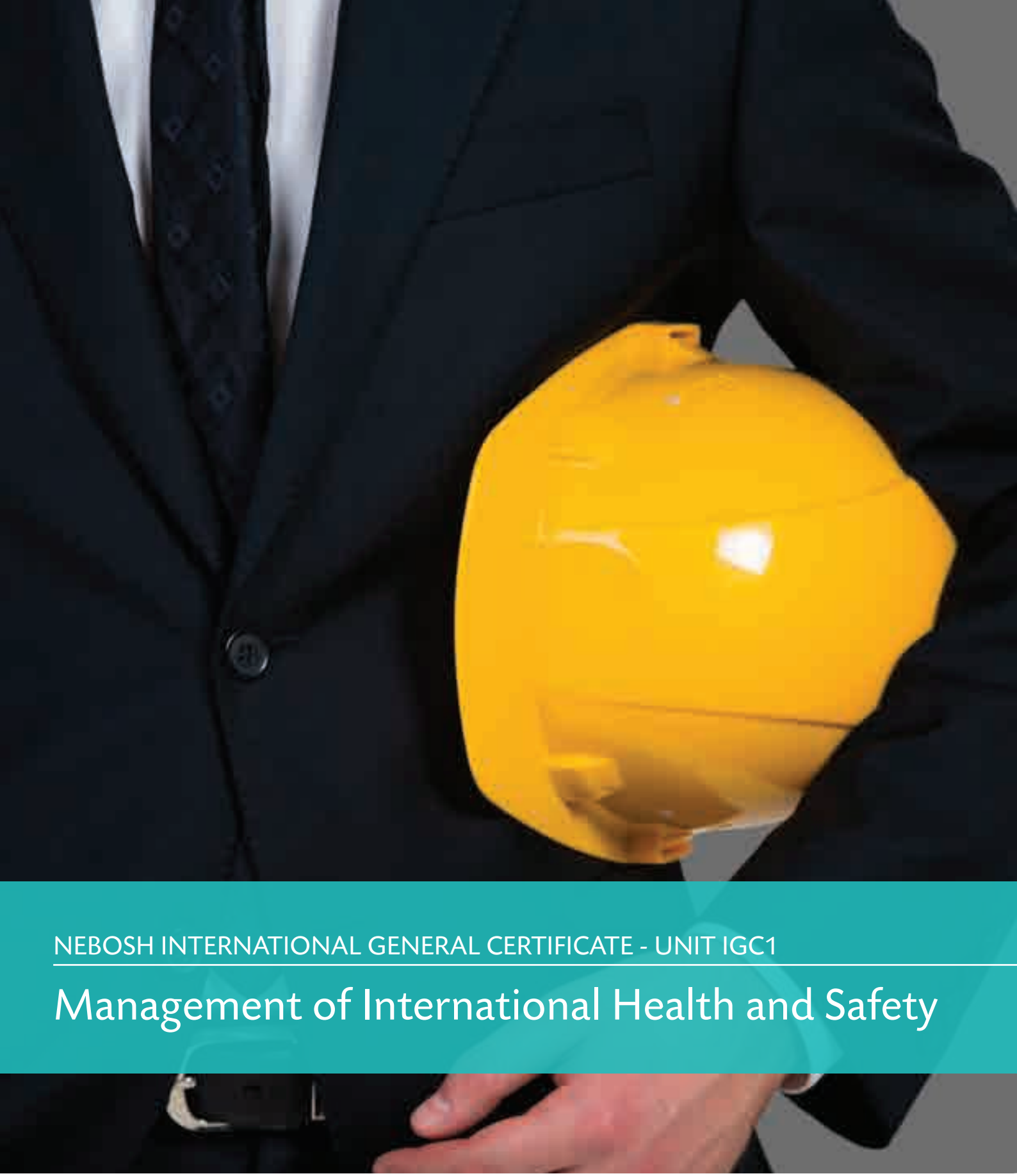

NEBOSH INTERNATIONAL GENERAL CERTIFICATE - UNIT IGC1

Management of International Health and Safety

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RRC INTERNATIONAL

NEBOSH INTERNATIONAL GENERAL CERTIFICATE

UNIT IGC1: MANAGEMENT OF INTERNATIONAL HEALTH AND SAFETY

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Introduction

Element 1: Foundations in Health and Safety

Element 2: Plan

Element 3: Do

Element 3: Do (Continued)

Element 4: Check

Element 5: Act

Introduction

Course Structure

This textbook has been designed to provide the reader with the core knowledge needed to successfully complete Unit IGC1 of the NEBOSH International General Certificate, International Fire Certificate and International Construction Certificate qualifications, as well as providing a useful overview of health and safety management. It follows the structure and content of the NEBOSH syllabus.

Each NEBOSH Certificate qualification consists of three units of study. When you successfully complete any of the units, you will receive a Unit Certificate. To achieve a complete NEBOSH Certificate qualification, you need to pass the three units within a five-year period. For more detailed information about how the syllabus is structured, visit the NEBOSH website (www.nebosh.org.uk).

Each NEBOSH Certificate qualification can be achieved as follows:

NEBOSH International General Certificate in Occupational Health and Safety

Unit IGC1: Management of International Health and Safety	
Element 1	Foundations in Health and Safety
Element 2	Plan
Element 3	Do
Element 4	Check
Element 5	Act

Unit GC2: Controlling Workplace Hazards

Unit GC3: Health and Safety Practical Application

Unit IGC1 Management of International Health and Safety + Unit GC2 Controlling Workplace Hazards + Unit GC3 Health and Safety Practical Application = **NEBOSH International General Certificate in Occupational Health and Safety**

NEBOSH International Certificate in Construction Health and Safety

Unit IGC1: Management of International Health and Safety

Unit ICC1: Managing and Controlling Hazards in International Construction Activities

Unit ICC2: Health and Safety Practical Application

Unit IGC1 Management of International Health and Safety + Unit ICC1 Managing and Controlling Hazards in International Construction Activities + Unit ICC2 Construction Health and Safety Practical Application = **NEBOSH International General Certificate in Construction Health and Safety**

NEBOSH International Fire Certificate in Fire Safety and Risk Management

Unit IGC1: Management of International Health and Safety

Unit IFC1: Fire Safety and Risk Management

Unit FC2: Fire Safety Practical Application

Unit IGC1 Management of International Health and Safety + Unit IFC1 Fire Safety and Risk Management + Unit IFC2 Fire Safety Practical Application = **NEBOSH International Certificate in Fire Safety and Risk Management**

Assessment

To complete the qualification, you need to pass two formal written exams (one for Unit IGC1 and one for the second unit of your particular qualification), as well as a practical assessment (Unit 3).

Each written exam is two hours long and consists of eleven compulsory questions, each of which requires a full written answer.

The practical assessment requires you to undertake a safety inspection in your workplace and write a short report on your findings.

Further information and help on the Unit IGC1 exam is given in this textbook in the Exam Skills sections at the end of each element and in the Revision and Examination chapter at the end. Further information and help on the exam for your other unit and practical assessment is given in your second textbook.

HINTS AND TIPS

As you work your way through this book, always remember to relate your own experiences in the workplace to the topics you study. An appreciation of the practical application and significance of health and safety will help you understand the topics.

Keeping Yourself Up to Date

The field of health and safety is constantly evolving and, as such, it will be necessary for you to keep up to date with changing legislation and best practice.

RRC International publishes updates to all its course materials via a quarterly e-newsletter (issued in February, May, August and November), which alerts students to key changes in legislation, best practice and other information pertinent to current courses.

Please visit www.rrc.co.uk/news-resources/newsletters.aspx to access these updates.

Other Textbooks in the Series

- NEBOSH National Fire Certificate - Fire Safety and Risk Management
- NEBOSH International Fire Certificate - Fire Safety and Risk Management
- NEBOSH National Certificate in Construction Health and Safety - Managing and Controlling Hazards in Construction Activities
- NEBOSH International Certificate in Construction Health and Safety - Managing and Controlling Hazards in International Construction Activities
- NEBOSH National Diploma Unit A - Managing Health and Safety
- NEBOSH National Diploma Unit B - Hazardous Substances/Agents
- NEBOSH National Diploma Unit C - Workplace and Work Equipment Safety
- NEBOSH International Diploma Unit IA - Managing Health and Safety
- NEBOSH International Diploma Unit IB - Hazardous Substances/Agents
- NEBOSH International Diploma Unit IC - Workplace and Work Equipment Safety

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Element 1

Foundations in Health and Safety

Learning Outcomes

Once you've read this element, you'll understand how to:

1. Outline the scope and nature of occupational health and safety.
2. Explain the moral, social and economic reasons for maintaining and promoting good standards of health and safety in the workplace.
3. Explain the role of national governments and international bodies in formulating a framework for the regulation of health and safety.

Contents

The Scope and Nature of Occupational Health and Safety

IN THIS SECTION...

- The study of health and safety involves the study of many different subjects, including the sciences (chemistry, physics and biology), engineering, psychology, sociology and law.
- There are many barriers to good standards of health and safety in a workplace: workplaces can be complex; there are often competing and conflicting demands placed upon people and organisations; and good health and safety practice often relies on the perfect behaviour of individuals, who sometimes fail to behave in this ideal way.
- Key definitions are:
  - Health - the absence of disease.
  - Safety - the absence of risk of serious personal injury.
  - Welfare - access to adequate facilities that the worker needs for basic functions, e.g. toilets.

The Multi-Disciplinary Nature of Health and Safety

Workplace health and safety practice brings together knowledge from many different disciplines. Some health and safety topics are simple to understand; others are technical and require specialist knowledge. Sometimes the practical solution to a health and safety problem is straightforward; at other times the solution is complicated and demanding and requires the correct application of technical knowledge and thinking.

Health and safety involves many different disciplines

In order to fully understand a health and safety issue you need to be familiar with the:

- Technical background to the issue and have the relevant knowledge.
- Standards that may apply to the workplace and to the specific health and safety issue under consideration.
- Possible strengths and weaknesses of the various options available to solve the problem.

The study of health and safety therefore involves many different subjects, including the sciences (chemistry, physics and biology), engineering, psychology, sociology and the law.

Barriers to Good Standards of Health and Safety

There are many barriers to good standards of health and safety in a workplace:

- **Complexity** - workplaces can be complicated areas, involving the co-ordination of many people performing many different activities. Finding a solution to a specific health and safety problem or issue can be complex, requiring extensive background knowledge and an awareness of the possible consequences of the various courses of action that are available.
- **Conflicting demands** - there are often competing and conflicting demands placed upon people and organisations. A common conflict of interest is that between the need to supply a product or a service at an appropriate speed and cost, so as to make a profit or meet a budget, and the need to do so safely and without risk to people's health. Another conflict can be created by the need to comply with different types of standards at the same time, e.g. health and safety law as well as environmental protection law.

Behavioural issues - a worker ignores safety precautions

- **Behavioural issues** - good health and safety practice often relies on the perfect behaviour of individuals, and people sometimes do not behave in this ideal way. We often solve health and safety problems by requiring workers to follow rules of procedure, e.g. a construction worker wearing a hard hat. But people are not robots; they do not behave as they are supposed to all the time. Workers sometimes make mistakes (they do the wrong thing thinking that it is the right thing to do). Sometimes they deliberately break the rules, falsely believing the end justifies the means.

Meanings and Distinctions

The topic of health and safety makes use of key words and phrases. Some important definitions are:

Health

The absence of disease or ill health. For example, asbestos creates a health risk because if you inhale asbestos dust you may contract lung cancer at some stage later in life (perhaps 20 or 30 years after you inhaled the dust). Health relates not only to physical ill health but also to psychological ill health (e.g. exposure to extreme stress can lead to acute mental collapse or a 'nervous breakdown').

Safety

The absence of risk of serious personal injury. For example, walking under a load suspended from a crane during a lifting operation is not safe because if the load falls, serious personal injury or death could result. Staying out of the danger area results in safety.

Welfare

Access to basic facilities such as toilet facilities, hand-wash stations, changing rooms, rest rooms, places where food can be prepared and eaten in relatively hygienic conditions, drinking water and basic first-aid provision.

STUDY QUESTIONS

1. Why might the managers of an organisation not consider health and safety to be a priority?
2. Define:
   (a) Health.
   (b) Safety.
   (c) Welfare.

(Suggested Answers are at the end.)

Reasons for Maintaining and Promoting Good Standards of Health and Safety

IN THIS SECTION...

- The three main reasons why an organisation has to manage health and safety are: moral, social (or legal) and economic (or financial).
- The moral reason relates to the moral duty that one person has to another. Many people are killed, injured or made sick by their work. This is morally unacceptable and society as a whole demands that people are safe while at work.
- The social (or legal) reason relates to the framework of laws that govern the conduct of businesses and organisations. An employer has a duty to provide a safe place of work, safe plant and equipment, safe systems of work, adequate training and supervision, and competent employees.
- The economic (or financial) reason relates to the fact that accidents and ill health cost money. When an accident occurs there will be direct and indirect costs as a result of that event. Some of these losses can be insured against; many of them will be uninsured.

The Size of the Problem

Organisations and individuals have to manage health and safety standards within the workplace for various reasons. These reasons can usually be grouped under three main headings: **moral**, **social** (or legal) and **economic** (or financial).

Fishing is a high-risk sector

The following global statistics have been published by the International Labour Organisation (ILO) as part of their SafeWork programme (you do not need to remember the actual figures; we give them to highlight the scale of the problem):

- There are over 350,000 work-related fatal accidents reported each year - half of these occur in agriculture.
- Over 2.75 million people die every year from occupational accidents and occupational diseases. Around 2.4 million of these deaths are attributable to occupational diseases.
- There are over 270 million occupational accidents and 160 million occupational diseases recorded each year.
- 4% of the world's gross domestic product is lost each year through the cost of injury, death, absence, etc.

Other high-risk sectors are the construction and fishing industries. These figures relate to the number of accidents and cases of disease which are reported and recorded globally. Not everything is reported or recorded, however, so the real figures are almost certainly higher.

MORE...

Information on global occupational safety and health statistics can be found on the ILO website at:

www.ilo.org

Moral Expectations of Good Standards of Health and Safety

The statistics above indicate that a huge amount of pain and suffering is experienced by people who simply go to work to earn a living. The numbers indicate the scale of the problem. What the numbers don't do is tell the individual stories. When health and safety is not managed properly people can get killed and injured in gruesome ways or suffer terrible diseases that have a massive impact not only on them, but also their dependants, families, friends and colleagues. Society as a whole considers these events to be **morally** unacceptable, and injury or ill health should not be a price that has to be paid in order for the worker to feed their family.

Employers (through management) provide the premises and equipment and put in place the working practices which employees use to produce the goods and services from which, in turn, employers earn profits. To that extent employers can be said to gain from the conditions in the workplace. In return, they provide an income for employees, but they also have a **moral** responsibility to provide safe and healthy working conditions.

Social Expectations

The **social** (or **legal**) reasons for managing health and safety relate to the framework of international and national laws that govern the conduct of businesses and organisations. Most countries have laws that set standards for how organisations should conduct themselves with regard to health and safety. Failure to achieve these legal minimum standards can lead to enforcement action by the authorities or prosecution before the courts. Successful prosecution can lead to a fine and, in many countries, to imprisonment for the individuals concerned.

Most countries have these legal standards in place in order to meet the expectations of their society. These expectations are translated into the laws that govern the conduct of individuals and organisations. The expectations of society tend to increase over time so the standards of behaviour of organisations have to meet these higher expectations. In this way, basic health and safety laws are amended over time to become more stringent.

The legal responsibility for health and safety at work rests primarily on the employer. The employer has a duty to provide the following:

- **Safe Place of Work**

  The employer creates the place of work, which should be reasonably safe and without risk to health. What is considered "reasonable" may vary with the type of work. The employer should also provide safe access to and from the workplace.

- **Safe Plant and Equipment**

  All the machinery, tools, plant and equipment used by employees at work should be reasonably safe and without health risk. Exactly what this means will depend on the type of work being carried out. The greater the risk involved, the greater the care that must be taken. For example, machinery would need to be inspected; serviced; repaired and replaced in a steel-making factory, whereas in an office a very simple inspection regime might be sufficient.

A worker inspects equipment to ensure that it is safe

- **Safe Systems of Work**

  There should be recognised procedures for the safe conduct of all work activities. These procedures should cover all foreseeable possibilities, e.g. the operation of drilling equipment in different types of weather, rather than just a set of rules which ensure safety when the weather is good. Procedures should cover the routine day-to-day activities of the organisation and the non-routine, occasional or one-off activities, as well as any foreseeable emergencies that might arise.

- **Training, Supervision and Competency of Staff**

  Workers must be able to carry out the necessary procedures. Employers have a duty to provide appropriate training so that workers are aware of the hazards and risks inherent in their work, the safe systems of work and the emergency procedures. This training can be reinforced by providing information and instruction.

  Employers should supervise workers to ensure that they are carrying out their work with minimal risk to themselves and others. This does not mean that supervisors have to stand and watch every worker at all times, they just have to provide adequate levels of supervision. Finally, an employer should ensure that all workers, supervisors and managers are competent.

A worker receives on-the-job training

DEFINITION

COMPETENT

In this context, 'competent' means that each person has sufficient training, knowledge, experience and other abilities or skills to be able to carry out their work safely and without risk to health.

The Business Case for Health and Safety

The business case for health and safety is simply that accidents and ill health cost money. When an accident occurs there will be direct and indirect costs associated with that event. Some of these losses can be insured against, but many cannot. Accidents and ill health can significantly affect the profitability of an organisation and, in some cases, can put an organisation out of business. This is the **economic** (or **financial**) argument.

Direct and Indirect Costs

When an accident occurs there are two types of losses that the organisation may face:

- **Direct costs** - the measurable costs arising directly from the accident.
- **Indirect costs** - those which arise indirectly as a consequence of the event. Indirect costs are often difficult to quantify precisely and may be hard to identify.

TOPIC FOCUS

Examples of **direct** costs:

- Fines in the criminal courts.
- Compensation payable to the victim, which is likely to be met by insurance cover and will therefore result in an increase in insurance premiums.
- First-aid treatment.
- Worker sick pay.
- Repairs to, or replacement of, damaged equipment and buildings.
- Lost or damaged product.
- Lost production time whilst dealing with the injury.
- Overtime to make up for lost time.
- Costs associated with the rehabilitation of the injured worker and their return to work.

Examples of **indirect** costs:

- Loss of staff from productive duties in order to investigate the incident, prepare reports, undertake hospital visits, deal with relatives, attend court proceedings.
- Loss of staff morale (which impacts on productivity, quality and efficiency).
- Cost of remedial action following an investigation, e.g. change of process or materials and/or the introduction of further control measures.
- Compliance with any enforcement notice served.
- Cost of recruiting and training temporary or replacement labour.
- General difficulties in recruiting and retaining staff as an indirect result of the accident.
- Loss of goodwill of customers following delays in production and fulfilling orders.
- Activation of penalty clauses for failing to meet delivery dates.
- Damage to public image and business reputation.
- Damage to industrial relations, perhaps leading to industrial action (e.g. strikes).

From the examples given you can see that, though more difficult to identify, the indirect costs associated with a workplace accident can be very large indeed.

Insured and Uninsured Costs/Employers' Liability Insurance

It is usually possible to take out insurance to cover some of the losses that might foreseeably occur to an organisation. In most countries it is compulsory to take out **employers' liability insurance** so that if a worker is killed or injured at work there is insurance in place to pay that worker (or their dependants) compensation and to meet the employer's civil costs. As well as meeting a legal requirement, this insurance may provide some comfort to workers, knowing that in the event of an injury the employer is insured to compensate them financially. Similarly, it is usual for an employer to insure their premises and stock against fire.

However, it is not possible to insure against all losses. Some losses are uninsurable by their very nature. For example, you cannot take out an insurance policy to pay money should you be prosecuted and fined in the criminal law courts, as it would no longer act as an effective deterrent. Other losses cannot be insured against because the loss is too difficult to quantify, or because the insurance would be too expensive to consider. For example, organisations cannot insure themselves against loss of revenue if their business reputation is damaged as a result of a major workplace accident. There is no law that prevents this type of insurance, but it is simply not offered by insurance providers.

Many of the direct and indirect costs associated with workplace accidents are uninsured for these reasons. It has been estimated that uninsured losses are between 8 and 36 times greater than insured losses.

Examples of possible insured and uninsured losses include:

Insured Costs	Uninsured Costs
Damage to plant, buildings and equipment.	Production delays or down time.
Compensation paid to workers.	Loss of raw materials due to accidents.
Medical costs.	Accident investigation time.
Legal costs (civil claims).	Criminal fines and legal costs.
	Sick pay for injured workers.
	Overtime to make up for lost production.
	Hiring and training new employees.
	Loss of business reputation.

DEFINITION

CIVIL LAW

The branch of law concerned with compensating individuals for the wrongs done to them.

STUDY QUESTIONS

3. Identify the three reasons why an organisation should manage health and safety.
4. Give three insured costs and three uninsured costs that might arise from a workplace accident.

(Suggested Answers are at the end.)

Role of National Governments and International Bodies

IN THIS SECTION...

- The International Labour Organisation (ILO) has set out Convention C155 and Recommendation R164 which apply to workplace health and safety standards.
- Most countries and regions have established legal standards that meet or exceed the minimum standards set out in C155 and R164.
- These legal standards place a duty on the employer to ensure that workplaces, work activities and work equipment and substances are, so far as is reasonably practicable, safe and without risk to health.
- The legal standards also place a duty on workers to look after their own and other people's health and safety.
- Failure to comply with these legal standards may lead to enforcement action by the authorities or prosecution through a country's criminal courts. Successful prosecution usually results in a fine, but may result in imprisonment.
- Work-related injuries may result in compensation being paid to the victim. In some countries this is achieved by legal action through the civil courts, whilst other countries may have worker compensation schemes for this purpose.

The International Framework

There are no truly global legal standards governing workplace health and safety. Most countries have their own laws, developed over the years to tackle their own issues and concerns. However, countries often end up adopting similar basic approaches to protect the health and safety of their people; the detail may vary but the underlying principles are the same.

Duties are placed on workers to look after their own and other people's health and safety

A prime mover in the area of international legal standards in health and safety is the International Labour Organisation (ILO) which is an agency of the United Nations (UN). Most countries are members of the ILO. The two primary outputs of the ILO are "Conventions" and "Recommendations". These set international legal standards.

Conventions and Recommendations can form the basis of detailed legislation in each member country - the result being that basic minimum health and safety standards are adopted. The detailed provisions will still vary, as each member state implements the standards in a nationally appropriate way.

In 1981, the ILO adopted the **Occupational Safety and Health Convention (C155)**. This describes a basic policy for health and safety at both the national level and the level of the individual organisation.

