PPE, BA, specialist equipment and safety officer(s) etc.

SAFETY
A state where exposure to hazards has been controlled to an acceptable level.

RISK ASSESSMENT
The process of analysing the level of risk, considering those in danger and evaluating whether hazards are adequately controlled, taking into account any existing control measures.

DYNAMIC RISK ASSESSMENT
The continuous assessment of risk in the rapidly changing circumstances of an operational incident, in order to implement the control measures necessary to ensure an acceptable level of safety.

RISK MANAGEMENT
The process of identifying hazards, assessing risk, taking action to eliminate or reduce risk, monitoring and reviewing.

DYNAMIC MANAGEMENT OF RISK
The continuous process of identifying hazards, assessing risk, taking action to eliminate or reduce risk, monitoring and reviewing, in the rapidly changing circumstances of an operational incident.

HEALTH AND SAFETY MANAGEMENT
A system of defining policy for health and safety, organising and planning to achieve policy, implementing plans, measuring performance, reviewing and auditing the management system.

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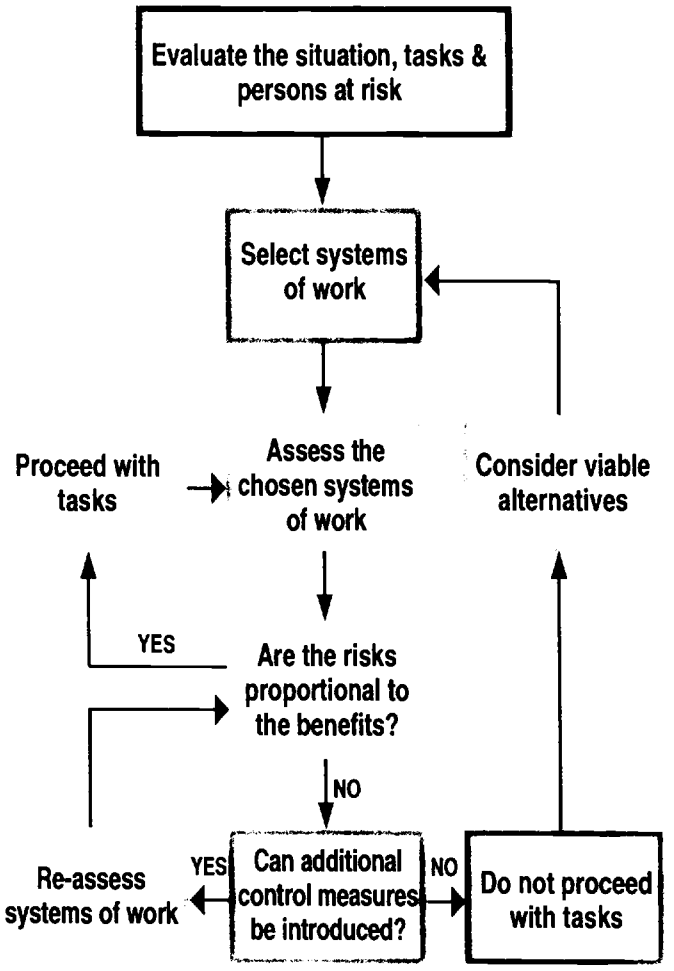
Further Reading

Readers are encouraged to improve their knowledge of health and safety management procedures in the fire service by consulting the other documents in this series, copies of which are held in every Brigade.

Volume 1	-	A Guide for Senior Officers
Volume 2	-	A Guide for Managers
Volume 3	-	A Guide to Operational Risk Assessment

Dynamic Assessment Flowchart



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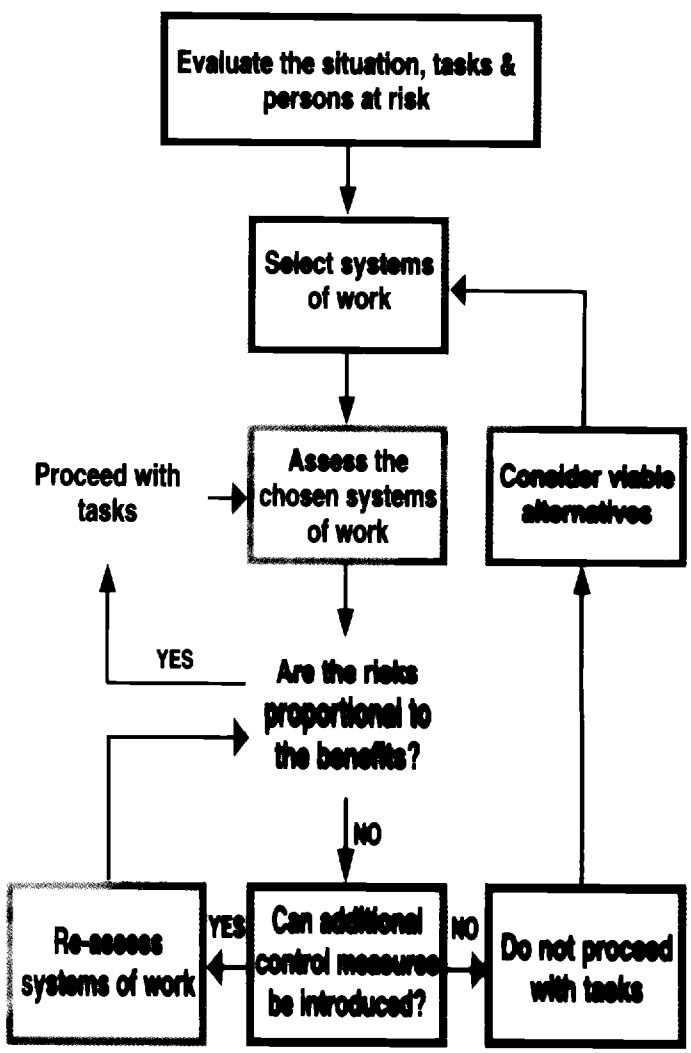

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