The **Occupational Safety and Health Recommendation 1981 (R164)** supplements C155 and provides more detailed guidance on how to comply with the policies of C155. In particular, it identifies obligations that might be placed on employers and employees in order to achieve the basic goal of a safe and healthy place of work.

Countries that belong to the ILO have ratified C155 and R164 and have then legislated to put their requirements into the national (or regional) law.

In C155 and R164 there is a general recognition that most of the responsibility for ensuring good standards of health and safety at work lies with the employer - since he or she provides the work, the workplace, the tools, systems, methods, etc. They also recognise that individual workers have responsibilities. Though the legal wording varies between countries, the general theme is that employers and workers must exercise reasonable care to ensure safety and absence of risk to health.

Employers' Responsibilities

Article 16 of C155 identifies some basic obligations placed on employers:

1. *"...to ensure that...the workplaces, machinery, equipment and processes under their control are safe and without risk to health.*
2. *...to ensure that...the chemical, physical and biological substances and agents under their control are without risk to health...*
3. *...to provide...adequate protective clothing and protective equipment to prevent...risk of accidents or of adverse effects on health."*

Source: C155 Occupational Safety and Health Convention, 1981 (abbreviated)

These duties are very generally worded in the Convention. R164 expands on what they might mean in practice. It identifies some practical obligations to meet the objective of Article 16 of C155.

TOPIC FOCUS

Specifically, Article 10 of R164 puts the following obligations on employers:

- Provide workplaces and work equipment, and use work methods, which are safe and pose no risk to health.
- Provide appropriate instructions and training.
- Provide necessary supervision.
- Put in place health and safety arrangements adapted to suit the size and nature of the undertaking.
- Provide any necessary personal protective clothing and equipment free of charge.
- Ensure that the hours of work do not adversely affect employees' safety and health.
- Take measures to eliminate any extreme physical and mental fatigue.
- Stay up to date with knowledge in order to comply with the above.

In this way the responsibility is placed directly on the employer. However, it is also recognised that individual workers have a critical part to play in keeping workplaces safe, so workers are also given duties.

Workers' Responsibilities and Rights

Article 19 of C155 states that all workers and their representatives have to co-operate with their employer so that he or she can fulfil his or her safety obligations.

R164 provides more detail on this general duty.

TOPIC FOCUS

R164 says that workers should:

- Take reasonable care of their own safety and that of other people who might be affected by the things that they do and the things that they fail to do.
- Comply with safety instructions and procedures.
- Use all safety equipment properly and not tamper with it.
- Report any situation which they believe could be a hazard and which they cannot themselves correct.
- Report any work-related accident or ill health.

The Convention and Recommendation not only put a duty on workers, but also give those workers rights.

In addition to the basic right to a safe workplace, Article 19 of C155 gives workers the following rights:

- The right to be provided with adequate information on actions the employer has taken to ensure occupational safety and health.
- The right to the necessary training in occupational safety and health.
- The right to be consulted by the employer on all matters of occupational safety and health relating to their work.
- The right to leave a workplace which the worker has reason to think presents an imminent and serious danger to his or her life or health and not be compelled to return until it is safe.

MORE...

Further information on the ILO Conventions and Recommendations can be found at:

www.ilo.org

The Role of Enforcement Agencies

There is no harmonised global standard for the enforcement of health and safety law, so legal and enforcement systems vary between countries. There are, however, some general principles which normally apply:

- Each country or region has one (or more) enforcement agency responsible for enforcing health and safety law. Such an agency is effectively the "health and safety police force". In some circumstances the agency may be, or may enlist the help of, the national or regional police. These agencies often provide advice, investigate workplace accidents, take formal enforcement action to force employers to comply with the law and start criminal proceedings against persons or organisations they believe have committed offences.
- Many countries have a separate fire authority with a role in enforcing fire safety legislation and/or advising employers.
- In some countries, insurance companies fulfil a major role in enforcing safety by carrying out inspections and audits on a regular basis. These can help to improve standards, as the insurance company can demand increased insurance premiums or refuse to provide insurance cover at all unless standards are improved.

Consequences of Non-Compliance

A breach of health and safety legislation is usually a criminal offence - wherever you are in the world.

Failure to meet legal standards might lead to:

- **Formal enforcement action**: an enforcement agency might force an employer either to make an improvement within the workplace within a given time period, or to stop carrying out high risk activities altogether until improvements are made. Failure to comply with formal enforcement action is usually considered to be an offence in itself.
- **Prosecution of the organisation in the criminal courts**: successful prosecution might result in punishment in the form of a fine.
- **Prosecution of individuals, such as directors, managers and workers**: successful prosecution might result in punishment in the form of a fine and/or imprisonment.

As well as the criminal law consequences there is also the matter of compensation for workers and others injured by a workplace accident. Depending on the region/country concerned, this might involve the worker:

- Taking legal action against their employer through the civil legal system, and having to prove that their employer had been negligent and was therefore to blame for their injury.
- Claiming compensation from national or regional compensation schemes, with no requirement to prove negligence or blame through the use of the legal system.

Other International Standards

The International Organisation for Standardisation (ISO) is the world's largest developer of management standards. ISO has developed **ISO 9001** (the quality management standard) and **ISO 14001** (the environmental management standard). Whilst these are not legal standards, they have been adopted by many companies throughout the world since they demonstrate good management practice. The result is a common approach to managing quality and environmental matters.

At a technical level, ISO has been responsible for developing safety standards to which machinery, etc. should conform, e.g. ISO 12100: Safety of Machinery. As compliance with the recognised international standard demonstrates safety, national legislation often refers to these standards.

There is an internationally recognised standard for health and safety management. The International Organisation for Standardisation (ISO) standard **ISO 45001** Occupational health and safety management systems is compatible with other management system standards such as ISO 9001 (quality management) and ISO 14001 (environmental management)..

Sources of Information

Information on national standards can be obtained from the relevant national regulatory bodies, who publish guidance documents which provide information on the legal standards required. Many of the regulatory bodies have websites which are valuable sources of information, such as:

- Health and Safety Executive (HSE) in the UK at: www.hse.gov.uk
- Occupational Safety and Health Administration (OSHA) in the US at: www.osha.gov.
- European Agency for Safety and Health at work (EU): https://osha.europa.eu/
- Worksafe in Western Australia at: www.commerce.wa.gov.au/WorkSafe

STUDY QUESTIONS

5. Identify three of the legal duties that an employer has to comply with.
6. Identify two of the legal duties that a worker has to comply with.
7. What are the consequences for an employer of non-compliance with health and safety responsibilities?

(Suggested Answers are at the end.)

Summary

This element has dealt with some of the basic principles of workplace health and safety.

In particular, this element has:

- Explained that health and safety is a multi-disciplinary topic that requires knowledge across a wide range of subjects and that there are barriers to raising health and safety standards in a workplace.
- Introduced some of the key words that will be used in this course, such as: health; safety; and welfare.
- Highlighted the three main reasons why an organisation has to manage health and safety, which can be summarised as moral, social (or legal) and economic (or financial).
- Set out the basic requirements of the international standards that govern health and safety, i.e. the ILO Convention C155 and Recommendation R164.
- Looked in some detail at the duties that these two standards place on employers and on workers.
- Discussed the consequences for employers and workers of non-compliance with legal standards, together with the possible issue of worker compensation.
- Noted some sources of information on national health and safety standards.

Exam Skills

Introduction

To pass the NEBOSH Certificate you need to perform well during the exams. You only have two hours and your performance will be related to two key factors:

- the amount that you can remember about the elements you've studied; and
- your success in applying that knowledge to an exam situation.

Being good at both aspects is essential. Being calm under exam pressure is pointless if you do not have a good knowledge of the information required to answer the exam questions.

Here we will consider some practical guidelines that can be used to increase success in the exam. Then you will find Exam Skills questions for you to answer at the end of each element, starting with this one.

Exam Requirements

The IGC1 exam consists of two sections:

- Section 1 contains one question, which is likely to consist of a number of sub-parts. This question in total is worth 20 marks.
- Section 2 contains ten questions with each question being worth eight marks.

There is no choice of questions in the exam - all questions must be answered. The exam in total lasts two hours and NEBOSH recommends that you spend:

- about half an hour on Section 1; and
- about one-and-a-half hours on Section 2.

Exam Technique

In the exam, candidates can often struggle because they have not understood the question that is being asked. They can interpret questions wrongly and, as such, provide an answer for the question they think is in front of them but in reality is not. To try to overcome this issue, let's look at a step-by-step approach that you can adopt when answering exam questions:

Step 1.	**Read the question** - the first step is to read the question carefully. Take care with this as it is very easy to misread words in the rush to get writing.
Step 2.	**Highlight the key words** - the key words include the **command** word that NEBOSH has used in the question (see below) and other important words that direct the question. It is a good idea to underline these words on the exam paper to make them stand out.
Step 3.	**Look at the marks** - each question or part of question will have the maximum number of marks indicated in brackets. For each mark to be awarded, the examiner will expect a piece of information. The marks available give an indication of how much you will need to write and how long you should spend on this part of each question.
Step 4.	**Re-read the question** - to check that you have properly interpreted it and understood it. There are no marks available for answering the question that you *think* you see rather than the one that the examiner asked you.

Step 5.	**Draw up a plan** - this can take the form of a list or a mind map that helps you unload information quickly and make sure you have enough factors (or things) in your answer to win the available marks. Jotting down a plan can help you remember key points. The plan is also your aide-mémoire to keep you on track as you start to write your full answer.

When it comes to the exam, make sure you indicate clearly which is your answer plan and which is your final answer, so that the examiner can be sure to mark the correct one.

When writing your answer, you must ensure that the structure of the question appears in the structure of your answer. So, for example, if the question has a part (a) and a part (b), your answer must follow the same structure. Answer part (a) and label it clearly for the examiner as the answer to part (a). Then leave a gap (one line will do) and answer part (b) and label it clearly. The examiner must be able to see the two separate parts of your answer and it must be clear to them which parts are the answer to which. One long paragraph of text that contains all parts of the answer jumbled up together cannot win full marks, even if all of the relevant information is there.

The above exam technique is tried and tested and is the best way to approach each exam question.

All the way through the exam, you must also remember to monitor the time.

- The 20-mark question in the first section should take around 25 minutes to answer, with five minutes' reviewing time.
- Each of the ten eight-mark questions in Section 2 should take around eight minutes to answer. This will leave an accumulated time of ten minutes at the end of Section 2 to review your answers.

When composing your answer, it is essential that you pay proper attention to the **command word** (e.g. outline, describe, identify, explain) that has been used in the question. Candidates lose marks if the wrong approach is taken. The command word informs you about the amount of information the examiner is expecting to see in your answer.

Command Words and Their Meaning

Command word	Definition
Identify	To give reference to an item, which could be its name or title. NB: normally a word or phrase will be sufficient, provided the reference is clear.
Give	To provide short, factual answers. NB: normally a single word, phrase or sentence will be sufficient. Often used in the context of "give an example".
Outline	To indicate the principal features or different parts of. NB: an exhaustive description is not required. What is sought is a brief summary of the major aspects of whatever is stated in the question.
Describe	To give a detailed written account of the distinctive features of a subject. The account should be factual, without any attempt to explain. When describing a subject (or object) a test of sufficient detail would be that another person would be able to visualise what you are describing.
Explain	To provide an understanding. To make an idea or relationship clear. NB: this command word is testing the candidate's ability to know or understand why or how something happens. Is often associated with the words 'how' or 'why'.

Application of Command Words

Below are a few examples of the application of the command words to an everyday situation along with acceptable answers to the questions set:

Identify four kitchen appliances:

- *Toaster.*
- *Microwave.*
- *Washing machine.*
- *Electric kettle.*

Outline four kitchen appliances:

- *Toaster - cooks individual slices of bread.*
- *Microwave - heats food using short length radio waves.*
- *Washing machine - cleans clothes by agitating them in water.*
- *Electric kettle - uses a heating element to boil small quantities of water.*

Describe a washing machine:

A square metal box approximately 60cm x 60cm x 60cm with a door that opens in the front which is usually round and made of glass to view the washing. There is space within the machine to place approximately 7kg of laundry. Detergent and fabric softener are placed in a drawer and water is drawn via a pipe into the machine.

Explain how a washing machine cleans laundry:

The laundry is placed inside the machine drum by the operator. Detergent is placed within the drawer together with fabric softener. The correct operating temperature is selected on the control panel and the machine is started. Water is drawn into the drum together with the detergent and the drum moves to agitate the clothes and wash them. When this is complete, dirty water is drained away and the clothes rinsed with clean water before spinning at high speed to remove excess water.

You will find more guidance as you work through the course along with plenty of sample/practice questions. It's really important that you complete these and get in touch with your tutor if you have any queries or there is anything you are struggling with.

Taking into account what we have just covered on exam technique, look at the following question.

Exam Skills Practice

At the end of each element there is an Exam Skills question (or two) for you to attempt, with guidance on how to answer in addition to a suggested answer outline. This includes an Answer Plan - all of the points listed in this would attract marks and you will see most of them developed in the suggested answer itself.

Remember that when answering exam questions, information from additional reading and personal experience may be included. Examining bodies encourage this and it will enhance your answers.

Please feel free to contact your tutor if you have any queries or need any additional guidance.

QUESTION

Identify possible costs to an organisation following an accident in the workplace. **(8)**

Approaching the Question

Now think about the steps you would take to answer this question:

Step 1. The first step is to **read the question** carefully. This question calls for you to **identify**, so you don't need to give much detail - as we saw earlier, if asked to "identify" you are expected to "select and name", so in this case name the different possible costs.

Step 2. Now **highlight the key words**. In this case, they might look like this:

Identify possible **costs** to an organisation following an **accident** in the workplace. **(8)**

Step 3. Next, **consider the marks available**. In this question there are eight marks. The question doesn't ask for examples, so it is reasonable to assume that for eight marks you would be expected to identify eight costs. As the answer hasn't been limited to only eight factors, feel free to give a few extra in order to maximise the chance of gaining full marks. However, don't go overboard - watch the time! The question should take around eight minutes in total.

Step 4. **Read the question again** to make sure you understand it and have a clear understanding of the costs of accidents. (Re-read your notes if you need to.)

Step 5. The next stage is to **develop a plan** - there are various ways to do this. Your answer must be based on the key words you have highlighted. Remind yourself, first of all, that you need to be thinking about "What costs are there to an organisation if there is an accident?" Think broadly, not just about the more obvious costs.

Now have a go at the question. Draw up an answer plan, and then use it as the basis to write out an answer as you would in the exam. When you have finished, compare your plan and full answer to those that follow.

Suggested Answer Outline

Direct Costs
• First-aid treatment. • Sick pay. • Repairs to equipment. • Lost or damaged product. • Lost production time. • Overtime cover for the injured person. • Fines in criminal court. • Compensation payment to victim.

Indirect Costs
• Investigation time. • Lost employee morale. • Cost of additional control measures. • Compliance with enforcement notices. • Cost of recruiting and retraining additional employees, e.g. for cover. • Damaged customer relationships. • Damaged public image.

Now have a go at the question yourself.

Example of How the Question Could be Answered

There are many costs of accidents, which can be divided into direct and indirect costs.

Direct costs may include:

- *First-aid treatment given to the victim.*
- *Sick pay if they are off work.*
- *Overtime costs incurred to cover their absence.*
- *Repairs to damaged equipment.*
- *Lost or damaged product arising from the accident.*
- *Lost production time.*
- *In the event of legal action there may also be fines or compensation payments.*

Indirect costs may include:

- *The time taken to investigate the accident.*
- *The costs of additional control measures to prevent recurrence and to comply with enforcement notices.*
- *Costs associated with the training and recruitment of additional employees.*
- *There may be a loss of morale in the workforce, which could impact productivity.*
- *Damage to the organisation's public image or customer relationships.*

Reasons for Poor Marks Achieved by Candidates in Exam

Most candidates should find this question straightforward.

Note that in this example, it isn't a requirement of the question to structure the answer as "direct" and "indirect" costs; however, sometimes this is asked (which is why we did so here).

A good structure does help ensure that items aren't missed and helps the examiner award marks easily.

Element 2

Plan

Learning Outcomes

Once you've read this element, you'll understand how to:

1. Outline the key elements of a health and safety management system.
2. Explain the purpose and importance of setting policy for health and safety.
3. Describe the key features and appropriate content of an effective health and safety policy.

Contents

The Key Elements of a Health and Safety Management System

IN THIS SECTION...

- Two widely recognised Safety Management Systems (SMS) exist for the systematic management of health and safety, ILO-OSH 2001 and OHSAS 18001; both are based on the Plan-Do-Check-Act management cycle.
- The ILO-OSH 2001 Safety and Health Management System can be summarised as: policy; organising; planning and implementation; evaluation; action for improvement; and audit.
- ISO 45001 is an externally verified management standard that can be summarised as: Context of the organisation; Leadership and worker participation; Planning; Support; Operation; Performance evaluation; and Improvement.

Introduction to the Key Elements of a Health and Safety Management System

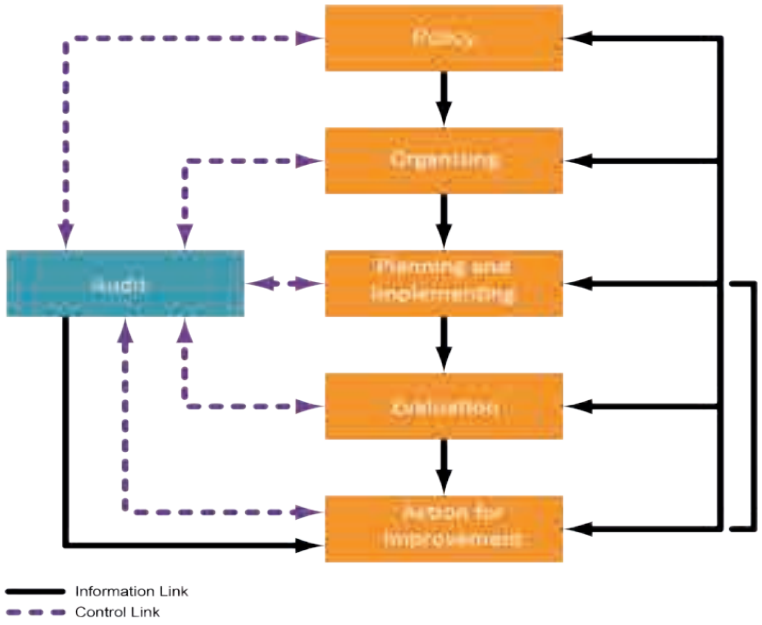
The management of workplace health and safety must be considered systematically within any organisation of any significant size, in the same way as any other form of management. A systematic approach to management of an organisation's health and safety is referred to as a Safety Management System (SMS). There are two standard SMSs commonly recognised internationally, ILO-OSH 2001 and ISO 45001. ILO-OSH 2001 is the ILO's own SMS published in a Guidance Note called "Guidelines on Occupational Safety and Health Management Systems". ISO 45001 is the Occupational Health and Safety Management Systems standard published by the International Organisation for Standardisation (ISO).

Both SMSs are based on what is known as the "PDCA management cycle":

- Plan - what you want to do.
- Do - implement your plan.
- Check - see if the plan works.
- Act - modify your actions accordingly.

In the two sections that follow, the part (plan/do/check/act) where each element of the SMS sits in this PDCA cycle has been indicated in brackets after the element title.

ILO-OSH 2001: The ILO Occupational Safety and Health Management System



The ILO-OSH 2001 Safety Management System

TOPIC FOCUS

ILO-OSH 2001: The ILO Safety and Health Management System:

- **Policy** (plan) - A clear statement has to be made to establish health and safety as a prime commitment of management at all levels of the organisation, but particularly at the top.
- **Organising** (plan) - A framework of roles and responsibilities for health and safety must be created within the organisation, from senior management down to the front-line workers, including the appointment of specialist staff.
- **Planning and Implementing** (do) - Detailed arrangements must be made for the management of health and safety. Central to this idea is the concept of risk assessment and the identification and implementation of safe systems of work and protective measures.
- **Evaluation** (check) - Methods must be devised to monitor and review the effectiveness of the arrangements put into place. This might be done reactively, e.g. by reviewing accident and ill-health statistics, or actively, e.g. by reviewing inspection reports.
- **Audit** (check) - Arrangements must be made for the independent, systematic and critical examination of the safety management system to ensure that all parts are working acceptably well.
- **Action for Improvement** (act) - Any shortcomings identified by the review process must be corrected as soon as possible by making whatever adjustments are necessary to the policy, organisation and arrangements for implementation.
- **Continual Improvement** - The intention is that the safety management system will not remain static but will develop over time to become increasingly appropriate and useful to the organisation that it exists to serve.

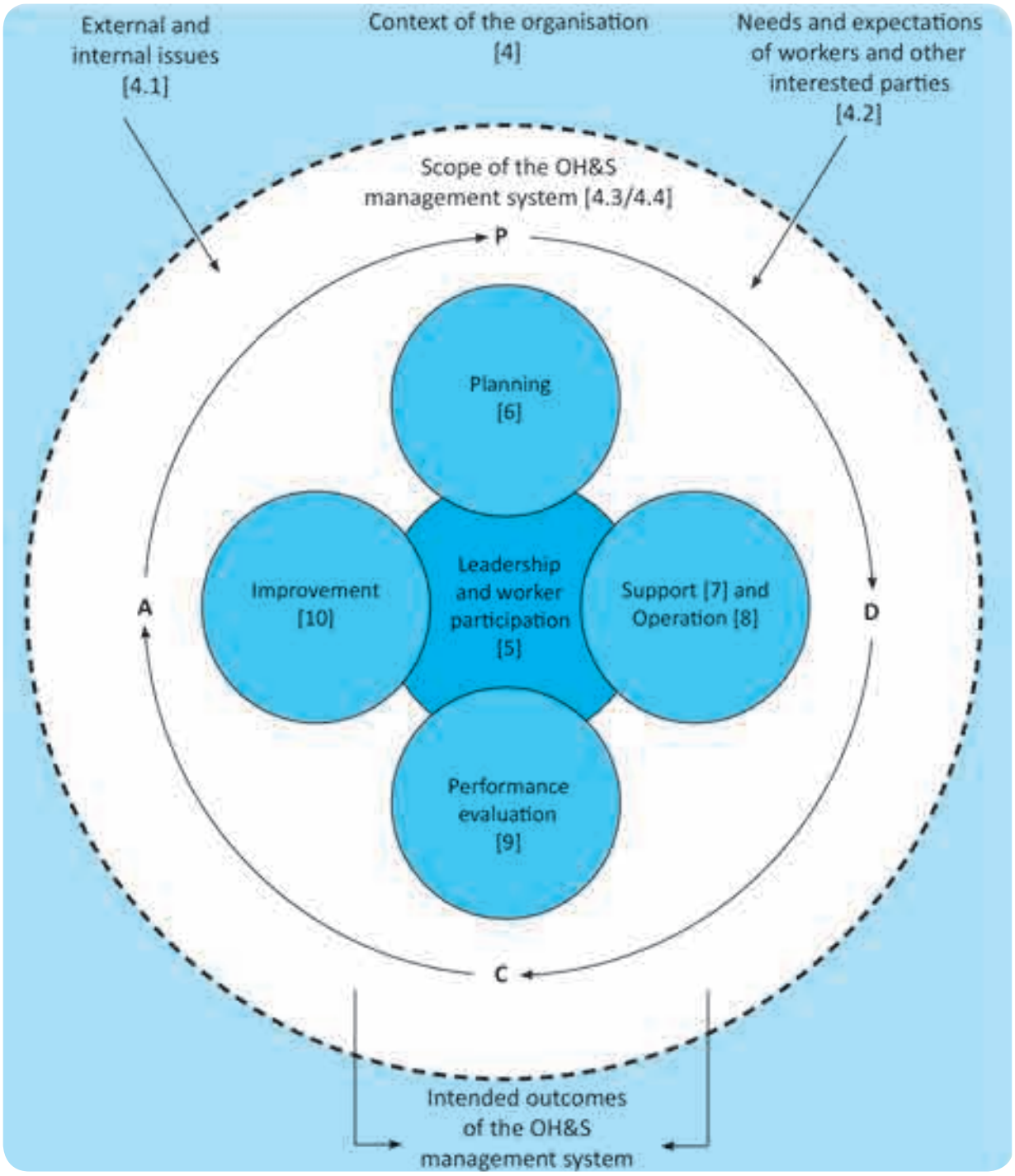
MORE...

Find more information at:

www.ilo.org/safework/info/standards-and-instruments

ISO 45001: The Occupational Health and Safety Management System Standard

The International Organisation for Standardisation (ISO) standard **ISO 45001** provides a management standard that an organisation can be externally audited against. Successful certification to the management standard means that the organisation can demonstrate to other interested parties (such as clients) that it has a robust safety management system that can stand up to close scrutiny. Like HSG65, it is based on the PDCA management cycle. Unlike HSG65, it is fully compatible with other ISO management standards such as ISO 9001 (an internationally recognised quality management standard) and ISO 14001 (an internationally recognised environmental management standard).



The relationship between PDCA and the ISO 45001 clauses

Outline of the Standard

In the following outline, the location of each element in the PDCA cycle has been indicated in brackets after the element title just to help.

Context of the organisation (management system framework) - requires that the occupational health and safety management system (OHSMS) is designed and operated so as to be appropriate to the organisation and its operational environment. Referring to the figure we can see that this forms both the environment in which the management system operates, the boundaries of the system and the system itself. This sets the scene.

Leadership and worker participation (management system framework) - requires that the OHSMS is driven by those at the top of the organisation with the active engagement and participation of workers at all levels. From the figure we can see that this requirement sits at the heart of the PDCA management cycle with a very heavy emphasis on management leadership. The standard makes it clear that top management must be personally involved in driving and promoting the management system.

Planning (Plan) - requires that an ongoing planning process forms a part of the OHSMS so that hazards, risks and opportunities (for improvement) are identified and that appropriate action is identified and planned. This requirement sits in the 'Plan' element of the PDCA cycle and contains many requirements which are central to most organisations' health and safety management arrangements - such as planning for emergencies and planning the risk assessment system.

Support (Do) - is concerned with the provision of support for the OHSMS so that it can be established, implemented, maintained and continually improved.

Operation (Do) - requires that hazard and risk are operationally managed. The figure shows how both of these requirements form the 'Do' element of the PDCA cycle, being concerned with many of the core management activities that are central to good occupational health and safety (OH&S) management.

Performance evaluation (Check) - requires the systematic internal monitoring and reviewing of OH&S performance with a view to driving continual improvement. The figure shows how this fulfils the requirements of 'Check' in the PDCA management cycle.

Improvement (Act) - embeds the principle of learning lessons and implementing the learning from those lessons into the OHSMS. The figure shows how this sits on the position of 'Act' that closes the loop of the management cycle and explicitly requires both organisational learning and ongoing enhancement of the management system. From a practical perspective the requirement sets out many routine OH&S management activities such as safety inspections to identify non-conformities and accident investigation.

Achieving Certification

The ISO management system standard operates in the same way as other ISO management standards (and the old OHSAS 18001 standard) in that conformance to the standard can be verified by an external accredited organisation (such as the British Standards Institution, BSI) so that certification to the standard can be achieved. This certification can then be used by the organisation as proof of a robust OHSMS. This may be useful for internal purposes, e.g. to demonstrate to internal interested parties that the management system exists and is functional. For many organisations it will be useful externally when trying to show clients, customers or the authorities that OH&S management is integrated into the routine functioning of the organisation.

Whether an organisation is using the HSG65 model or ISO 45001, it may be necessary to go round the cycle more than once, particularly when:

- starting out;
- developing a new process, product, or service; or
- implementing any change.

STUDY QUESTIONS

1. What are the elements of the safety management system outlined in ISO 45001 Occupational health and safety management systems?"
2. What is the role of 'evaluation' in the ILO OSH-2001 safety management system?

(Suggested Answers are at the end.)

The Purpose and Importance of a Health and Safety Policy

IN THIS SECTION...

- The health and safety policy of an organisation is an important document that sets out the organisation's aims with regard to health and safety, who is responsible for achieving these aims, and how the aims are to be achieved.
- The policy has a role in the decision-making of both senior management, who formulate it, and middle and junior management, who are required to implement it.

Role of the Health and Safety Policy in Decision-Making

One foundation stone of good health and safety management in any organisation is the health and safety policy. A good health and safety policy sets out the organisation's general approach and commitment to achieving particular aims and objectives. It provides a framework of general and specific health and safety responsibilities for staff, and guidance on the detailed operational arrangements to be taken to protect employees and others from harm as a result of workplace activities.

In particular, the policy should influence decision-making within the organisation. This will occur in two ways:

- Firstly, senior management have to decide what kind of health and safety standards they are committing the organisation to, and will have to allocate resources accordingly.
- Secondly, other managers have to ensure that their decision-making is in line with the policy and does not work against the organisation's stated aims and objectives.

There is no one correct format or set of contents for a health and safety policy, but it must reflect the particular circumstances of the individual organisation: the hazards and risks, the size, and the complexity of the organisation. The policy must therefore be developed and tailored to fit the particular organisation that it exists to serve. For example, the safety policy of a small, low-risk manufacturing company may be very different from that of a large, high-risk oil and gas multinational.

Health and safety policy document

STUDY QUESTION

3. Why might the health and safety policy of two organisations, both undertaking similar work, be different?

(Suggested Answer is at the end.)

The Key Features and Content of a Health and Safety Policy

IN THIS SECTION...

- A health and safety policy is usually presented in three parts: the General Statement of Intent, the Organisation section, and the Arrangements section.
- The General Statement of Intent outlines the importance that the organisation places on health and safety and the commitment that can be expected. It sets aims and objectives for the organisation to achieve. It is signed by the person in overall control of the organisation.
- The Organisation section highlights the roles and responsibilities that exist at all levels within the organisation. It shows the lines of responsibility and accountability.
- The Arrangements section provides the detail on how the organisation manages health and safety. It outlines the general arrangements that relate to health and safety management and the specific arrangements that relate to individual health and safety topics and issues.
- Health and safety policies have to be reviewed in order to stay current and relevant.

The Three Parts of a Policy Document

A policy is normally presented in three sections or elements:

- **General Statement of Intent** - the organisation's philosophy in relation to the management of health and safety.
- **Organisation** section - indicates the chain of command for health and safety management and identifies roles and responsibilities.
- **Arrangements** section - outlines the arrangements that exist for the effective management of health and safety in general terms (e.g. how risk assessments are to be carried out) and also deals with the management of specific issues (e.g. arrangements for ensuring the safety of visitors).

The Organisation section indicates the chain of command

General Statement of Intent

This spells out the organisation's overall approach to health and safety management, and its aims in terms of performance. It must commit the organisation to achieving legal compliance, and in many cases the commitment will be to achieving a higher standard than that set by the law, either as a matter of corporate policy or because of the nature of the organisation. The Statement will usually also contain goals and objectives for the organisation.

The Statement of Intent should recognise that managers and workers at all levels within the organisation have a part to play in implementing policy, and it will therefore state very clearly that every person must comply with the policy and that serious breaches of policy may be treated as disciplinary offences.

The General Statement of Intent should be:

- Signed by the person at the top of the organisation (Chief Executive Officer (CEO), Managing Director (MD), etc.) to authorise the policy and indicate that the policy commitment comes from the highest level. This person also has ultimate responsibility for health and safety in the organisation so should be committed to the policy's contents.

- Dated, to indicate when the current statement was prepared and provide a reference point for review.

TOPIC FOCUS

Aims

The Statement of Intent may recognise some general aims or goals that have to be achieved by the organisation, such as:

- Meeting legal obligations.
- Provision of a safe workplace, safe equipment and safe systems of work, as well as information, instruction, training and supervision.
- Risk assessment of all relevant workplace activities.
- Performance monitoring.
- Provision of adequate resources, such as expert health and safety advice.
- Effective communication and consultation with workers.

Targets/Objectives

The Statement of Intent may also set quantifiable targets/objectives for the organisation to achieve. Targets are useful, as they allow performance to be measured and provide a tangible objective for staff to aim for. They also help drive continual improvement. Possible targets might relate to:

- **Accident rates**: to achieve a reduction in the accident or ill-health rate.
- **Active monitoring**: to complete successfully a number of active monitoring activities, such as:
  - Successful completion of 90% of all supervisor safety inspections over a year.
  - Completion of key activities, such as carrying out risk assessments across the organisation.
  - Delivery of training to all workers.
  - Development of a consultation process to engage the workforce.

Targets may be set in relation to past performance, or the performance of other similar organisations, or the industry as a whole. The process of comparing performance in this way is known as **'benchmarking'**. So, if fatal road-accident rates in an industry as a whole are, for example, one for every 100,000 miles driven, the target for a particular organisation may be to achieve that standard, or have a lower rate.

Setting "SMART" Objectives/Targets

When health and safety objectives are set for an organisation, those objectives should be "SMART".

The acronym SMART refers to the idea that objectives should be:

- **Specific** - a clearly defined, precise objective.
- **Measurable** - it is possible to measure achievement of (or progress towards) the target; usually by quantifying the objective.
- **Achievable** - it can be done.
- **Reasonable** - within the timescale set and with the resources allocated.

- **Time-bound** - a deadline or timescale is set for completion of the objective.

So, for example, the objective: "Improve the safety culture of the organisation" is not smart because it fails to meet many of the criteria of a smart objective. It is not specific, in that it does not identify a precise target to be achieved; it is not easily measurable (as will be discussed in Element 3); and it does not have a deadline for when success should be achieved.

However, the objective: "Review all 48 risk assessments within a 12-month period" is a smart objective. The target is precisely defined, a number is given that allows easy measurement of success and a timescale has been allocated.

When setting health and safety objectives, consideration should be given to:

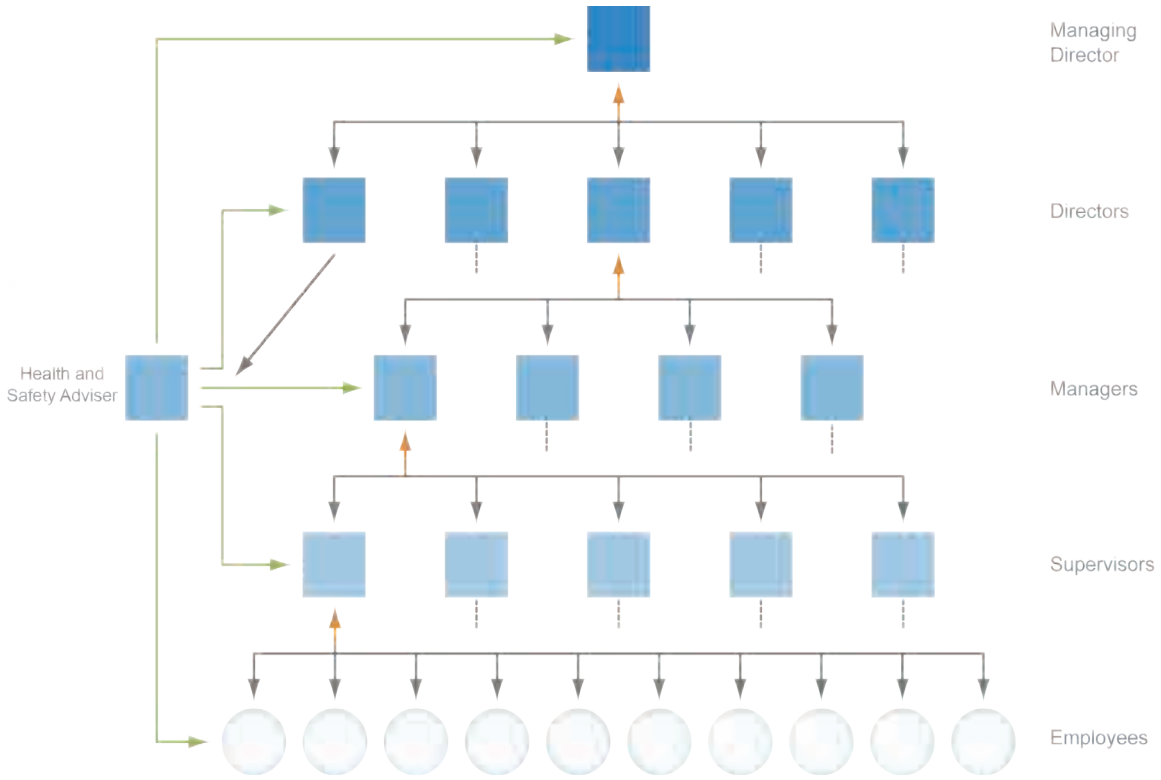
- Who is going to set objectives - the involvement of senior management, perhaps with guidance from health and safety practitioners/advisers.
- How objectives will be set at each functional level - objectives need to be set at different levels or within different parts of the organisation to achieve organisational goals. This can be achieved by setting and agreeing personal targets with individuals through the job appraisal and review process.
- Legal and other requirements - objectives must recognise legal standards and other requirements set by, for example, corporate policy, insurance companies, etc.
- Hazards and risks - the hazards inherent in the workplace and the risks created must be taken into account when setting objectives. If this is not done, the organisation may pursue objectives that are irrelevant or that address only trivial matters.
- Technological options - as technology changes, organisations should take advantage of that new technology and set objectives accordingly.
- Financial, operational, and business requirements - health and safety objectives should integrate with financial, operational and business objectives so that there is no conflict of goals.
- Views of interested parties - for objectives to be achievable it is important that some element of consultation occurs and that the views of interested parties are considered. Employees (through their representatives), supervisors, managers, contractors, clients, customers, landlords, co-occupiers, suppliers, manufacturers and designers may all be able to contribute to the health and safety objectives of an organisation.

Organisation (Health and Safety Roles and Responsibilities)

This section of the health and safety policy deals with people and their operational duties in relation to health and safety. It outlines the chain of command for health and safety management and identifies the roles and responsibilities of staff to enable clear delegation of duties. It is standard practice for this section to include an organisation chart showing the lines of responsibility and accountability (in terms of health and safety management). This chart also shows the lines of communication and the feedback routes that exist within the organisation for clear reporting.

The following figure shows a typical organisation chart for a company. The grey lines show "line management responsibility" flowing down through the structure. The green lines show the "functional responsibility" that the health and safety manager has for providing advice at all levels of the organisation.

The orange lines show the lines of communication and feedback up through the structure.



Health and safety organisation chart

The Organisation section will usually reflect the management hierarchy within the organisation and allocate responsibilities accordingly:

- The **CEO or MD** - ultimately responsible and accountable for the entire organisation.
- **Management at all levels** - responsible for ensuring that all appropriate safety measures are in place and being carried out effectively within the part of the organisation under their management control. This might be done by breaking down the management hierarchy into discrete layers and allocating responsibilities to each layer, e.g. senior managers' responsibilities, middle managers' responsibilities, supervisors' responsibilities.
- **All employees** - responsible for acting safely at all times in the course of their duties at work.
- **Competent persons** - have operational duties, but are also considered competent to carry out one or more specialist health and safety duties, e.g. as first-aiders, fire marshals, etc.
- **Specialist health and safety practitioners** - responsible for providing advice to support management and employees in achieving safety.

Arrangements

The Arrangements section is often the largest section of the policy. It deals with the general arrangements that exist to manage health and safety and the specific arrangements that are necessary to deal with particular risks relevant to the organisation and its activities. The systems and procedures used to manage health and safety are contained in this section.

TOPIC FOCUS

General health and safety management arrangements:

- Carrying out risk assessments.
- Identifying and supplying health and safety information, instruction and training.
- Accident and near-miss reporting, recording and investigation.
- Consultation with workers on health and safety matters.
- Developing safe systems of work and permit-to-work systems to control hazards.
- Welfare and first-aid provision.
- Housekeeping.
- Fire safety and prevention.
- Emergency procedures.
- Communication of health and safety matters, including hazards and control measures.
- Compliance monitoring, including auditing of systems but also measuring workplace parameters, e.g. noise, to assess the effectiveness of the arrangements.

DEFINITION

PERMIT TO WORK

A formal, documented safety procedure forming part of a safe system of work, which ensures that all necessary actions are taken before, during and after particularly high-risk work. We will cover permits in more detail in Element 3.

All the **general** health and safety management issues will be relevant to all workplaces; they are generic issues.

However, the practical arrangements made for the management of these issues will have to be tailored to suit the organisation.

Depending on the workplace, **specific** health and safety arrangements will also have to be developed to deal with particular risks.

The list of possible arrangements that might be required can be long and depends on the problems and issues faced by the organisation in question. For example, a lorry haulage company will have a set of arrangements to manage transport risk, but an office-based company will not.

Examples of specific risks and problems within an organisation that may need detailed arrangements include:

- Lone working.
- Noise-exposure control.
- Vibration-exposure control.
- Control of exposure to toxic materials.

- Control of crowds.
- Control of transport risks.
- Specific health surveillance requirements.
- Waste disposal.

Not all organisations will have all of these risks - these are "specific" to the organisation and its function.

Reviewing Policy

A health and safety policy should not be considered as rigid and unchanging. Instead, it should be subject to regular reviews so that it remains current and relevant. In this way it can be kept a "live" document.

It is good practice to review policy on a regular basis, e.g. annually. However, there are other circumstances which could give rise to reviews, such as technological, organisational or legal changes.

TOPIC FOCUS

Circumstances that might require a review of policy:

- Technological changes, e.g. introduction of new plant or processes.
- Organisational changes, e.g. changes to key personnel, such as a new CEO or MD, or changes to the management structure of the organisation.
- Legal changes, such as the introduction of new legislation applicable to the organisation.
- Changes to the type of work that the organisation does, e.g. when work arrangements change.
- Where an audit, investigation or risk assessment suggests the policy is no longer effective.
- When requested by a third party, such as an insurance company or client.
- Following enforcement action.
- Following consultation with the workforce.
- A change of buildings, workplace or worksite.
- After a certain amount of time has passed since the last review (e.g. an annual review is a common practice).

The aim of the review is to make sure that the policy is up to date and accurate. The date of the last review should be recorded on policy documents to indicate how current they are.

Standards and Guidance

Article 14 of the International Labour Organisation's Occupational Safety and Health Recommendation 1981 (R164) states:

> *"Employers should, where the nature of the operations in their undertakings warrants it, be required to set out in writing their policy and arrangements in the field of occupational safety and health, and the various responsibilities exercised under these arrangements, and to bring this information to the notice of every worker, in a language or medium the worker readily understands."*

Source: R164 Occupational Safety and Health Recommendation, 1981

To achieve compliance with this ILO Recommendation national and regional legislation will contain the specific legal requirement for an employer to implement and record their health and safety policy and arrangements. For example, in Great Britain this legal requirement is set out in the **Health and Safety at Work Act 1974** (section 2(3)).

The ILO's Occupational Safety and Health Management System, ILO-OSH 2001, has additional guidance on safety policy. National governments often publish specific guidance on what this actually means in practice in a given region. For example, in the UK, the HSE publishes several guidance documents on the topic of safety policy and safety management systems.

MORE...

For information on safety management systems and safety policies see:

www.ilo.org/safework/lang--en/index.htm

www.hse.gov.uk

STUDY QUESTIONS

4. What are the three key elements of a health and safety policy?
5. Who should sign the policy statement?
6. What health and safety responsibilities do all workers have?
7. What does a safety organisation chart show?
8. What circumstances might require a review of policy?

(Suggested Answers are at the end.)

Summary

This element has dealt with the Policy element of health and safety management systems.

In particular, this element has:

- Outlined the ILO-OSH 2001 occupational safety and health management system, which can be summarised as: policy; organising; planning and implementation; evaluation; action for improvement; and audit.
- Outlined the ISO 45001 occupational health and safety management system standard: Context of the organisation; Leadership and worker participation; Planning; Support; Operation; Performance evaluation; and Improvement.
- Identified the health and safety policy of an organisation as an important document, which sets out what the organisation's aims are with regard to health and safety, who is responsible for achieving those aims, and how those aims are to be achieved.
- Explained that the policy is usually presented in three parts: the General Statement of Intent, the Organisation section, and the Arrangements section:
  - The General Statement of Intent communicates the importance that the organisation places on health and safety, the commitment that can be expected and the aims and objectives for the organisation to achieve. It is signed by the person in overall control of the organisation.
  - The Organisation section deals with the roles and responsibilities that exist within all levels of the organisation and indicates the lines of responsibility and accountability.
  - The Arrangements section provides the detail on how the organisation manages health and safety. It outlines the general arrangements that relate to health and safety management and the specific arrangements that relate to individual health and safety topics and issues.
- Noted that health and safety policies have to be reviewed in order to stay current and relevant, and that reviews might be carried out periodically, or in response to changes, such as those to key personnel or management structure, changes in technology or legal changes.

Exam Skills

QUESTION

(a) **Identify** a range of health and safety targets that may be included in the Statement of Intent section of a health and safety policy. **(4)**

(b) **Describe** the purpose of:

(i) the Organisation section of a health and safety policy; **(2)**

(ii) the Arrangements section of a health and safety policy. **(2)**

Approaching the Question

Think now about the steps you would take to answer the question:

Step 1. The first step is to read the question carefully. Note that part (a) of the question asks you to identify possible health and safety targets that may be included in the Statement of Intent. As we saw earlier, to "identify" something you need to select and name the key issues. We haven't tackled a description yet - for a "describe" question you need to provide an in-depth description, a word picture of what the thing is, what it looks like, how it works, etc. This requires a great amount of detail, and candidates who don't "describe" where required to will not gain the marks. So, in part (b) of this question you are required to produce descriptions of the purpose of the Organisation and Arrangements sections of the policy.

Step 2. Now highlight the key words. In this case, they might look like this:

(a) **Identify** a range of health and safety **targets** that may be included in the **Statement of Intent** section of a health and safety policy. **(4)**

(b) **Describe** the **purpose** of:

(i) the **Organisation** section of a health and safety policy; **(2)**

(ii) the **Arrangements** section of a health and safety policy. **(2)**

Step 3. Next, consider the marks available. In this question there are eight marks, so it is expected that around eight or nine different pieces of information should be provided. Questions that are split into parts (this one is split into two parts worth four marks each) are often easier to pick up marks on, because the signposts NEBOSH uses are so much easier to see. In the first part the question asks you to "identify" and is worth four marks, so you should provide four targets. The second part is a description of the purpose of the Organisation and Arrangements sections of the policy, which are worth two marks each. The whole question should take around eight minutes, which is a mark per minute!

Step 4. Read the question again to make sure you understand it and have a clear understanding of health and safety policy and safety targets. (Re-read your notes if you need to.)

Step 5. The next stage is to develop a plan. The answer plan will take the form of a bullet-pointed list that you need to develop into a full answer. Your answer must be based on the key words you have highlighted.

HINTS AND TIPS

Although we know part (a) is worth four marks, if you give a couple of additional targets it may maximise your chance of gaining all four marks (though you won't get **more** than four marks!). For each subsection of part (b), you will get two marks for the description - therefore it needs to be detailed enough to show that you understand, for example, the purpose of the arrangements section. But you don't need to write an essay - a few sentences should be enough!

Now have a go at the question. Draw up an answer plan, and then use it as the basis to write out an answer as you would in the exam.

When you have finished, compare your plan and full answer to those that follow.

Suggested Answer Outline

Targets (and Objectives)	Organisation (Purpose)	Arrangements (Purpose)
• Meet legal requirements. • Safe workplace/equipment/systems. • Provision of training and information. • Risk assessment. • Adequate resources. • Communication and consultation with workforce. • Reduced accidents and ill health. • Carrying out active monitoring.	• The responsibilities for implementing policy. • Identifies operational duties for health and safety. • Identifies chain of command. • Identifies roles and responsibilities. • Covers all levels of the organisation, from director to shop floor. • Includes specialist roles, e.g. first aiders and safety advisers.	• The arrangements for implementing policy. • Arrangements in place to manage health and safety. • Specific arrangements for key risks.

Now have a go at the question yourself.

Example of How the Question Could be Answered

(a) An employer may identify a range of targets in the Statement of Intent. These could include:

- *The organisation's compliance with the law.*
- *The provision of a safe working environment with safe equipment and procedures.*
- *The development of risk assessments for business activities.*
- *The provision of information and training to employees as a result of the risk assessments.*
- *Targets to reduce the accident rate in the organisation.*
- *A target to carry out active monitoring to reduce workplace hazards.*

(b) (i) The purpose of the Organisation section of the policy is to establish the roles and responsibilities for health and safety at all levels within the business, from director down to shop-floor and office employees. The Organisation section will also include specialist safety roles, such as fire wardens, first aiders and safety advisors. The Organisation section identifies who is going to deliver the objectives in the health and safety policy.

(ii) The purpose of the Arrangements section of the policy is to establish how the safety policy is to be achieved. This is done by producing procedures which detail how hazards in the organisation are to be identified through risk assessment and controlled, e.g. fire, first aid, spill response, etc. In this way, everyone can see how the health and safety management activities are to be carried out.

Reasons for Poor Marks Achieved by Candidates in Exam

- Candidates may be less confident about the purpose of the Arrangements section and therefore provide a poor answer to part (b) (ii).
- Many candidates may lose marks for not providing the descriptions required in part (b).

Element 3

Do

Learning Outcomes

Once you've read this element, you'll understand how to:

1. Outline the health and safety roles and responsibilities of employers, directors, managers, supervisors, workers and other relevant parties.
2. Explain the concept of health and safety culture and its significance in the management of health and safety in an organisation.
3. Outline the human factors which influence behaviour at work in a way that can affect health and safety.
4. Explain how health and safety behaviour at work can be improved.
5. Explain the principles and practice of risk assessment.
6. Explain the preventive and protective measures.
7. Identify the key sources of health and safety information.
8. Explain what factors should be considered when developing and implementing a safe system of work for general activities.
9. Explain the role and function of a permit-to-work system.
10. Outline the need for emergency procedures and the arrangements for contacting emergency services.
11. Outline the requirements for, and effective provision of, first aid in the workplace.

Contents

Organisational Health and Safety Roles and Responsibilities

IN THIS SECTION...

- Ultimate responsibility for ensuring that the workplace is safe and free of health risk rests with the employer.
- Directors and senior managers have a duty to ensure that their organisation meets this obligation. In particular, they are responsible for setting policy and allocating resources to allow that policy to work effectively - this includes the provision of competent health and safety advisers. They must demonstrate clear commitment and leadership, which usually includes appointing a senior manager with responsibility for health and safety.
- Middle managers and supervisors have a duty to ensure that the part of the organisation under their control is safe and free of health risk. They execute the policy of their organisation operationally.
- Safety specialists are responsible for giving correct advice and guidance to the organisation and its workers.
- Workers have a duty to take reasonable care of their own health and safety and the health and safety of others.
- Controllers of premises are responsible for ensuring that the premises they control is safe to use as a workplace and that access to and from the workplace is safe.
- The self-employed have a duty to take reasonable care of their own health and safety and the health and safety of others.
- Suppliers, manufacturers and designers have a duty to ensure that plant, equipment and substances supplied for use at work are safe, tested and supplied with safety information (where appropriate).
- Contractors are responsible for their own safety and the safety of others who their work might affect. Clients are also responsible for ensuring that the contractors they engage are competent and supervised.
- When two or more employers share a workplace they must co-operate and co-ordinate their activities to ensure good health and safety standards.

The Employer

DEFINITION

THE EMPLOYER

A person or organisation that employs people.

The employer in this context is normally an organisation, such as a company, and is sometimes referred to as the 'corporate body'.

It is important to recognise that the employer in this context is not normally a natural person (a living, breathing individual made of flesh and blood); instead, they are a legal person and exist only in a legal sense. For example, Apple Inc. is an employer and a legal person.

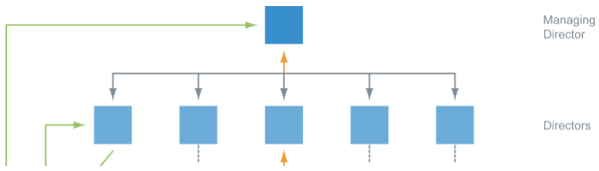
Responsibility for ensuring that the workplace is safe and free of health risk rests with the employer. As we noted earlier, the ILO Convention C155 and Recommendation R164 make the duty of the employer clear. These international standards are normally reflected in local law. Look again at the appropriate section in Element 1 to remind yourself of the employer's duties. It is important to consider who an employer owes a duty to:

- Their own employees, to ensure their health and safety.
- Other workers who might be working within their workplace but are not direct employees, e.g. casual workers, agency workers, contractors.
- Workers who are not their employees and are not working in their workplace but are carrying out work on their behalf, e.g. contractors installing a piece of machinery on behalf of the employer at a client's premises.
- People who might be in their workplace but not carrying out work on their behalf, e.g. visitors.
- People who might be outside their workplace, but are affected by their work activities, e.g. members of the public passing by.

So, an employer has some responsibility for the health and safety of everyone who might be affected by what they do for work, whether they are their employees, or not.

Directors and Senior Managers

Directors and senior managers give an organisation its direction and set its priorities. They decide what the organisation does and how it does it. In effect, they control the corporate body. They are, therefore, responsible for ensuring that all of the legal requirements that rest with the employer are met.



Top tier management

However, directors and senior managers are rarely involved in the day-to-day management of the operational side of the organisation. Their role does not normally involve 'doing', but rather 'setting strategy' and allocating resources. So, the responsibility of directors and senior managers is to ensure that:

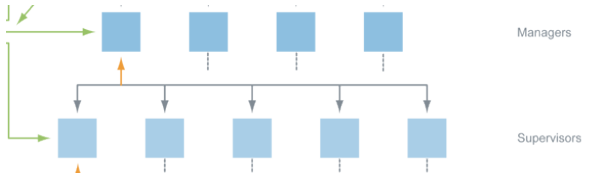
- The right health and safety policy is put in place.
- Adequate resources are allocated to establish, implement and maintain the health and safety management system. This includes sufficient funding to deliver the objectives in the policy, but also competent personnel to assist in the delivery of the policy objectives.
- The right organisational structures with clear roles and responsibilities are put in place.
- A director/senior manager is appointed with specific responsibility for health and safety so that it can be championed at board level.
- One or more competent persons are appointed to assist the organisation in meeting its health and safety obligations.
- Contractors are engaged and managed correctly, demonstrating the organisation's health and safety responsibility to third parties.
- The health and safety performance of the organisation is reviewed on a regular basis to ensure that the objectives are being achieved and that the objectives and measures in place remain valid.

Directors and senior managers can have enormous influence over their organisation and its priorities. This influence does not simply come from their strategic decision-making but also from the way they are perceived by those lower in the management hierarchy. They must demonstrate clear commitment and leadership with regard to health and safety.

The influence of visible management commitment and leadership on safety culture is discussed later in this element.

Middle Managers and Supervisors

Middle managers and supervisors are involved in the day-to-day operational running of the organisation, so are responsible for the health and safety standards within the operations under their control. Their operational areas of responsibility are normally defined in the Organisation section of the policy and illustrated by the organisation chart.



Middle management

Line managers will be operationally responsible for the health and safety of:

- The staff that work directly for them (their direct reports).
- Staff lower down in the organisational chart (below their direct reports).
- The areas and activities under their control.

Safety Specialists

Organisations must have access to appropriate competent people to give them health and safety advice. These safety specialists or 'safety practitioners' may work as managers within the organisation or may be brought in from outside as contractors. They are responsible for giving correct advice to the organisation so that the organisation can meet its legal obligations and achieve its policy aims, and will require adequate resources to support their role.

Typical responsibilities of the safety specialist include:

- Providing advice and guidance on health and safety standards.
- Promoting a positive health and safety culture.
- Advising management on accident prevention.
- Developing and implementing policy.
- Overseeing the development of adequate risk assessments.
- Identifying training needs.
- Monitoring health and safety performance.
- Overseeing accident reporting and investigations.

Workers

Workers have a responsibility to take reasonable care of their own health and safety and the health and safety of other people who might be affected by the things that they do (their acts) and the things that they fail to do (their omissions). Workers also have a responsibility to co-operate with their employer (for health and safety reasons). These duties apply when the worker is at work.

DEFINITION

AT WORK

This means when the worker is in the workplace, or outside the workplace but carrying out the duties of their employer. It usually applies during work breaks and work-related travel and, in some countries, would also apply to commuting (travel to and from work at the start and finish of a work period).

Controllers of Premises

A person or an organisation can make a workplace available for other people to work in and yet not be those workers' employer. A common example of this is a building owner or property management agency that has a commercial building and leases space in that building to various other organisations for them to use as offices. In this instance, the owner or agency is not the employer; instead they are referred to as the "controllers of the premises".

Controllers of premises will be responsible for certain health and safety matters that are within their control, but not for matters that are outside their control. For example, they will be responsible for ensuring the safety of the outer fabric of the building and of the building entrance and external fire-escape routes, but not for the safety of a photocopier that belongs to one of their tenants and is used in that tenant's office.

Controllers of premises are responsible for ensuring that:

- The premises is safe to use as a workplace, to the extent that they have control.
- Access to and from the workplace is safe, to the extent that they have control.

The Self-Employed

The self-employed have similar responsibilities to workers in that they have a responsibility to take reasonable care of their own health and safety and the health and safety of others who might be affected by their acts or omissions.

Suppliers, Manufacturers and Designers

There are many items of plant and equipment and many types of substance (e.g. chemicals) that are used for work purposes. The designers, manufacturers, importers and suppliers of these items and substances form the "supply chain" and they have responsibilities relating to the health and safety of their products.

TOPIC FOCUS

For items of **plant** and **equipment** - those involved in the supply chain are responsible for ensuring that they:

- Are adequately designed, constructed and tested so as to be safe for their intended purpose.
- Come with appropriate instructions.

For **chemicals** and **substances** - those involved in the supply chain are responsible for ensuring that they:

- Are appropriately tested so that their hazardous properties are understood.
- Are appropriately packaged and labelled.
- Come with appropriate information (usually in the form of a Material Safety Data Sheet (MSDS)).

Contractors

DEFINITIONS

CONTRACTOR

A person or organisation engaged to undertake certain work on behalf of a client, but not under the client's direct supervision and control.

CLIENT

A person or organisation who engages a contractor.

Contractors are responsible for their own health and safety and the health and safety of others who might be affected by their work activities, e.g. a contractor might be held responsible if they bring an unsafe power tool into a client's factory and injure themselves, one of the client's employees, or a visitor.

As we noted earlier, a client (as an employer) is responsible for the health and safety of his employees and visitors. This responsibility is **shared** between the client and contractor.

So, as a client can be held responsible for an injury caused by a contractor working for them, it is in the client's own best interests to ensure that contractors do not endanger workers or others.

The way that a client manages contractors can be broken down into the following key areas:

- Selection of the right contractor.
- Planning of the work.
- Co-ordination of the work between client and contractor.
- Monitoring of the work to ensure that the contractors are working to the agreed health and safety standards.

TOPIC FOCUS

Selecting the Contractor

It is good practice to select a contractor carefully on the basis of their health and safety competence. To help do this you can ask to see evidence of competence, such as:

- A copy of their health and safety policy.
- Examples of risk assessments and method statements.
- The qualifications and training records of staff.
- Membership of a professional organisation or certified body.
- Records of maintenance and test for plant and equipment.
- Names of previous or current clients to use as references.
- Accident history records.
- Records of enforcement action taken by authorities against them.
- Proof of adequate resources, such as access to specialist safety advice.

Planning the Work

Information must be exchanged between the client and the contractor. The client should tell the contractor about the hazards and risks in the workplace, and the contractor should tell the client about the hazards and risks created by the contract work. In this way the work can be planned so that everyone is kept safe.

The contractor should carry out risk assessments on the work involved and develop safe working methods to control the risks identified. This safe working method must be documented and is often referred to as a "method statement". The client should examine these risk assessments and method statements to ensure that there are no obvious problems or errors. This should happen before the work commences. It is good practice for the client to demand that risk assessments and method statements are submitted well before the work commences so that problems and conflicts flagged up by this review process can be resolved without creating delays to the start of the work.

Co-ordination of the Work

The client and contractor must co-ordinate their work carefully so as not to conflict. There may be several contractors working on site at any one time and the activities of one person/organisation must not cause a hazard for another in the area. For example, if one contractor is working at height it would be sensible to avoid others working beneath them in that area.

Monitoring the Work

Arrangements must be made by the client to ensure the contractor complies with safe working practices. These arrangements should include:

- Having a signing in and out procedure.
- Ensuring that the contractor provides a named works supervisor.
- Carrying out site induction training for all contractor workers.
- Controlling high-risk activities with a permit-to-work system.

The client will need to **monitor** the contractor's work to ensure that they are working to agreed safety standards. This can be done by monitoring against the risk assessment and method statement that were developed during the planning stage. If the client identifies that the agreed safe working methods are not being followed, then it is in their best interest to stop the work so that the issue can be addressed.

A client's project manager monitors the work of a contractor

Shared Responsibilities

When two employers share a workplace it is not difficult to imagine that the risks that one employer creates in that workplace may affect the employees of the other employer. For example, where two employers occupy offices in the same building, the fire risk created by one employer affects the safety of the employees of the other.

It follows that both employers must co-operate and co-ordinate their activities to ensure good health and safety standards. This requires effective communication between employers, the exchange of relevant information and the development of appropriate policies and procedures. This could be carried out in a variety of ways, depending on the nature of the work and the worksite.

So, for example, in a multi-storey office building occupied by ten different businesses, each employer should provide information on the risks that their specific business creates for other occupiers of the building. This can often be achieved by establishing a building management committee, with regular meetings. Consultation can then take place through this committee, and policies and procedures can be developed and implemented throughout the building, as necessary.

In this way, a common approach can be developed for the management of joint issues such as fire procedures, security-threat response, emergency-spill response, site rules, visitor and contractor control, traffic management, etc. It may also be appropriate to have a site-wide inspection process, common fire drills and even shared waste-disposal procedures.

If there are specific risks associated with one workplace, then awareness of the issues and the appropriate response from other workplaces can be raised. For example, an agency that deals with violent offenders may share a building with unrelated businesses; those other businesses would need to understand the risks and precautions appropriate to the building as a whole.

Employers working more closely together may need to share risk assessments. This is to ensure that all organisations are aware of the possible impacts of any equipment and substances being used, so that activities can be co-ordinated. For example, one organisation may be using solvent-based paints while an area is occupied by another organisation's personnel.

STUDY QUESTIONS

1. Which categories of people does an employer owe a duty to?
2. Outline common duties of workers.
3. Where business premises are rented, is the employer responsible for health and safety matters relating to points of entry to, and exit from, the workplace?
4. Outline the areas of responsibility placed on people in the supply chain for the articles and substances that they supply to workplaces.
5. Outline the responsibilities of the client and the contractor where a contractor is working in a client's workplace.

(Suggested Answers are at the end.)

The Concept and Significance of Safety Culture

IN THIS SECTION...

- The safety culture of an organisation is the way that all the people within the organisation think and feel about health and safety and how this translates into behaviour. It can be defined as the shared attitudes, values, beliefs and behaviours relating to health and safety.
- There is a strong link between safety culture and health and safety performance. Organisations with a strong, positive culture tend to have good performance, whereas those with a negative culture tend to perform poorly.
- The safety culture of an organisation can be assessed by looking at indicators, such as accidents, sickness rates, absenteeism, staff turnover, compliance with rules, and worker complaints.
- Workers are often influenced by their peers - the people around them at work who do not have any direct authority over them. This 'peer group pressure' occurs indirectly through social interaction and can have a significant effect on behaviour. The influence of peer group pressure is a good indicator of safety culture.

Health and Safety Culture

All organisations have a 'culture', which is not written down or even easily stated. It is a subtle mix of formal and informal rules, relationships, values, customs, etc. which, taken together, describe the distinctive 'feel' of the organisation. On one level, this is to do with how the organisation gets things done - its particular way of doing things. On another level, it is to do with how people perceive the organisation, e.g. how friendly it is.

All organisations have a 'culture'

Organisational culture is a characteristic of the organisation that exists at every level, from senior management to shop-floor workers. No one person determines the culture of the organisation; all staff working for the organisation determine it collectively.

Organisations can be described as having a 'health and safety culture' (or safety culture) in much the same way.

DEFINITION

SAFETY CULTURE

The shared attitudes, values, beliefs and behaviours relating to health and safety.

The safety culture of an organisation is the way that everyone within the organisation thinks and feels about health and safety and how this translates into their behaviour.

TOPIC FOCUS

Factors that have a negative impact on health and safety culture in an organisation include:

- Lack of strong safety leadership from management.
- Presence of a blame culture.
- Lack of management commitment to safety, e.g. saying one thing and doing another.
- Health and safety receiving lower priority than other business issues.
- Organisational changes (frequent or poorly-communicated change resulting in uncertainty).
- High staff turnover rates (workers do not stay long enough to be influenced).
- Lack of resources, e.g. too few workers due to downsizing, and lack of correct equipment.
- Lack of worker consultation.
- Interpersonal issues, e.g. unregulated peer group pressure, bullying or harassment.
- Poor management systems and procedures.
- External influences, e.g. economic climate resulting in difficult operating conditions.

Relationship Between Safety Culture and Performance

An organisation will have either a positive safety culture or a negative one, and this can affect health and safety performance.

Positive Culture

In an organisation with a **positive** safety culture, the majority of the workers think and feel that health and safety is important. There is a strong policy and clear leadership from the top because senior management have this attitude, which runs through the whole organisation, from top to bottom. Managers think about the health and safety implications of their decisions and workers share the same view and work safely.

A company with a positive safety culture - all members of staff appreciate the importance of safety

Everyone works safely because they want to. That is the way that things are done in their organisation and that is how everybody else behaves, too.

People in the organisation who do not share this view are in the minority and are likely to come round to the group way of thinking and acting. This is because the culture of an organisation tends to be absorbed by its workers over time. Workers who do not adjust to the group way of thinking may either leave, because they don't feel that they fit in, or possibly be dismissed for working unsafely.

In an organisation like this you can see that there is a clear link between safety culture and health and safety performance. People work safely, so there will be fewer accidents and less ill health. It is also easy to see why organisations strive to create a strong, positive safety culture because when there is one, it has a direct influence on worker behaviour.

Negative Culture

In an organisation with a **negative** safety culture, the majority of workers think and feel that health and safety is not important; they are poorly educated in health and safety and see it as unnecessary or unimportant. There is a lack of clear direction and leadership from senior management. Managers do not think about health and safety in their decision-making and so let other priorities dictate their actions. Workers behave unsafely, often because they do not know any better.

Safety-conscious workers are in the minority and are likely to come round to the group way of thinking and acting over time; if not, they may well leave because they do not like the organisational culture and feel unsafe in the work situation.

You can see that in an organisation like this there will be a lack of attention to health and safety, standards will be low, behaviour will be poor and accidents may occur as a result.

A workplace with a negative safety culture, resulting in unsafe behaviours

MORE...

Further information on safety culture can be found on the HSE website at:

www.hse.gov.uk/humanfactors/topics/culture.htm

Indicators Used to Assess Safety Culture

It makes sense to try to assess an organisation's safety culture to see whether it is strong and positive, or if there is room for improvement. But the safety culture of an organisation is quite difficult to assess directly because there is no one single feature or item that can be measured. Safety culture is partly defined as how people think and feel, their attitudes, their beliefs and their priorities. These are intangible concepts and almost impossible to measure. So, rather than trying to assess the safety culture directly, it is perhaps better to assess it indirectly by looking at the tangible outputs that can be used as indicators. There is no single indicator that can be used to assess safety culture; instead, several indicators must be examined together.

Accidents

Accident records can be used to work out how many accidents are happening as a rate (e.g. number of accidents per 100,000 hours worked - we discuss this later). The accident rate for a particular organisation can be compared with the:

- **Organisation's performance in previous years** - this will indicate whether the accident rate is increasing or decreasing. A decreasing rate might be seen as an indicator of a positive safety culture.
- **Rate for other organisations that do the same work, or the industry average** (often published by the authorities) - this is the process of benchmarking (which we discussed earlier). An accident rate that is higher than the national average might be seen as an indicator of a negative safety culture.

Looking at the standard of investigation that follows an accident and the effort that is put into preventing a recurrence is another way of using accidents as an indicator of safety culture. In an organisation:

- With a **positive** safety culture, much time and effort will go into investigating accidents, writing investigation reports and introducing follow-up action to prevent a recurrence.
- With a **negative** safety culture, superficial accident investigations are carried out, reports are of poor quality, and follow-up action is either not taken, or is ineffective.

Absenteeism

DEFINITION

MORALE

The level of commitment, energy and enthusiasm that a workforce has for the work being done.

A high level of worker absenteeism indicates that workers are either not able, or not willing, to come to work. If they are not able, this might indicate that they are suffering ill health caused, or worsened, by work. If they are not willing, it indicates that they are withholding their labour for some reason. This is usually caused by poor workforce morale, which, in turn, can sometimes be linked to poor safety culture.

Sickness Rates

A lot of ill health is caused, or made worse, by work. For example, in many countries a huge number of working days are lost because of back pain, and a significant proportion of that back pain will have been caused or made worse by the work that individuals are doing. Sickness rates can be used in the same way that accident rates are, as an indicator of safety culture.

Staff Turnover

An organisation with a positive safety culture is often a good place to work. Workers feel safe, morale is good, training is available, and workers are consulted about their working conditions. As a result, workers stay with their employer for longer, so low staff turnover may indicate a good safety culture, while high staff turnover may indicate the opposite.

Compliance with Safety Rules

In an organisation with a positive safety culture the majority of workers want to work safely, so they comply with the safety rules and procedures laid down by the organisation. Formal or informal safety inspections or audits usually find that there is a high level of compliance. The safety culture has influenced workers' behaviour in a positive way.

Where there is a negative safety culture the reverse is usually true. Workers do not follow the rules, either because they do not know what they are (perhaps owing to poor training) or because they know the rules but do not want to follow them (perhaps because of poor attitude). Workers are free to break the rules because of poor supervision; they know that they will not be punished.

Complaints About Working Conditions

There is an obvious link between safety culture and the number and type of complaints made by workers (and workers' safety representatives) to management. An organisation with a positive culture may actively encourage complaints, but few serious ones will be made. An organisation with a negative safety culture may actively discourage workers from complaining, and many of the complaints made will be legitimate and serious ones.

The Influence of Peers

When people are put together into groups they interact. Some individuals will have a lot of influence over the group; others will have little influence. In this way a "hierarchy" develops within the group (often known as a "pecking order"). Certain ways of behaving will become the "norm", which will often be established by the more influential members of the group. A person wishing to become a member of the group will have to comply with the group norms. This pressure to comply with group norms is **peer group pressure**.

Peer group pressure is an important factor to take into account when thinking about safety-related behaviour. If a group is already working safely then peer group pressure will keep most people in that group in line. But if the group is working unsafely, then peer group pressure will tend to force more and more workers to behave unsafely in an attempt to fit in with group norms. Even though workers may know that what they are doing is wrong and may want to do it the right way, the pressure to comply with their social group overcomes their personal apprehensions.

The way to deal with the negative impact of peer group pressure is usually to tackle the influential people within the group, the ones responsible for establishing group behaviour. If their behaviour can be changed then everyone else's will change as well. This might be done by training, education, involvement in safety-related projects, etc. One very successful tactic is to give them increased responsibility. Ultimately, if the influential members will not change their behaviour then they may have to be moved into other work groups where they may have less influence, or they may have to be disciplined using the normal disciplinary process.

The behaviour of peer groups and the influence that peer group pressure has been allowed to exert on worker behaviour is often a good indicator of safety culture. In an organisation with a positive culture, peer group pressure is in line with safe behaviour. In an organisation with a negative culture, peer group pressure is driving unsafe behaviours and this has not been challenged by management.

STUDY QUESTIONS

6. Define health and safety culture.
7. How do an individual's peers exert influence over his/her behaviour?

(Suggested Answers are at the end.)

Human Factors which Influence Safety-Related Behaviour

IN THIS SECTION...

- Individual worker behaviour is of critical importance to health and safety management. One worker may behave in an ideal manner, but another may not and this unsafe behaviour may endanger themselves and others.
- Three significant factors influence an individual worker's behaviour:
  - The individual - their personal characteristics.
  - The job - the task that they are carrying out.
  - The organisation - characteristics of the organisation that they are working for.
- Key characteristics of an individual worker's personality that influence their safety-related behaviour include:
  - Attitude - how they view a particular safety issue.
  - Competence - a combination of knowledge, ability, training and experience.
  - Motivation - the incentives at work.
- Individual workers may perceive the hazards and risks present in their workplace in different ways and this can influence their behaviour.

Organisational, Job and Individual Factors

One issue of critical importance to health and safety management is the way that individual workers behave. It is estimated that well over half of all workplace accidents are caused by unsafe acts - the poor safety-related behaviour of a worker. It is not enough to dismiss this as being due to carelessness; this simply blames the worker and is ineffective at identifying underlying causes or corrective actions. Instead, we must look at how human factors influence working practices. We have to understand why people behave the way they do at work. If we can understand that, then it may be possible to:

- Correct poor behaviour when it is identified, by removing the cause of that behaviour.
- Anticipate poor behaviour before it occurs and introduce changes to reduce the likelihood of it occurring.

Factors which influence behaviour

Why is it that a worker behaves poorly when working for one organisation, but then leaves and starts to work for another company and behaves in an entirely different manner?

Why is it that a worker may behave safely doing one job, but then unsafe practices start to creep into their behaviour when they are switched to another job?

Why is it that one worker behaves safely at work, but another does not, even though working conditions for both workers are the same?

The answer to these three questions (and the link between them) is 'human factors'. This phrase refers to a range of issues that influence a person's safety-related behaviour when they are at work.

These issues can be grouped under three main headings:

- **Organisational factors** - characteristics of the organisation that they are working for.
- **Job factors** - characteristics of the job or task that they are performing.
- **Individual factors** - characteristics of the individual.

Collectively these are known as the three human factors in health and safety - they are the three factors that influence a person's behaviour at work. No one single factor dictates behaviour; they all subtly nudge behaviour in one direction or another.

Organisational Factors

These are the characteristics of the organisation that influence workers' behaviour:


Consultation with workers

- **Safety culture of the organisation** - the way that this culture is gradually absorbed by the individual (as already discussed).
- **Commitment and leadership from management** - whether this is visibly demonstrated outside the boardroom (since behaviour in the boardroom is not witnessed by most of the workers in an organisation).
- **Resources** - the availability of any necessary equipment (machine guards, PPE, etc.) and the allocation of time to provide training in health and safety.
- **Work patterns** such as shift systems, work at night or extended hours - these can adversely affect workers' health and cause fatigue, which can lead to poor performance on tasks that require attention and increase the risks associated with safety-critical work.
- **Communication** - how effective the organisation is at using various communication methods to convey health and safety messages and information to the workforce, and how well the organisation then checks understanding of those messages.
- **Levels of supervision** - the presence or absence of, and the competence of, supervision (in the context of health and safety) and the way that poor safety-related behaviour is dealt with. For example, in an organisation that undertakes engineering maintenance work, the presence of competent supervisors to oversee the work is critical as a check to prevent both rule-breaking behaviour and human error.
- **Consultation and worker involvement** - the extent to which workers are involved in the management of health and safety issues and in the decision-making process.
- **Training** - how good the organisation is at identifying health and safety training needs and opportunities, and how well it then meets those needs to create well-informed, competent staff.

Job Factors

These are the various characteristics of a worker's job that influence their safety-related behaviour, and may involve:

- **Task** - the characteristics of the work itself, in particular the ergonomic requirements. For example, if a worker needs to bend or stoop over when carrying out a task then that task needs to be adapted to best suit the worker concerned. In the absence of ergonomic design, workers will find the most comfortable way of working and this may not be the safest way.
- **Workload** - the amount of work, rate of work, deadlines and variety of work that individuals have to cope with, and the degree to which these are under the direct control of the worker or imposed externally.

- **Environment** - the workplace conditions such as space, lighting, noise, temperature and humidity and the way that these parameters are controlled so as to minimise their impact on worker performance. For example, workers in a steel foundry may have to undertake physical labour in a high-temperature environment, so there is the potential for dehydration, heat stress and heat stroke. Workers may find ways of working that are not necessarily safe, in order to minimise physical exertion. They may also start to suffer degradation in physical and mental performance as a result of heat stress.
- **Displays and controls** - the design of these, and the way that poorly designed displays and controls can contribute to the likelihood of human error, e.g. critical displays that are out of the operator's normal field of view.
- **Procedures** - the existence and quality of working procedures. If there is a lack of written procedures, or if they are poorly written, out of date, overly complex or impractical, workers may not comply. To be effective, procedures should be accurate, concise, use familiar language and they must be doable.

DEFINITION

ERGONOMICS

The design of the workplace, work equipment and work environment to suit the needs of the individual worker.

Ergonomics is often used as a way of maximising work efficiency; but in the context of health and safety management it is more concerned with maximising worker comfort and reducing the stress and strain put on the body during work, so as to avoid injuries and ill health (e.g. upper limb disorder caused by repetitive handling activities).

Individual Factors

People bring to their job their own personal mix of skills, knowledge, experience, attitudes, motivations, habits and personality. These individual characteristics influence behaviour in complex and significant ways. Some of these characteristics cannot be changed, but others can. It is important to recognise where changes to these characteristics might be needed and what methods might best be used to make those changes. For example, if workers have a poor attitude to machine guards it will be necessary to change their attitude, and there are various ways of attempting to achieve this change. Attitude, competence, skills, motivation and perception of risk are individual factors that we will now look at in greater detail.

Competence

Competence is a combination of knowledge, experience, training and ability that brings a person up to a level where they are able to perform to an acceptable standard and are aware of their own limitations.

Employers must ensure that workers are competent for the role that they carry out. To be competent a worker must have the right combination of training and experience - simply having a qualification doesn't necessarily make a person "competent". Carrying out the job for a long time doesn't either! A newly qualified person may perform tasks more carefully than a more experienced worker, or be more up to date with current technology, but they may also lack the experience that only comes with time.

Skills

Each individual has skills that they have developed over time; some of these skills are physical (such as the ability of a crane operator to precisely control the movement of a load) whilst others are mental (such as the ability to do complex mental arithmetic whilst working). Fitting a person with the wrong skill set into the wrong role is unwise - a person with poor manual skills may be incapable of safely controlling a piece of machinery during a work activity because they lack the necessary skill.

Personality

Various innate characteristics that underpin a person's character, such as risk-taking or risk aversion, introvert or extrovert, etc. We can influence someone's attitude to health and safety, we can increase their skills and develop their competence, but their personality remains largely fixed - it's who we are.

Attitude

An "attitude" is a person's point of view or way of looking at something; how they think and feel about it.

For example, everyone has an attitude towards work; some people think of it in a positive way and others have a negative attitude. Attitudes develop over time, many of them quite early in life, and they have a tendency to stay with us. This is because they are a part of self-image - the mental picture a person has of themselves and who they are. Attitudes do change but normally only slowly.

In the context of workplace behaviour, attitudes are important because a worker's attitude will make them more or less likely to behave safely. If a worker's attitude to a machine guard is that the guard is great because it is there to stop their arm being cut off, then that worker is very unlikely to remove the guard in any circumstances. But if the worker's attitude is that the guard is unnecessary, over-the-top, put there to tick a box or to make the job harder, then that worker is likely to remove the machine guard at the earliest opportunity.

Obviously, the first attitude is the one to be encouraged and the second one needs to be changed. Changing attitudes is notoriously difficult but can be done using various methods, such as:

- **Education and training** - workers educated in the hazards and risks associated with the machine and the reasons why a guard is necessary may change their attitude over time.
- **High-impact interventions** - workers put through high-impact training, where they are shown pictures of the injuries caused by failure to use the guard, may change their attitude very quickly.
- **Enforcement** - workers forced to use the guard, by supervision and discipline, will find that using it becomes a habit. After a time attitudes change to match behaviour.
- **Consultation and involvement in the decision-making process** - workers consulted and involved in the selection, design and implementation of the guard will feel more ownership of the process and are more likely to develop a positive attitude towards guard use.

Motivation

In the context of health and safety, it is important to understand a worker's motivation for carrying out their work in a safe or unsafe way because that motivation can then be changed. Workers often behave unsafely not simply because they are wilful, but because they perceive a reward and they think that the risk is worth the reward. Their unsafe behaviour is **incentivised**.

DEFINITION

MOTIVATION

A person's drive towards a goal. The thing that is making them do what they do.

For example, a worker who can make more money by taking an unsafe shortcut is far more likely to take that shortcut if they think they can get away with it. Similarly, a worker who can save themselves time and energy by taking a shortcut is far more likely to do so. If, however, there is no reward, or if the worker thinks that the risk is too great, then they will not take the shortcut.

Any reward scheme in the workplace that is intended to improve safety must be carefully thought through to ensure that it will incentivise the right kind of behaviour. For example, some workplaces pay a bonus related to the number of accidents recorded over a period of time. Fewer accidents = bigger bonus. This sounds like a good idea because it should make people work more safely so that they have fewer accidents and so get a bigger bonus. But, of course, no one goes to work intending to have an accident. People do not take more care. Instead, what happens is that they report fewer of the accidents that they are having at work so that the number looks better. The incentive scheme actually rewards under-reporting of accidents, not safer behaviour.

Perception of Risk

Perception can be defined as the way in which a person interprets information detected by their senses.

Some hazards in the workplace cannot be detected by human senses (e.g. carbon monoxide gas is colourless, odourless and tasteless yet deadly at relatively low concentrations) so the risk associated with these hazards will not be perceived.

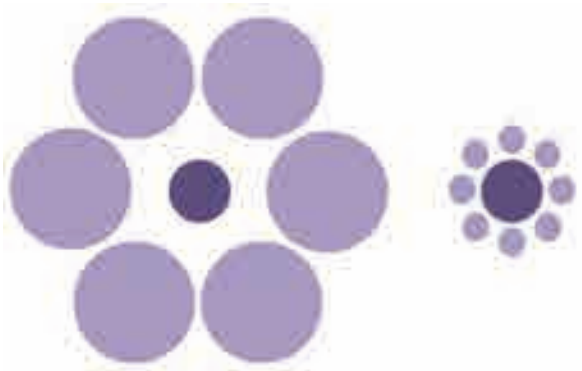
People with some form of sensory impairment may not be able to correctly detect hazards in a workplace. For example, a partially-sighted person may not be able to see trip hazards on the floor, so they are at greater risk from these hazards than their sighted colleagues. A colour-blind worker may not be able to differentiate correctly between red and green and this may create risk to themselves and others. This is why some jobs require an eye test, and colour blindness would prevent recruitment (e.g. airline pilots). Both of these examples deal with a defective sense (eyesight). Any form of sensory impairment, whether it is sight, hearing, smell, touch or even taste, may mean that a person is unable to correctly perceive the world around them, and this might have health and safety implications.

Sensory impairment can also result from workplace controls that affect the senses, e.g. PPE such as hearing protection reduces sharpness of hearing, gloves reduce sensitivity, etc. Loud noise in the workplace also reduces a person's ability to hear properly.

However, perception goes beyond this simple "sensory impairment" issue to also cover the way in which a person's brain interprets the information sent to it by the senses. A person with fully functioning senses can still make errors in the way they interpret sensory information. This is called "perceptual distortion".

Optical illusions work using this principle:

Which centre dot is larger? They are, in fact, the same size. Your eyes may work, but the brain interprets incorrectly.



Optical illusion

A tired worker driving a lorry may not recognise a pothole in the road quickly enough to avoid it, despite the fact that their eyes work perfectly well. It is not their eyes that have failed them, it is the way their brain has interpreted the information sent by their eyes. Other factors that can distort a person's perception of hazard and risk include:

- Illness.
- Stress.
- Fatigue.

- Drugs and alcohol.
- Previous experiences.
- Training and education.
- Use of PPE.
- Workplace conditions such as high levels of noise.

TOPIC FOCUS

Ways of Improving Worker Perception of Hazards

- Carrying out safety awareness campaigns using posters, toolbox talks, etc.
- Developing training programmes to increase awareness of the hazard and its consequences.
- Highlighting hazards, e.g. using safety signs to inform employees that hearing protection is required, or to warn of a hazard, such as the presence of forklift trucks or wet floors. Paint and tape can also be used to highlight hazards like low objects or changes in level (e.g. the edge of steps).
- Ensuring that there is adequate lighting.
- Removing distractions such as noise (which could result in a worker not hearing a warning) or excessive heat (which can cause fatigue).

MORE...

Further information on human factors can be found at:

www.hse.gov.uk/humanfactors/index.htm

and in the guidance "Reducing Error and Influencing Behaviour" (HSG48) available from the HSE website:

www.hse.gov.uk/pubns/books/hsg48.htm

STUDY QUESTIONS

8. Identify the three factors that impact on a person's health-and-safety-related behaviour.
9. Outline the key job factors that can impact on safety-related behaviour.
10. What is perceptual distortion and how may it arise?

(Suggested Answers are at the end.)

Improving Health and Safety Behaviour

IN THIS SECTION...

- The safety culture of an organisation can only be improved if a clear commitment has been made by management, with visible leadership.
- Competent staff have the appropriate training, knowledge, experience and other skills necessary to do their jobs safely.
- Communication of safety information can be verbal, written or graphic and there are strengths and weaknesses associated with each method.
- Notice boards, posters, toolbox talks, memos and handbooks all have a part to play in delivering safety information to employees.
- Training is a vital tool in improving safety-related behaviour and there are various occasions when training should be provided.

Management Commitment and Leadership

Management commitment starts at the very top of the organisation. Senior managers must provide the leadership necessary to inspire and motivate managers at all levels to pursue health and safety objectives rigorously. This is done by establishing the organisation's safety policy with clear priorities and targets to be achieved.

Management commitment and leadership

It is also critical that middle and junior management follow through the commitment of senior management via the priorities and objectives that they set their staff. In this way, commitment is cascaded down through the organisation.

An important factor in demonstrating management commitment is visible leadership. If management are never seen taking an active interest in safety issues, then there will be an assumption that they are not interested. Individual managers must show their commitment to health and safety to their staff as this helps create the local safety culture.

Visible commitment can be demonstrated by:

- Behaving safely (leading by example).
- Involvement in the day-to-day management of health and safety, e.g. by attending safety meetings.
- Taking part in safety tours or audits.
- Promoting changes to improve health and safety.
- Enforcing the company safety rules.

Disciplinary Procedures

Occasionally, it may be necessary to use disciplinary procedures to enforce the health and safety rules, e.g. in the event that an employee endangers their safety or the safety of others. In these circumstances the employer would be negligent in ignoring such behaviour and must act to ensure that it is not repeated.

Which of these situations might result in disciplinary action?

- A supervisor fails to follow a procedure and instructs their workers to cut corners in order to save time.
- A worker drives a forklift truck recklessly and collides with racking, causing damage.
- A supervisor fails to isolate a machine before working on it (going against their training), as the job was only of short duration.
- A worker climbs over a locked machine guard to carry out a quality check.
- An office employee repeatedly enters the factory area without the required PPE despite being told several times of the requirements.

The answer is clearly that these could all potentially result in disciplinary action, though the level of action would depend upon each individual situation. It is common for minor breaches of health and safety procedures to be dealt with informally through discussions and coaching.

Competent Staff

A competent person is a person who has sufficient training, knowledge, experience and other abilities or skills to be able to carry out their work safely and without risk to health.

It is the responsibility of the employer to ensure that workers are competent to carry out the tasks that they have been allocated. The more competent the worker, the better able they will be to do their job safely. This has a positive influence on safety culture. In order to determine competence, the employer may check qualifications, request references, or verify membership of professional bodies.

Managers should also be competent. This means that all managers should have an understanding of the health and safety implications of the decisions they make on a day-to-day basis. This is often overlooked. For example, if a manager is in control of a warehouse then they must understand the difference between safe and unsafe forklift-truck driving. They do not need to be able to drive a forklift truck themselves, but they must have sufficient knowledge to spot good and poor behaviour when they see it.

Keeping Up To Date with Legal Requirements

Identifying and keeping up to date with legal requirements is an essential part of the planning process. A basic health and safety planning process considers three fundamental questions: 'Where do we want to be?', 'Where are we now?' and 'How do we get there?'. The answer to the first question, 'Where do we want to be?', should always recognise legal compliance as a minimum standard to be achieved in the workplace.

The 'Where are we now?' process will then involve comparison with relevant legal standards in the form of a gap analysis to identify where legal compliance is not being achieved. This requires up-to-date knowledge of the relevant legal standards. There are various methods by which organisations and individuals can keep up to date regarding health and safety legislation, including:

- The HSE website and HSE electronic newsletters (www.hse.gov.uk), for UK legislation.
- The EU OSHA website for EU legislation (www.osha.europa.eu/en/safety-and-health-legislation). There is also a national section which contains information on national activity (www.osha.europa.eu/en/about-eu-osha/national-focal-points).
- The OSHA website (www.osha.gov) which contains a useful section on regulations in the US.
- In Australia, similar information is available from Worksafe, Western Australia (www.commerce.wa.gov.au/worksafe).

- Organisations and charities with an interest in occupational safety and health, such as the Institution of Occupational Safety and Health (IOSH) and the Royal Society for the Prevention of Accidents (ROSPA) in the UK.
- National professional health and safety publications which carry information on developing legislation - in the UK, two such examples are Safety and Health Practitioner (published online) and the IOSH magazine.
- Subscription news and update services offered by private businesses (e.g. Barbour, Croner, etc.).
- Attendance at legislation update seminars and conferences.

Effective Communication

Communication can be defined as the process of delivering information from a sender to a recipient. To be truly effective, the correct information has to be transmitted, received and understood.

There are three principal delivery methods for communicating information: **verbal**, **written** and **graphic**.

Verbal Communication

Communication using the spoken word, e.g. face-to-face conversations, meetings, interviews, training sessions, by telephone or over a Public Announcement (PA) system.

This is the easiest and most commonly used form of communication, but there are various weaknesses associated with this method. If verbal communication is to be used to convey safety-critical information to workers, these weaknesses must be overcome.

Verbal communication at work

Merits	Limitations
• Personal. • Quick. • Direct. • Allows for checking of understanding. • Allows for feedback to be given. • Allows for exchange of views. • Usually allows for additional information to be transmitted by means of tone of voice, facial expression and body language.	• Language barrier may exist. • Jargon may not be understood. • Strong accent or dialect may interfere. • Background noise may interfere. • Recipient may have poor hearing. • Message may be ambiguous. • Recipient may miss information. • Recipient may forget information. • No written record as proof. • Poor transmission quality if by telephone or PA system.

Written Communication

Communication using the written word, e.g. report, memo, e-mail, notice, company handbook, policy document, operating instructions, risk assessment, minutes of meetings, etc.

Merits	Limitations
• Permanent record. • Can be referred back to. • Can be written very carefully to avoid use of jargon, abbreviations and ambiguity. • Can be distributed to a wide audience relatively cheaply.	• Indirect. • Takes time to write. • May contain jargon and abbreviations. • Can be impersonal. • Message may be ambiguous. • Message may not be read by recipient. • Language barrier may exist. • Recipient may not be able to read. • Immediate feedback is not available. • Questions cannot be asked. • Recipient may have impaired vision.

Graphic Communication

Communication using pictures, symbols or pictograms, e.g. safety signs, such as a fire exit sign; hazard warning symbols, such as a skull and crossbones found on the label of a toxic chemical; or photographs, such as of a machine showing a guard being used correctly in the operating instructions for the machine.

Merits	Limitations
• Eye-catching. • Visual. • Quick to interpret. • No language barrier. • Jargon-free. • Conveys a message to a wide audience.	• Can only convey simple messages. • Might be expensive to buy or produce. • May not be looked at. • Symbols or pictograms may be unknown to the recipient. • No immediate feedback available. • Questions cannot be asked. • Recipient may have impaired vision.

Graphic communication

Broadcasting Methods

There are various ways of broadcasting health and safety information using the three methods we discussed above. Each of these broadcasting techniques has its own strengths and limitations and so usually a mix of some or all of these techniques is used to ensure that essential messages are transmitted and correctly understood by all staff:

- **Notice boards** - should be eye-catching and located in areas used by all workers, e.g. rest rooms or central corridors. Notices should be current, relevant and tidily displayed. Cluttered, out-of-date, irrelevant notices obscure the messages being conveyed. Displaying a notice does not mean that it will be read. Typical contents might include: the safety policy; employers' liability insurance certificate; emergency procedures; identity of safety representatives and first aiders; minutes of safety committee meetings; accident statistics, etc.
- **Posters** - used to provide safety information, drawing attention to particular issues and supporting the safety culture.

Merits	Limitations
Graphic and therefore avoid language barriers.	Can quickly become part of the surroundings.
Can be eye-catching and generate interest.	May be defaced.
Low cost.	Can trivialise important issues.
Can reinforce key messages.	Rely on the recipient interpreting the correct message from the image.

- **Films or videos** - mainly used in training programmes and, if well made, can hold the audience's attention.
- **Toolbox talks** - short, practical safety briefings carried out routinely in the workplace, often presented by the supervisor at the start of a shift. They can be useful for generating awareness and discussion on safety precautions, but may be seen as dull or a waste of time if topics are irrelevant or poorly presented.
- **Digital media and intranet systems** - mobile phones, tablets, computers and other devices can be used for the dissemination of information in various forms (written, graphic, video and audio). Company intranet systems are network systems that are restricted to in-company users and allow users to access policy documents, procedures and records.
- **Memos and e-mails** - written notifications used to provide specific information about a single issue, such as updating procedures, drawing attention to lapses in practice, etc. When using memos there is often limited opportunity for feedback or questioning, so their use is really limited to issuing clear and precise instructions or information.
- **Worker handbooks** - used to set out the organisation's health and safety policy. All employees should be given a copy on joining the organisation, and updates are usually circulated to inform staff of changes. This is a key document, containing such information as site rules, reporting procedures, emergency arrangements, etc. It is standard practice to issue this handbook as part of the worker's induction and to get a receipt as proof of issue.

Key health and safety management information, such as procedures and instructions, must be broadcast using a range of methods to ensure it reaches the correct audience and to ensure that the various barriers to communication associated with different communication methods are overcome.

The goal is to ensure that the correct message has reached the right people and has been properly understood.

Co-operation and Consultation

A positive safety culture can only be created in an organisation with worker co-operation and involvement. If workers feel that they are being dictated to then they will feel little ownership of health and safety. Indeed, they may come to resent instructions being imposed from above and start to actively oppose safety initiatives and improvements. This creates a negative culture. The most effective way to avoid this negativity and to actively encourage worker interest and ownership is to involve workers in the decision-making process, which is best achieved through worker consultation.

Consultation with workers requires an employer to consult with his or her own employees. Sometimes, it will also require consultation with other workers, such as contractors working within the employer's premises or undertaking work on behalf of the employer.

DEFINITIONS

CONSULTING

The two-way exchange of information and opinion between the employer and workers so that the best course of action can be agreed. This implies that the employer listens to the concerns of his workers and changes his plans as necessary.

INFORMING

Providing information to workers in a form that they can understand and then checking that the information has been understood. The information flow is one-way and the employer does not have to take any notice of feedback.

Consultation implies that the employer takes note of feedback given by employees. But the consultation process is not the only route by which feedback on health and safety topics might be given. Employee feedback can also be gained through additional routes such as during appraisals, at departmental meetings, through suggestion schemes and employee surveys and via complaints.

In many countries there is a legal duty placed upon employers to consult with their employees on health and safety matters. Article 20 of ILO-C155 and Article 12 of ILO-R164 give specific standards on this. Even where there is no legal requirement, it is recognised as good practice for the employer to consult with his employees on health and safety matters.

An employer does not have to consult with employees on everything, but particular health and safety issues where consultation would be appropriate include:

- The introduction of measures affecting the health and safety of the workers.
- The appointment of safety advisors and specialists.
- Health and safety training plans.
- The introduction of new technology into the workplace that will affect health and safety.

The two methods employers normally use to consult workers are:

- **Direct consultation** - the employer talks directly to each worker and resolves issues as they occur. This works well in very small organisations, but is ineffective in larger workplaces.

- **Worker representatives** - a health and safety committee is established, made up of key management personnel and worker representatives. The committee meets regularly to discuss health and safety matters and resolve issues. Worker representatives may even have specific additional rights under local law, such as time off with pay for training.

TOPIC FOCUS

Health and Safety Committee/ Forum

To work effectively, the committee has to be set up and run according to agreed rules and procedures, which form a part of the policy arrangements of the organisation. The following issues should be taken into account in these arrangements:

- Who is on the committee? - There has to be a balance between managers and workers and the right managers have to be included.
- How often will the committee meet? - The committee should meet regularly and frequently enough to be useful, e.g. once a month.
- Who will act as chairperson? - All meetings need someone to take charge so that the discussion during the meeting is relevant, and to make sure that everybody has an opportunity to speak.
- What authority will the committee have? - The committee must be able to make decisions, otherwise there will be lots of talk but no action. Usually, the committee will involve one or more senior managers who have executive authority.
- What will be discussed? - It is common practice for a committee meeting to have a published agenda that has been agreed before the meeting takes place.
- How will the discussions be recorded? - Minutes of the meetings are usually taken and then circulated to all attendees and posted on noticeboards in the workplace for all workers to see.
- How will issues discussed be followed up? - All agreed actions must be recorded in the minutes of the meeting, together with the name of the person responsible for taking that action and a deadline. This action plan can then be reviewed at the start of the next meeting to check that the action has been completed.

The function of the safety committee/forum would include issues such as:

- Studying accident and disease statistics.
- Reviewing the reports from active monitoring in the workplace, such as safety inspections and behavioural observations.
- Examining safety audit reports.
- Considering reports and information from the authorities.
- Considering reports submitted by worker representatives.
- Assisting in the development of procedures and policy.
- Monitoring the effectiveness of training.
- Monitoring the effectiveness of safety communications.

In this way, the committee is intended to be strategic, rather than involved in trivia.

MORE...

Further information on leadership and consultation can be found at:

www.hse.gov.uk/pubns/indg277.pdf

www.hse.gov.uk/involvement/index.htm

Training

Training (in the context of health and safety) can be considered as the planned, formal process of acquiring and practising knowledge and skills in a relatively safe environment.

The Effect of Training on Human Reliability

Training is central to the management of health and safety in workplaces. Employers have a responsibility to train their staff to carry out their jobs in a safe manner. Training is a key component of competence. In the absence of training it is difficult to develop or demonstrate competence and, as a result, statute law in many countries requires employers to provide appropriate training for their workers.

The reason for this requirement is simple: training has a dramatic effect on safety-related behaviour. Without training, workers try to do their jobs to the best of their ability but they do so either by informally copying others (including copying all the bad habits and unsafe working practices that they see) or by doing the job the way that they think is best. Once the worker has been properly trained they will understand:

- The hazards and risks inherent in their work.
- The correct rules and precautions to apply.
- Who to contact with any issues.
- Foreseeable emergencies and the actions to take, should these events occur.
- Limitations and restrictions that apply to their work.
- Their personal health and safety responsibilities.
- The consequences of breaking the rules, including disciplinary procedures.

Training Opportunities

Various circumstances require the provision of training:

- **New employees** - **induction training** takes place when workers join an organisation. This allows the worker to obtain knowledge about the organisation in a safe, structured manner and ensures that critical information is delivered and understood. Since a worker is at risk in a workplace from their first day of work, it makes sense to deliver induction training as soon as they start work and to cover safety-critical information first.

TOPIC FOCUS

Typical content of a **general induction training course** for new starters:

- The organisation's health and safety policy.
- Fire and other emergency procedures.
- Details of specific workplace hazards and controls.
- First-aid facilities and personnel.
- The location of welfare facilities.
- Safe movement around the workplace.
- Accident and incident reporting procedures.
- Worker consultation arrangements.
- General safety rules, such as no-smoking areas.
- PPE requirements.
- Introduction to the safe systems of work and permit systems.
- Introduction to the risk assessment system.
- Responsibilities of individuals.
- Disciplinary procedures.

- **Job change** - additional training is necessary when a worker's job changes in such a way that they are exposed to new hazards and risks. For example, a healthcare worker whose job changes from being hospital-based to delivery of care in clients' own homes will need additional training, not in how to deliver care, since the service they provide has not changed, but in lone working. They will be at far greater risk when they go out into the community to conduct home visits as opposed to working in the hospital.
- **Process change** - when the way in which the work is done changes, workers may be exposed to new hazards and risks that require additional training. For example, when a different product is being produced on an existing piece of machinery, this may create new risks that require training in new safe operating procedures.
- **New technology** - new technologies adopted by organisations create different hazards and risks that workers may be unfamiliar with. The mass introduction of desktop computers, screens and keyboards in the 1990's is an example of new technology introducing new risk into workplaces. This has been further compounded with the widespread introduction and use of mobile phones and tablets, which bring additional risks and complications to the safe use of IT.
- **New legislation** - changes to the law governing a particular health and safety issue often creates a need to train workers on the implications of the new legislation, perhaps because working practices have to change or simply to ensure an understanding of the law and its requirements.

It is important to keep records of any training given, not only to record who has been trained, but also to update and show progress against a training plan. Training records should detail the level of competence achieved, the date of the training, and highlight when any refresher training is required. These records may be used to demonstrate to the authorities that adequate training was provided; or to prove that an employee had received training in the event of a civil claim for compensation or an accident investigation.

STUDY QUESTIONS

11. How can employees be involved in the improvement of workplace health and safety?
12. What are the main merits (advantages) and limitations (disadvantages) of both written and verbal forms of communication?
13. How are graphic symbols (pictograms) used in safety communications?
14. What should be the first priority in induction training?
15. Apart from at induction, when should training be provided?

(Suggested Answers are at the end.)

Principles and Practice of Risk Assessment

IN THIS SECTION...

- A hazard is something with the potential to cause harm.
- Risk is the likelihood that a hazard will cause harm in combination with the severity of injury, damage or loss that might foreseeably occur.
- Risk assessment is the formalised process of identifying hazards, evaluating risk and then either eliminating or controlling that risk to an acceptable level.
- The main objective of risk assessment is the prevention of accidents and ill health.
- There are five steps to risk assessment:
  1. Identify the hazards.
  2. Identify the people who might be harmed and how.
  3. Evaluate the risk and decide on precautions.
  4. Record the significant findings and implement them.
  5. Review and update as necessary.
- Hazards can be identified using various methods such as task analysis, legislation, manufacturers' information and incident data.
- Workers, contractors, visitors and members of the public must all be considered in the risk assessment process.
- Risk can be scored or rated using a simple **Risk = Likelihood × Severity** calculation, where likelihood and severity are allocated numbers on a scale.
- If the risk is unacceptable then controls must be introduced based on the general hierarchy of control:
  - elimination;
  - substitution;
  - engineering controls;
  - administrative controls;
  - personal protective equipment;

  to either eliminate hazards or reduce risk to an acceptable level. Any residual risk must be acceptable.
- Legal standards can often be used to indicate what level of risk is acceptable.
- Assessments must be reviewed after significant change, after an incident, and perhaps periodically.
- Sometimes it is necessary to focus risk assessment on a vulnerable person or group of workers, such as young persons, new and expectant mothers, disabled workers and lone workers.

Definitions

Hazard

DEFINITION

HAZARD

Something with the potential to cause harm.

This can include articles, substances, plant or machinery, methods of work, the working environment and other aspects of work organisation.

Hazards can be broadly classified as:

- **Physical** - things which cause harm because of their physical characteristics, e.g. electricity, work at height, radiation, vibration, noise, heat, trip hazards, moving machine parts, vehicles, etc.
- **Chemical** - things which cause harm because of their chemical characteristics, e.g. lead, mercury, sulphuric acid, silica, cement dust, etc.
- **Biological** - living micro-organisms that cause disease and ill health, e.g. hepatitis B virus (HBV), legionella bacteria (responsible for legionnaires' disease), rabies virus, etc.
- **Ergonomic** - stress and strain put on the body through posture and movement, e.g. frequent repetitive handling of small boxes leading to inflammation of the tendons in the elbow joint.
- **Psychological** - things that have the potential to cause injury to the mind rather than the body, e.g. exposure to highly traumatic events that can leave a person unable to adjust to a normal life after the event (a condition sometimes referred to as Post-Traumatic Stress Disorder (PTSD)).

A wet floor is a hazard that creates the risk of slips

For example, a lorry moving around a site road is a physical hazard because it might run over a worker. Sodium hydroxide (caustic soda) is a chemical hazard because it is a highly alkaline chemical capable of causing corrosive burns.

Note that a hazard is the 'something' that causes the harm. If an office worker receives an electric shock from an item of electrical equipment that has a damaged cord, then electricity is the hazard, not the damaged cord. It is electricity that causes the harm; the damaged cord is the failure in the controls or preventive measures. If the cord were not damaged then the hazard would still be present (electricity is still running through the equipment) but it would be properly controlled and the electric shock would not occur.

Risk

DEFINITION

RISK

The likelihood that a hazard will cause harm in combination with the severity of injury, damage or loss that might foreseeably occur.

Risk can be described qualitatively using words such as "high", "medium" or "low". There will always be some subjectivity involved since the words represent one person's opinion of the risk level. Different individuals have very different personality characteristics and so two people may disagree on the level of risk inherent in a hazard.

Risk can also be defined quantitatively using hard data. This type of quantified risk assessment is far more rigorous than qualitative risk assessment and is beyond the scope of this course.

Risk Assessment

DEFINITION

RISK ASSESSMENT

Risk assessment is the formal process of identifying preventive and protective measures by evaluating the risks arising from a hazard, taking into account the adequacy of any existing controls, and deciding whether or not the risk is acceptable.

Risk assessment is a process that people do automatically all the time. When you cross the road you carry out a risk assessment; when you drive a car you carry out a risk assessment; when you boil a kettle you carry out a risk assessment. But, of course, this assessment is normally done very quickly and without conscious thought or effort. If you are not very good at this process then you will not live long.

There are occasions in normal life, however, when you might become more aware that you are assessing risks. If you look after very young children you will consciously think about the particular hazards that present a risk to a child. If you start to take part in certain sports or activities, such as rock climbing or scuba diving, you will start to assess risks in your conscious mind rather than doing it automatically.

A workplace risk assessment is simply an extension of this automatic self-preservation mechanism that has been formalised to meet organisational requirements.

Objectives of Risk Assessment

The aim of risk assessment is to ensure that hazards are eliminated, or risks minimised, by the correct application of relevant standards.

The objectives of risk assessment are to prevent:

- Death and personal injury.
- Other types of loss incident.
- Breaches of statute law, which might lead to enforcement action and/or prosecution.
- The direct and indirect costs that follow on from accidents.

These objectives relate directly to the moral, legal and economic arguments we discussed in Element 1.

The main objective of risk assessment is the prevention of accidents

The Risk Assessors

Risk assessments should be carried out by competent people. In this context, the word "competent" would mean people who have sufficient training, knowledge, experience and other abilities. The exact training, knowledge and experience required will vary depending on circumstances. In some instances, simply an ability to identify, read and correctly interpret guidance on a topic is sufficient. In others, a detailed understanding of background knowledge is essential to be able to correctly evaluate risk.

A risk assessment can be carried out by one person, however this is not ideal in many instances since it relies on one person's opinion and judgment. Ideally, risk assessment will be carried out by a team. This allows for various views and opinions to be taken into account and so may result in a more successful assessment.

A risk assessment team might include:

- Workers familiar with the tasks and areas to be assessed.
- Health and safety specialists, such as safety practitioners and occupational health nurses.
- Technical specialists, such as mechanical and electrical engineers.
- Line managers responsible for the tasks or areas being assessed.
- Worker safety representatives.

The size and composition of the team will vary depending on the nature of the workplace and the complexity of the risk assessment process being used. Note that it is not necessary for all members of the team to be competent in the risk assessment process, simply for some or one of the team members to be a competent person. The involvement of non-competent persons is useful for a number of reasons:

- Those team members may identify hazards and risks that might otherwise be missed (two pairs of eyes are better than one).
- They may ask questions and propose solutions that might not be considered otherwise.
- It allows experience to be safely gained in the practice of risk assessment.
- It facilitates employee awareness, involvement and consultation and so enhances the safety culture.

Criteria for a Suitable and Sufficient Assessment

A risk assessment should be 'suitable and sufficient'. In other words, it should be good enough to fulfil legal requirements and prevent foreseeable injuries and ill health from happening. In particular, it should:

- State the name and competence of the assessor (and any additional specialist help obtained in carrying out the assessment).
- Identify the significant hazards and risks arising out of, or connected with, the work, i.e. those that are most likely to occur and result in harm being caused, with any remaining risks being at an acceptably low level.
- Identify all those persons who could be at risk, including workers and others, such as visitors. Vulnerable people, such as young persons, should also be identified.
- Evaluate the effectiveness of current controls.
- Identify other protective measures that are required to control the risk to an acceptable level.
- Enable the employer to identify and prioritise the measures that must be taken to protect people from harm, including complying with any relevant legal provisions.
- Be appropriate to the nature of the work and proportionate to the risks.
- State the period of time for which it is likely to remain valid.

The assessment should be proportionate to the risks in the workplace. In other words:

- A low-risk workplace with a few straightforward, often predictable hazards (e.g. a retail shop) should have a relatively simple risk assessment carried out by a competent person (perhaps the manager) that makes reference to some basic guidance documents.
- A high-risk workplace (e.g. a chemical works) should have a far more complex risk assessment carried out by competent persons (PhD industrial chemists, etc.) using detailed, complex reference material.

The first assessment might take a few hours to complete; the second might take weeks.

The Five Steps of Risk Assessment

Risk assessment can be described as a five-step process:

1. Identify the hazards.
2. Identify the people who might be harmed and how.
3. Evaluate the risk and decide on precautions.
4. Record the significant findings and implement them.
5. Review and update as necessary.

Step 1 - Identifying Hazards

The first step in the risk assessment process is to identify all the significant hazards associated with the work. Hazards are the things with the potential to cause harm. It is important to identify both the **safety hazards** that might give rise to immediate physical injury (such as moving parts of machinery, vehicles and potholes in a pedestrian walkway), and the **health hazards** that might cause disease or ill health (such as asbestos, loud noise and repetitive handling). This hazard identification might be done by task analysis, reference to legal guidance, manufacturers' information or incident data.

Remember that a risk assessment is a tool for identifying all the significant hazards that exist in a workplace - all the things that have the **potential** to cause harm. It is not a tool for only identifying those hazards that are poorly controlled. For example, in a new office with modern computer screens and keyboards, where someone has left a pile of boxes in front of a fire-exit door, the hazards are electricity, display-screen equipment, fire and poor housekeeping - so, not just the pile of boxes in front of the fire-exit door, because that would ignore all the other hazards that exist in the office. In an office you are arguably at far greater risk from death by electric shock than death by boxes left in front of a fire-exit door. So, an assessment that ignores the electrical hazard would fail.

Hazard Identification Methods

There are various methods that might be used to identify hazards in a workplace as part of a risk assessment process:

- **Task Analysis**

  This is a useful method for identifying hazards, since it allows hazards to be spotted before work starts, rather than after the work has started. Task analysis involves breaking a job down into component steps and identifying the hazards associated with each step, so that the safe working method can then be established to deal with each hazard. This can be done before work starts as part of the planning process, and is how safe systems of work are developed.

TOPIC FOCUS

There is a useful acronym for task analysis:

SREDIM:

- **S**elect the task.
- **R**ecord the steps or stages of the task.
- **E**valuate the risks associated with each step.
- **D**evelop the safe working method.
- **I**mplement the safe working method.
- **M**onitor to ensure it is effective.

- **Legislation**

  Knowledge of the legal standards that apply to a particular workplace will help enormously in identifying significant hazards. For example, knowledge of the law relating to work at height will allow a competent assessor to identify which tasks might be defined as work at height and which can be ignored. Legislation is often accompanied by guidance documents, which can also be very useful in the identification of hazards. In the UK, for example, guidance documents exist to spell out all the hazards that exist in engineering workshops.

- **Manufacturers' Information**

  When a new item of plant, machinery or equipment is purchased it usually comes with an instruction book, which contains information about all the related hazards and instructions for safe use, cleaning and maintenance. Similarly, when a new substance is purchased it comes with labels and a Material Safety Data Sheet (MSDS), which clearly identifies the hazards of the substance.

- **Incident Data**

  Internal accident and near-miss data can be useful in identifying hazards. The main limitation here is that a hazard may be very significant but may not yet have caused harm in the organisation and may therefore go unnoticed. External data, such as national statistics published by the authorities, can be more useful since they identify the real hazards and risks based on a much larger population size.

Step 2 - Identifying the People at Risk

When identifying people at risk, think not only of those carrying out particular activities but also of those who may be affected by those activities. Individuals do not need to be named; rather general groups or populations identified:

- **Workers/operators** - may be directly involved with the activity, working nearby or passing by. Some hazards create risk only for the employee carrying out the work (e.g. a worker up a ladder is at risk from falling) while others create general risk for all employees (e.g. a vehicle traffic route that all employees may have to cross in order to reach a staff car park).
  - **Maintenance staff** - are often involved in the removal of the usual safeguards present in the workplace because of the nature of maintenance work (e.g. the lift engineer who has to climb onto the top of a lift carriage in the lift shaft, or the engineer who has to remove machine guards to repair a breakdown). If the normal safeguards are being removed or bypassed, then risk to these workers increases and other methods have to be found to control this risk.
  - **Cleaners** - may be exposed to greater risk because cleaning work may involve the removal of safeguards or additional activities that create additional risk (e.g. window cleaning from an access cradle). Many cleaners also work alone, outside normal working hours, and therefore lone working becomes an issue.
- **Contractors** - may be carrying out work independent of the work being carried out by employees, or may be working alongside employees. The workplace creates risks for these contractors and the contractors create risks for the workplace. All these risks have to be considered through the risk assessment process.
- **Visitors** - to the workplace may not be working but are still exposed to certain types of risk (e.g. fire).
- **Members of the public** - may simply be in the vicinity of the workplace, yet still affected by certain types of hazard. For example, a release of toxic chlorine gas from an industrial site will affect passers by and those who live near the site. In some instances, trespassers (uninvited visitors) may get onto the site. This is particularly important with regard to the possibility of children coming onto the premises (e.g. playing on building sites, or near railway lines).

In certain instances, identifying **general** groups of people who might be harmed by hazards is inadequate and a more specific focus has to be applied to a particular person, or type of person, who is more vulnerable for one reason or another. Young people, new and expectant mothers, disabled workers and lone workers are all special cases (see later in this element).

Step 3 - Evaluating the Risk and Deciding on Precautions

Having identified a particular hazard and the people who might be harmed by it, the next step in the risk assessment process is to answer a simple question: *is the level of risk generated by the hazard acceptable, or does it need to be reduced?*

The question may be simple, but the answer can at times be complex.

Risk is a combination of the likelihood that a hazard will cause harm and the foreseeable severity of injury, should harm occur.

Risk can be qualitatively described using words such as 'very high', 'high', 'medium', 'low' or 'insignificant'. The problem with these or similar words is that they mean different things to different people, and so they are not used consistently.

An alternative approach that is commonly adopted is to break risk down into its two component parts and define each separately:

Risk = Likelihood × Severity.

By simply assigning a score to each word it is possible to calculate a risk rating for a particular hazard.

For example:

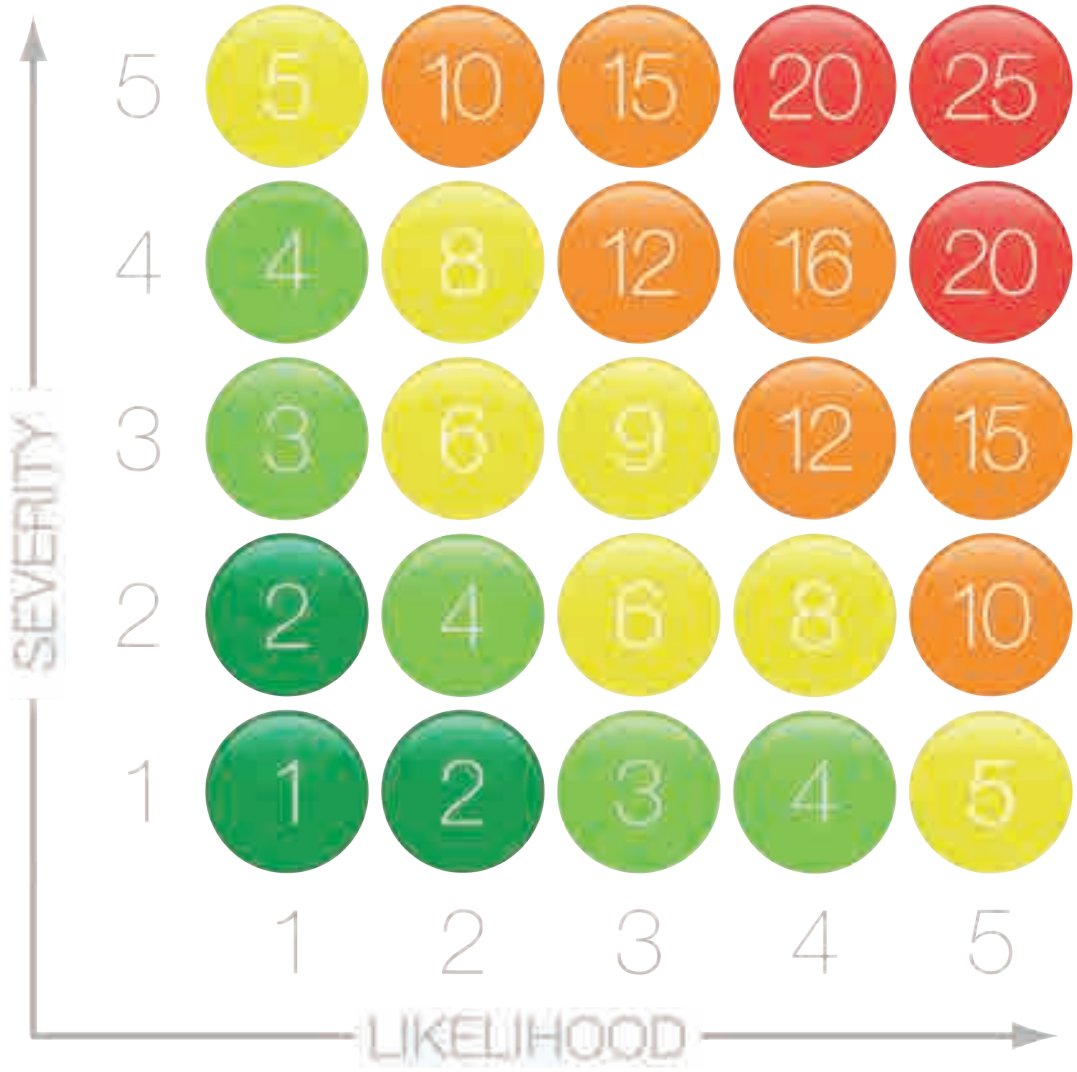
Likelihood	Severity
1 = extremely unlikely	1 = very minor injury
2 = unlikely	2 = first-aid injury
3 = possible	3 = lost- time injury
4 = likely	4 = hospital treatment
5 = very probable	5 = disabling injury

Using this scoring system, the risk generated by a trailing electrical cord positioned across a busy corridor might be calculated as 5 × 4 = 20 (very probable x hospital treatment).

The same electrical cord trailing on the floor close to the rear wall of a rarely visited plant room might be rated as 1 × 4 = 4 (extremely unlikely x hospital treatment).

Note that in both instances the severity of injury is the same. This will sometimes be the case when the same hazard is being considered, but not always. For example, put the trailing cord in an old persons' care home and the foreseeable injury becomes more severe simply because the elderly have brittle bones and suffer severe injuries when they fall over.

There is no one right or wrong way to apply this semi-quantitative risk evaluation system. Different organisations use different numbers and descriptions of likelihood and severity. It is the general principle that is important here, not the exact words and meanings.



Risk assessment matrix

The graphic above demonstrates how risk levels can be categorised using numbers and colour coding. In this example, green identifies a low risk and red identifies a high risk, and intermediate risks are shown in between.

Using a risk rating system such as our example above can be useful for several reasons:

- **Clarity of thinking** - people tend to think more carefully about likelihood and severity of foreseeable injury when they are asked to use this type of scoring system, and so it gives a more accurate end result.
- **Consistency of approach** - different people can use this system and will get similar results.
- **Prioritisation** - since risk is now represented by a number, and the higher the number the greater the risk, it is possible to easily separate out the various risks presented by several hazards and rank them in order.

General Hierarchy of Control

When hazards are identified through the risk assessment process, it is necessary to decide on the precautions needed to control those hazards to an acceptable level. This is the most important part of the risk assessment - identifying the further action that is needed and taking that action.

When trying to decide what further precautions might be appropriate to a particular situation, a useful approach can be to use a **risk control hierarchy**.

TOPIC FOCUS

The general hierarchy of control (based on **ISO 45001**):

- Elimination.
- Substitution.
- Engineering controls.
- Administrative controls.
- Personal protective equipment.

The control options explained above are set out as a hierarchy: eliminating the hazard is the preferred option, since the risk associated with that hazard is then also eliminated. If this is not possible, the next best option should be considered: substitute the hazard with something less hazardous. If this cannot be done, then engineering controls should be considered. The least effective options are to rely on administrative controls and PPE.

This general hierarchy of control will be explained in more detail in the next section.

Use of Guidance and Legal Standards

The semi-quantitative risk rating system described earlier is very useful as a practical tool for the day-to-day management of risk in a fast-changing workplace. It allows for a simple and consistent approach to the management of risk and the decision-making process. However, the one thing that this system does not consider is legal standards. If there are clear legal standards about the controls that should be applied to a particular hazard in a workplace, then the use of a scoring system and risk prioritisation and timescales, etc. becomes largely redundant. The only question that really matters is: are we doing what the law requires?

If there is no clear legal standard, or where the legal standard is open to interpretation, there may still be guidance published by the authorities that clearly identifies the controls that are expected. Reference to the law, any semi-legal codes of practice, and guidance published by enforcement agencies is therefore important in determining what the precautions should be for a particular hazard in the workplace.

Residual, Acceptable and Tolerable Risk

Once control measures have been introduced and are taken into account, the current risk level can be estimated using likelihood and severity.

The risk that remains once these new or existing controls have been taken into account can be referred to as the **residual risk**.

- If the residual risk is low then it might be considered **acceptable** - the existing controls are adequate. Nothing more need be done. In effect, the risk assessment has confirmed that the current situation is acceptable.
- If the residual risk is high, a decision has to be made about whether this residual risk is **tolerable** or **unacceptable**:
  - **Tolerable** implies that it is not acceptable but it can be tolerated for a short time while interim controls are put into place.
  - **Unacceptable** implies that the risk level is too high for work to be allowed to continue.

In the case of both tolerable and unacceptable risk, additional controls will need to be put in place to reduce the risk down to an acceptable level. Once these controls have been implemented a new residual risk level is created.

Priorities and Timescales

A straightforward link can be made between the level of risk associated with a particular hazard and the prioritisation of that hazard: the higher the risk, the higher the priority.

You might also assume that a high risk demands a short timescale for corrective action and a low risk can be allowed to persist for a longer period of time, but the problem with this simple link is that an inspector might not accept that a long timescale could be applied to a simple, low-cost remedy; it should be implemented immediately because it can be done immediately.

So, priority and timescale are linked but they are not the same thing. Priority is the relative importance or urgency of an issue and will usually be linked to the risk level. Timescale is the length of time given for corrective action and must be decided based on the risk level, cost, practical difficulty, etc. of the control measure.

Step 4 - Recording Significant Findings

The significant findings of a risk assessment should be recorded to provide a statement of the hazards in the workplace, the extent of the risks that they present, and the action taken to control those risks.

There is no standard format for risk assessments, so different organisations can adopt a format that is most appropriate to their circumstances. Typical content would include:

A typical risk assessment form

- Identification of the activity/area assessed and of the significant hazards.
- Identification of groups at risk and those especially at risk.
- Evaluation of the risks and the adequacy of existing control measures.
- Action plans for implementing further precautions needed.
- Date of assessment and name of the competent person carrying out the assessment.
- Review date.

Step 5 - Reviewing and Updating

TOPIC FOCUS

A number of situations can trigger a review of a risk assessment:

- **Significant change** to something that the risk assessment relates to:
  - Process.
  - Substances.
  - Equipment.
  - Workplace environment.
  - Personnel.
  - Legal standards.
- There is **reason to suspect that the assessment is not valid**:
  - Accident.
  - Near miss.
  - Ill health.

It is also good practice to review risk assessments on a regular basis. This is often done by determining a frequency of review based on the level of risk associated with the activity in question. An annual review of risk assessments is common practice in many workplaces.

Special Cases and Vulnerable Workers

There are times when a risk assessment has to focus on one person, or one specific group of workers, because they are more vulnerable to particular hazards (or more at risk).

Young Persons

A young person is often defined by local law (e.g. in the UK a young person is anyone under the age of 18 years).

There are several reasons why a young person might be more vulnerable to risk in a workplace:

- Lack of experience in workplaces in general.
- Physical and, perhaps, mental immaturity.
- Poor perception of risk.
- Heavily influenced by peer group pressure.
- Eager to show a willingness to work.
- Less developed communication skills.

Young people carrying out an experiment

For these reasons, you often need to think more carefully about the work that a young person is doing. It may be necessary to:

- Carry out risk assessments specifically with young persons in mind.
- Prohibit a young person from carrying out certain high-risk activities (e.g. operating complicated machinery).
- Restrict their work patterns and hours (no night-shift work or overtime).
- Train and supervise them more than other workers.
- Provide mentors to monitor and supervise young persons more closely than other workers and to provide clear lines of communication.
- Provide specific health surveillance.

New and Expectant Mothers

Pregnant women and women who have just given birth (whilst breastfeeding or for the first six months after pregnancy) are more at risk from certain types of hazard. In most of these instances, the hazard presents a risk not only to the woman but also to the baby. Many of these hazards can cause miscarriage, birth defects, or ill health in the baby.

TOPIC FOCUS

Hazards that present greater risk to pregnant women include:

- Certain hazardous chemicals, (e.g. lead).
- Certain biological agents, (e.g. the rubella virus).
- Manual handling, especially later in pregnancy.
- Extremes of temperature.
- Whole-body vibration.
- Ionising radiation.
- Night shift work.
- Stress.
- Violence.

In all cases where a woman reports that she is pregnant, a risk assessment should be carried out focusing on the work that she is doing and the hazards that might increase risk to her and the child. It may then be necessary to:

- Change the type of work or the way that it is done.
- Change the hours of work.
- Suspend the woman from the workplace.

These options are usually subject to local statute law, and remember that there will usually be other general employment and anti-discrimination legislation that should be considered, not just health and safety law.

MORE...

Further information on new and expectant mothers can be found at:

www.hse.gov.uk/mothers/index.htm

Disabled Workers

People with disabilities may be at greater risk from particular hazards, depending on the nature and extent of their disability. For example, a visually-impaired worker may be able to carry out a packaging operation at their workstation without any risk to themselves or others, but they may find it very difficult to evacuate from the building during a fire using an escape route that is unfamiliar to them. In this instance they may need some assistance in the form of an "evacuation buddy" (assistant).

During the risk assessment process it may be necessary to:

- Identify certain health and fitness criteria for some jobs and then evaluate staff against these criteria. This may result in those with a certain disability being excluded from doing these jobs, e.g. forklift-truck drivers should have their eyesight checked before being allowed to drive.
- Identify workers with known disabilities and consider what the implications of their particular type and level of disability might be.

Again, remember that there is usually other employment and anti-discrimination legislation that should be considered at the same time as any relevant health and safety law.

MORE...

Further information on disability and health and safety can be found at:

www.hse.gov.uk/disability/index.htm

Lone Workers

People who work entirely on their own for periods of time, or those who are not alone but are not with colleagues on whom they can rely on for help, might be classified as lone workers. For example, a service engineer who spends four hours alone in a plant room servicing machinery is a lone worker, but so is a healthcare worker who travels around in the local community visiting elderly patients to provide care (even though they may be in sight of other people at all times during their working day).

Lone workers are a group of workers who are especially vulnerable in certain instances:

- They may be more at risk of violence, particularly if the worker is exposed to members of the public, has to travel out into the community, or is involved in work that brings them into contact with violent people, e.g. in prisons or mental-health institutions.
- They may be more at risk if they are injured or fall ill. Certain types of work involve a high risk of personal injury or ill health (e.g. confined space entry). In these situations, lone working may be inappropriate or additional precautions may be necessary to protect the individual. We will discuss precautions that might be adopted to safeguard lone workers in more detail later in this element.

STUDY QUESTIONS

16. Why is the distinction between hazards and risks so important to health and safety management?
17. Give the purpose and objectives of risk assessment.
18. What techniques are used for identifying hazards?
19. Give the five steps involved in risk assessment.
20. Apart from office workers, what particular staff groups require special consideration during a risk assessment in an office environment?
21. What factors are used to evaluate risk?
22. What is residual risk?
23. What conditions might trigger a risk assessment review?

(Suggested Answers are at the end.)

Preventive and Protective Measures

IN THIS SECTION...

- The general hierarchy of preventive and protective measures is:
  - Elimination.
  - Substitution.
  - Engineering controls.
  - Administrative controls.
  - Personal Protective Equipment (PPE).

General Hierarchy of Preventive and Protective Measures

All workplaces have hazards and all hazards create risk. Good safety management is the logical process of identifying the significant hazards, evaluating the risk created by each, and then either eliminating the risk entirely, or reducing it to an acceptable level by introducing controls where necessary.

The general hierarchy of control (based on ISO 45001) was introduced earlier in this element, as a part of step 3 of the risk assessment process. It consists of:

- Elimination.
- Substitution.
- Engineering controls.
- Administrative controls.
- PPE.

This hierarchy is reflected in the ILO-OSH 2001 safety management system and is a useful tool for identifying preventive and protective measures.

Combat risks at source

You will remember that human factors have a part to play in effective health and safety management, so it makes sense that a **technical** engineering control will be more effective than a **procedural** administrative one, and that a procedural control will, in turn, be more effective than one that relies on **behaviour** (e.g. wearing PPE). In this way, we can think of the various control options as a hierarchy, where controls at the top of the hierarchy are the most effective and those at the bottom are the least effective.

Elimination

If a hazard can be **eliminated** then the risk created by that hazard disappears. This might be done by completely **avoiding** an activity that gives rise to risk. For example, an assembly workshop could stop welding steel in order to avoid the risks inherent in welding operations, and could buy in prefabricated metal components. The obvious limitation to this approach is that it is not possible to apply it to most of the activities carried out in the workplace.

In this case, it may be possible to eliminate one or more hazards inherent in an activity. For example, hazardous substances can sometimes be replaced with materials that do the same job but present no risk to health (i.e. they are non-hazardous). Lifting equipment, such as hoists and lifts, can be used to completely eliminate manual handling. Machinery can be purchased which generates less noise, to such an extent that there is no risk of hearing damage.

Substitution

Sometimes, hazard elimination cannot be achieved, but it is possible to substitute one hazard with another that creates less risk. For example, one hazardous substance classified as 'toxic' (i.e. lethal in small doses) is substituted with one that is 'irritant'. The replacement substance is still hazardous, but far less hazardous. A handling aid, such as a sack truck, does not eliminate manual handling, but it does reduce the risk of injury associated with moving boxes around in a workplace.

Engineering Controls

Engineering controls involve the use of an engineering solution to prevent exposure to the hazard.

This might be done by:

- **Isolation or total enclosure** - the aim here is to isolate the hazard physically so that nobody is exposed to it. This might be done by total enclosure or containment of the hazard, e.g. total enclosure of a process which generates dust to prevent its escape; acoustic enclosure of a noisy machine to reduce the noise exposure of those nearby; guards around moving machinery to prevent contact.
- **Separation or segregation** - simply placing the hazard in an inaccessible location. An example would be overhead wires where an electrical conductor has been placed out of reach. In this case, precautions have to be taken to ensure that safe distances are maintained at all times (e.g. the use of goalposts to warn plant operators on a construction site of the safety distances for live electrical overheads).
- **Partial enclosure** - for example, a hazardous substance might be handled in a fume hood or partial enclosure which the worker can reach into for handling purposes. Air is extracted from the top or back of this partial enclosure so that any airborne contaminant is extracted from the enclosure away from the worker.
- **Safety devices** and features that ensure that the item is used in the correct way and not an unsafe way. For example, interlock switches are fitted to movable guards on machinery to ensure that when the guard is open the machine will not operate (but when the guard is closed it will).

Administrative Controls

Administrative controls are those that rely on procedures and behaviour, such as:

- **Safe Systems of Work (SSW)**

  A safe system of work is a formal procedure that defines a method of working that eliminates hazards or minimises the risks associated with them. SSW are necessary whenever hazards cannot be physically eliminated and some element of risk remains. This applies to any task involving significant risk. There is therefore a specified routine for setting and detonating explosives in a quarry. The safe system is essential to prevent accidents or other incidents. Certain high- risk work activities may be controlled by a permit-to-work system (see later) as a part of the SSW.

- **Reduce Exposure**

  If the degree to which a worker is exposed to a hazard can be reduced, then that worker is far less likely to have an accident with that hazard. For example, an engineer who spends all day working on machinery with hazardous moving parts is more likely to suffer injury than an engineer who only spends one hour of their working day exposed to the same hazard. The duration of each exposure (e.g. for 10 minutes, or for 8 hours) and the frequency of exposure (e.g. once a week, or 10 times a day) will both play a part here - the less time and the less frequently, the better.

Reduce time of exposure - many health hazards in the workplace cause a degree of harm that is entirely dependent on the dose that a worker receives, e.g. the harm caused by noise, vibration, radiation and most hazardous chemicals (such as lead). The dose is determined by two principal factors:

– Concentration, intensity or magnitude of the hazard present.

– Time of exposure.

For example, the harm to hearing caused by exposure to loud noise is entirely determined by the noise intensity (measured in decibels) and the duration of exposure:

– If you are exposed to the same noise intensity for twice as long, it gives you twice the dose of noise.

– If you are exposed for half as long, it gives you half the dose.

The dose of noise determines the degree of damage done: the greater the dose, the more harm done.

In all the cases where harm is dose-related, limiting the time of exposure is an important practical control measure that can be used in the workplace.

- **Information, Instruction, Training and Supervision**

We looked at the provision of training and information in detail earlier in the element.

Training is instrumental in enabling employees to become competent. A competent employee is equipped with all relevant information and is fully aware of the hazards and the use of appropriate preventative measures.

One way that an employer might provide basic health and safety information is through the use of safety signs.

TOPIC FOCUS

Safety Signs

Safety signs combine shape, colour and pictograms to convey specific health and safety information or instructions. While there are regional variations, the standard safety signs are divided into five categories:

- **Prohibition** - directed at stopping dangerous behaviour, e.g. "No Smoking". The signs are circular with a black pictogram on a white background with a red border and red diagonal cross bar.
- **Warning** - tell people to be careful of a particular hazard, e.g. "Forklift Trucks Operating In The Area". The signs are triangular with a black pictogram on a yellow background with a black border.
- **Mandatory action** - instruct people to take a specific action, often relating to wearing personal protective equipment, e.g. "Eye Protection Must Be Worn". They are circular with a solid blue background and a white pictogram.
- **Safe condition** - identify safe behaviour or places of safety, e.g. "First Aid Station". They are rectangular or square with a white pictogram on a green background.
- **Fire-fighting equipment** - identify particular items of equipment, e.g. "Hose Reels". They are rectangular or square with a white symbol or pictogram on a red background.

PROHIBITION
No Unauthorised Entry

WARNING
Toxic Material

MANDATORY
Safety Boots Must Be Worn

SAFE CONDITION
Emergency Escape Route

FIRE EQUIPMENT
Hose Reel

Examples of safety signs

Pictograms must be used on the signs, not just text. This is to overcome any language barrier that might be created if text alone were used (as a result of illiteracy, learning difficulties, language or certain eyesight impairments).

It is important to recognise that workers may not know the meaning of the safety signs in use in a workplace (some are obvious but others are not) and therefore safety signs must be included in induction or job specific training.

Supervision refers to management routinely checking workers and exercising their authority to control behaviour. Supervision, which is of critical importance as a management control, does not necessarily mean constant oversight of workers and the workplace. It is possible to supervise workers by making occasional contact with them at suitable intervals throughout a working period, and it is possible to supervise workers remotely (i.e. from a distance).

TOPIC FOCUS

Collective Protection Over Personal Protection

Collective protective measures are those that protect the whole workplace and everyone who works there, as opposed to **personal protective measures**, which protect single individuals.

These two approaches are behind the concepts of a safe place and a safe person:

- **Safe place** - the environment of the workplace, where the emphasis is on collective protection through the correct design, selection and engineering of premises, plant, machinery, equipment, processes and substances.
- **Safe person** - individual behaviour, where the emphasis is on the competence of workers who have received adequate information, instruction and training and follow SSW.

Personal Protective Equipment (PPE)

DEFINITION

PPE

Equipment or clothing that is worn or held by a worker that protects them from one or more risks to their safety or health.

There are instances where none of the above control measures can be used, and there are times when some of them can, but residual risk still remains. If this is the case then it may be necessary to use PPE. Many different types of PPE are available, such as:

- Ear defenders for noise.
- Gloves to prevent contact with substances hazardous to the skin.
- Respiratory protection against hazardous substances that can be inhaled (breathed in).
- Eye protection against splashes of chemicals and molten metals, mists, sprays and dusts, projectiles and radiation, including laser light.

TOPIC FOCUS

Under the UK's **Personal Protective Equipment at Work Regulations 1992** it is the duty of the employer to:

- Supply suitable PPE where risks cannot be controlled by other more effective methods. "**Suitable**" means:
  - It is appropriate for the risks and the conditions.
  - It is ergonomic (i.e. user-friendly).
  - It fits properly.
  - It does not increase overall risk.
  - It complies with any relevant standards.
- Ensure that when two or more items of PPE have to be worn together they are compatible.
- Provide suitable storage accommodation for PPE.
- Provide information, instruction and training to workers on the PPE they are expected to wear.
- Enforce the use of PPE.
- Replace or repair damaged or lost items.

The merits and limitations of PPE are summarised in the table below:

Merits	Limitations
• Can be used as an interim control whilst more expensive or difficult controls are put in place. • In some situations, it may be the only control option available. • It may be needed as a back up for emergencies when other controls have failed. • It is usually cheap. • It gives immediate protection.	• It only protects one person - the wearer. • It may not protect adequately if it is not fitted correctly. • It may not be comfortable and may interfere with the wearer's ability to do the job. • It may increase overall risk by impairing the senses, (e.g. goggles that mist up). • It may not be compatible with other items that have to be worn or used. • People do not like wearing PPE. • If it fails, it fails to danger (the worker is exposed to risk).

Worker wearing various types of PPE

Why a Hierarchy?

The control options explained above are set out as a **hierarchy**; eliminating the hazard is the most preferred option, PPE is the least preferred option. The reason for this relates directly back to the human factors we discussed earlier in this element.

Workers do not behave in an ideal way in the workplace - they break rules knowingly and are subject to human error. Administrative controls and PPE are very reliant on personal behaviour and therefore are likely to be the least effective of all of the control options.

ILO-OSH 2001 refers to the above hierarchy of preventive and protective measures, and also states that hazard prevention and control procedures or arrangements established should:

a. be adapted to the hazards and risks encountered by the organisation;

b. be reviewed and modified if necessary on a regular basis;

c. comply with national laws and regulations, and reflect good practice; and

d. consider the current state of knowledge, including information or reports from organisations, such as labour inspectorates, occupational safety and health services, and other services as appropriate.

STUDY QUESTIONS

24. What is the general hierarchy of preventive and protective measures?

25. What type of sign is represented by the following pictograms?

(a) 

(b) 

(c) 

(d) 

26. When should personal protective equipment be used?

(Suggested Answers are at the end.)

Sources of Health and Safety Information

IN THIS SECTION...

There are many sources of information on health and safety. Some of these are internal to an organisation, e.g. accident records, while others are external to an organisation, e.g. material safety data sheets provided by a chemical manufacturer.

Internal and External Information Sources

Health and safety can be surprisingly complex. There is a wealth of information available that may need to be consulted. This information comes from two principal sources - those internal and those external to the organisation.

Internal information sources include:

- Accident records.
- Medical records.
- Ill-health data/absence records.
- Risk assessments.
- Maintenance reports.
- Safety representative inspections.
- Audit and investigation reports.
- Safety committee meeting minutes.

Ill-health data/absence records

For example, an organisation's accident records can give an insight into the frequency and severity of manual handling injuries, which can then be used to tailor preventive and control measures in the organisation.

External information sources include:

- National legislation (e.g. regulations).
- National codes of practice and guidance notes.
- National and international regulatory bodies - see below for examples and links to their websites.
- Material safety data sheets from manufacturers.
- Manufacturers' operating instructions.
- Trade associations.
- Safety journals and magazines.

National/International Sources

- International Labour Organisation (UN): www.ilo.org
- Occupational Safety and Health Administration (USA): www.osha.gov
- European Agency for Safety and Health at Work (EU): www.osha.europa.eu/en
- Health and Safety Executive (UK): www.hse.gov.uk
- Worksafe (Western Australia): www.commerce.wa.gov.au/WorkSafe

These external information sources can be useful when tackling health and safety issues. For example, codes of practice and guidance can provide clear guidelines on legal standards and ways of achieving legal compliance. National and international statistics on occupational accidents and diseases give an appreciation of the 'bigger picture'.

STUDY QUESTION

27. Identify two internal and two external sources of information about health and safety.

(Suggested Answer is at the end.)

Safe Systems of Work

IN THIS SECTION...

- A safe system of work is a formal procedure based on a systematic examination of work in order to identify the hazards. It defines safe methods of working that eliminate those hazards, or minimise the risks associated with them.
- It is the responsibility of the employer to develop safe systems of work with the involvement of both competent persons and employees who will be carrying out the work. These safe systems must be documented.
- Safe systems of work are usually developed using the process of task analysis, which involves breaking work down into a series of steps so that hazards can be identified and risk controlled at each step using technical, procedural and behavioural controls. Once developed, safe systems must be implemented and monitored to ensure continued effectiveness.
- Confined space entry, lone working and working and travelling abroad are typical work activities that will be subject to safe systems of work.

Introduction to Safe Systems of Work

A Safe System of Work (SSW) is a formal procedure based on a systematic examination of work in order to identify the hazards. It defines safe methods of working that eliminate those hazards, or minimise the risks associated with them.

We can identify three key elements from this definition of a safe system of work:

- The SSW is **formal** - documented or recorded in some way.
- It results from a **systematic examination of work in order to identify the hazards** - it is the result of risk assessment.
- It **defines safe methods** - it is the safe procedure or work instruction.

So, simply put, the employer should carry out a systematic risk assessment, identify the hazards and precautions necessary and then formally record the safe way to carry out the task taking this all into account.

TOPIC FOCUS

To be effective, the SSW must bring together these four elements or factors in such a way as to create a safe work method:

- **People**: Who is the SSW for? What level of competence or technical ability should they have? Are there vulnerable persons involved? How many people are working on the task?
- **Equipment**: What plant or equipment will be worked on? What equipment will be used? What safety equipment will be required? What are the hazards associated with the job and the equipment?
- **Materials**: What materials will be used or handled during the work? What are the hazards of the materials? How will waste be disposed of?
- **Environment**: In what type of environment will the work take place, e.g. space, light and temperature? Might any of these factors increase risk or need to be controlled?

Responsibilities of the Employer

It is the responsibility of the employer to ensure that SSW are available for all work activities that create significant risk, just as it is the responsibility of the employer to carry out risk assessment of all work activities. SSW become particularly important when significant residual risk remains after control measures have been introduced into work processes. They are also particularly important when the normal control measures present in the workplace are removed, as often happens during maintenance work, cleaning or construction work.

A safe system of work is the responsibility of the employer

Role of Competent Persons

SSW should be developed by people with the relevant knowledge, experience, training and skills to understand the work under analysis. This implies that the people responsible for SSW development must be competent. In the absence of competence, key hazards may be missed and key risk not addressed. This might result in a flawed SSW that does not actually control the risk to an acceptable level.

Worker Involvement

The competent person must work closely with the workers who will be doing the work. The workers involved should take an active part in all stages of both the development and review of SSW. Their practical knowledge and skills provide a valuable source of information about the nature of the risks, including unusual ones, and methods of working. They can also contribute by assessing plans and written documentation, and provide feedback on the effectiveness of the system in practice.

Involvement in this way enables workers to gain a deeper understanding of the hazards and risks, and of the way in which the SSW will minimise those risks. This encourages ownership of, and commitment to, safe working methods among workers. As management have involved and engaged the workforce (rather than simply enforcing a procedure they have developed) this can help develop a positive safety culture.

Written Procedures

Documenting SSW provides a precise reference for all workers, and ensures consistency of method, especially as the procedure may be complex or detailed - passing information via "word of mouth" is an unreliable method of communication and prone to errors. It also provides a reference for use in training and instruction in safe procedures and, as most procedures will need to be consulted on more than one occasion, the creation of a definitive document is a way of ensuring consistency whenever the process is carried out.

SSW may be recorded in the form of short notes, or perhaps manuals detailing exactly what steps to take when carrying out more complex and lengthy procedures, such as calibrating and setting up grinding wheels. SSW documentation can be accompanied by checklists for employees to use as aids to ensure that all the correct steps are taken, and to tick off details before continuing with the next step or starting operations. Written SSW also establish a standard that can be audited, and provide the employer with a written record, which may be required for legal reasons, such as in incident investigations or during enforcement action.

Technical, Procedural and Behavioural Controls

A safe system of work will involve all the elements of control that we identified earlier in the general hierarchy of controls:

- **Technical, or engineering, controls** - applied directly to the hazard in order to minimise the risk. This may involve fencing or barriers of different kinds to isolate workers from the hazard as far as possible, or security devices built into equipment to stop its operation if there is a fault.
- **Procedural controls** - the way in which work should be carried out in relation to the hazard. They will specify the exact tasks involved, their sequence and the safety actions and checks that have to be taken. Often, procedures will relate to the correct operation of technical controls.
- **Behavioural controls** - how the individual worker acts in relation to the hazard. They include general points of good practice in the workplace, e.g. good housekeeping, and specific measures such as the use of PPE.

Development of a Safe System of Work

As a part of the planning process, SSW are developed by task analysis prior to work commencing. Task analysis is the process of breaking a job down into its component steps and then identifying the hazards associated with each step. The safe working method can then be identified to deal with each hazard.

Task Analysis

Can you remember what the acronym **SREDIM** represents? We explained it earlier on when we discussed hazard identification and task analysis.

- **S**elect the task to be analysed.
- **R**ecord the steps or stages of the task.
- **E**valuate the risks associated with each step.
- **D**evelop the safe working method.
- **I**mplement the safe working method.
- **M**onitor to ensure it is effective.

So, for example, a vehicle breakdown and recovery company might perform task analysis on the job of changing the wheel on a customer's car.

This analysis might identify the key steps of the task as:

Step 1: Park breakdown vehicle.

Step 2: Remove faulty wheel.

Step 3: Fit spare wheel.

Step 4: Leave.

The risks associated with each of these steps would then be evaluated. For example, at Step 2, one of the risks identified might be movement of the customer's car after it has been raised up, causing it to collapse. Being struck by passing traffic might be another risk.

Introducing Controls and Formulating Procedures

Once the risks have been evaluated, the appropriate safe working method can be developed. In our example, one of the controls would be for the worker to check that the car's handbrake has been firmly applied and that the handbrake actually works. Another would be for the worker to wear high-visibility clothing at all times.

Implementing the SSW is often more problematic than developing the safe working method, because implementation requires workers to adopt the new working procedures and use all the identified controls. We noted earlier that people's behaviour can be difficult to control. One way of overcoming or minimising this difficulty is to consult with and involve workers in the development process so that they are able to raise objections and concerns at an early stage; they then have some ownership of the new methods.

Instruction and Training

A key step in the implementation of any safe working method is the provision of information, instruction and training. In some cases, if the workers have the competence to interpret and correctly follow new methods, simply informing them of changes to existing methods will be sufficient. In other instances, detailed theoretical and practical training will have to be provided to ensure that workers understand and can apply the safe working methods.

Monitoring

The last step of the task analysis process is monitoring; once the safe working method has been put into place it should be checked periodically. This is to ensure that:

- The new safe working method is being correctly followed and applied. If it is not, then supervision must be improved.
- The method is, in fact, safe. If it is not, then it will have to be reviewed and amended accordingly.

TOPIC FOCUS

Factors to be considered when developing a safe system of work:

- What is the task being undertaken? Analysis can be provided through job safety analysis (the SREDIM method mentioned earlier).
- What equipment and materials are required for the task? These will present their own hazards, which need to be controlled.
- Who will be carrying out the work? How many people are working? What is their experience/knowledge level? Are there vulnerable persons?
- What are the hazards associated with the job?
- What controls are recommended by the manufacturer?
- What emergency provision is in place?
- Are the control measures adequate or are additional controls needed?
- How will the system of work be monitored?

Specific Examples of Safe Systems of Work

Working in Confined Spaces

A confined space can be defined as "any place such as a chamber, tank, vat, silo, pit, well, pipe, sewer, flue, or similar, in which by virtue of its enclosed nature there is a foreseeable risk of:

- Fire or explosion.
- Loss of consciousness or asphyxiation arising from gas, fumes, vapour or lack of oxygen.
- Drowning.
- Asphyxiation as a result of entrapment in free-flowing solid.
- Loss of consciousness as a result of increased body temperature."

Based on the definition in the UK Confined Spaces Regulations 1997

Entry into a sewer - confined space entry

Note that a confined space has two characteristics:

- An **enclosed** nature (ventilation will be restricted and access/egress - getting in and out - may be difficult).
- One or more of the **foreseeable specified risks** exist.

Remember that a confined space does not have to be small; an empty oil-storage tank can be big enough to play a game of football inside, but it is still a confined space because of its enclosed nature and the risk of fire, asphyxia and drowning (as a result of an inflow of oil or other liquid while people are working in the tank, e.g. an in-feed pump might be accidentally switched on).

TOPIC FOCUS

Since work in confined spaces is a high-risk work activity, there are some general principles that should always be applied:

- Do not work inside a confined space if it is possible to do the work in some other way.
- If confined space entry is the only way to do the work then a competent person must carry out a risk assessment.
- A safe system of work must be developed for the confined space entry.
- Emergency arrangements must be put in place as a part of that SSW.
- Confined space entry must be under permit-to-work control only.
- All personnel must be trained.

When developing the SSW for confined space entry, the competent person will have to decide on the appropriate:

- Level of supervision.
- Competency requirements of the people doing the work.
- Communication methods to be used inside the confined space.
- Atmospheric testing and monitoring before and during entry.

- Ventilation that may be required before and during entry.
- Removal of residues.
- Isolation and lock off of in-feeds and out-feeds (pipes, etc.).
- Isolation and lock off of electrical and mechanical hazards.
- PPE requirements for workers inside the confined space which may include respiratory protective equipment.
- Safe and quick access and egress methods.
- Fire prevention measures.
- Lighting, which is suitable and safe to use in the atmosphere inside the confined space.
- Individuals, in terms of body size and psychology.
- Emergency and rescue arrangements to cope with foreseeable emergencies.

Lone Working

Lone workers might be defined as "workers who are separated from their work colleagues". Many people carry out their work in this way, perhaps all the time or on a regular or occasional basis, e.g. sales representatives; installation, repair and maintenance staff; cleaners and night security workers, etc. Note that a lone worker may not, in fact, be alone: they may be surrounded by people, who are not their work colleagues but others, such as members of the public or customers.

The hazards that a lone worker may encounter will be the same as those of their colleagues working together, but the risks may be higher because:

- They don't have help to do the work, and to cope if things go wrong.
- Communication with colleagues and management is more difficult.

A worker in a remote location uses a radio to ensure good communication

TOPIC FOCUS

To manage the risks associated with lone working, a risk assessment must be carried out and the SSW developed.

Various control measures may have to be implemented in the SSW:

- No lone working for certain high-risk activities (such as confined-space entry).
- Arrangements for remote supervision.
- Procedures for logging workers' locations when lone working.
- The use of mobile phones or radios to ensure good communications.
- The provision of lone-worker alarm systems to raise the alarm and pin-point the worker.
- Procedures to be adopted by workers when lone working.
- Emergency procedures.
- Training for workers in those procedures.

Working and Travelling Abroad

There are various risks associated with working and travelling abroad, most notably relating to security and health. Working abroad is not the same as going on holiday - it is a change of workplace, and with that comes additional hazards. While travelling, the worker may also be 'lone working' and, as such, adequate controls should be in place to manage these risks too.

Organisations that send employees abroad have a duty to manage the health and safety aspects of the work in exactly the same way as all other undertakings. The organisation should develop a policy on international travel and specify the arrangements that will be made.

One of the biggest risks associated with international travel is that to personal health. It is essential that up-to-date advice is obtained before travelling. Some of the precautions that may need to be considered are:

- Vaccination.
- Pre-trip medical examination.
- Medical insurance.
- Training on personal health care.
- Emergency medical provision.
- Post-trip medical check-up.

TOPIC FOCUS

Arrangements are likely to cover the following key topic areas:

- Pre- and post-visit briefings.
- Insurance arrangements.
- Personal health advice and vaccinations.
- Financial arrangements.
- Personal security training and advice.
- Advice on cultural differences and requirements.
- Accommodation.
- In-country travel.
- Emergency arrangements.
- 24-hour organisation contacts.

MORE...

Further information on confined spaces and lone working can be found at:

www.hse.gov.uk/pubns/indg258.pdf

www.hse.gov.uk/pubns/indg73.pdf

www.suzylamplugh.org

STUDY QUESTIONS

28. Define a safe system of work.
29. How does involving employees in the development of safe systems of work contribute to strengthening the safety culture?
30. What is the difference between technical, procedural and behavioural controls?
31. Why do instruction, training and supervision form a part of safe systems?

(Suggested Answers are at the end.)

Permit-to-Work Systems

IN THIS SECTION...

- Permit-to-work systems form part of a safe system of work to control high-risk work activities, such as hot work.
- A permit system formalises the control of high-risk work to ensure that all the risks have been identified, all the precautions have been put in place and that appropriate information has been communicated to all relevant parties.
- A permit to work usually has four main sections:
  - Issue.
  - Receipt.
  - Clearance.
  - Cancellation.
- Permit-to-work systems rely on the use of paper permits, but ultimately they only control risk properly when correctly used.
- Permits to work are typically used to control hot work, work on live electrical systems, entry into confined spaces, work at height and some forms of machinery maintenance work.

Definition, Role and Function of a Permit-to-Work System

A Permit-To-Work (PTW) system is a formal, documented safety procedure, forming part of a safe system of work, which ensures that all necessary actions are taken before, during and after particularly high-risk work.

The high-risk nature of the work is the key feature that these types of work have in common, which makes them subject to permit control. If the work is not carried out in precisely the right way, then workers and others may be killed. The aim of the permit system is to focus everybody's attention on the high-risk nature of the work to ensure that:

- The correct safety precautions are in place before, during and after the work.
- All the people who need to know about the work do actually know about it.

High voltage electricity

TOPIC FOCUS

The sort of high-risk work that would normally be controlled by a permit system includes:

- Hot work (involving naked flames or creation of ignition sources).
- Work on high-voltage electrical systems.
- Confined space entry.
- Work on operational pipelines.
- Excavating near buried services.
- Maintenance work on large, complex machinery.
- Work at height.

Operation and Application

A permit-to-work system is a management system that is supported by, and makes use of, PTW (which are pieces of paper). PTW are formal documents specifying the work to be done, hazards, and the precautions to be taken. The permit provides a clear written record, signed by a responsible manager or supervisor, that all foreseeable hazards have been considered and all the necessary actions have been taken. It must be in the possession of the person in charge of the work before work can commence.

TOPIC FOCUS

The general details to be included on a PTW reflect the operation of the permit system and can be summarised as:

Issue

- Description of the work to be carried out (details of plant and location).
- The date and time of issue and the duration over which the permit will be open (remain valid).
- Assessment of hazards associated with the job.
- Controls required, such as isolations, PPE and emergency procedures.
- Signature of the authorised person issuing the permit.

Receipt

- Signature of the competent persons accepting the permit (the workers).

Clearance

- Signature of the competent persons stating that the area has been made safe (e.g. work completed) and that they are leaving the area and isolations can be removed.

Cancellation

- Signature of the authorised person stating that the isolations have been removed, the area has been accepted back and that the equipment can be restarted.

Each permit will have a unique identification number so that copies of a permit can be traced back to their specific source.

Permits are usually triplicate-copy documents with a unique identification number for cross-reference purposes. The sections of a permit to work operate in the following way:

- **Issue**

  This section of the permit defines the work, identifies the hazards and determines the necessary safety precautions.

  An authorising manager must complete this section. This will require them to carry out a risk assessment of the work in order to identify all the relevant hazards and precautions. The manager must be competent to do this. The authorising manager must specify:

  – The exact nature of the work.

  – Where the work can take place.

- The names of each of the workers authorised to carry out the work.
- The date and time that work can start.
- The period of time the permit is valid for.
- The control measures that must be in place before, during and after the work.
- Any restrictions.
- Any other permits that may be relevant.

The authorising manager signs the permit to formally confirm that all necessary precautions have been taken and that work can now start, providing the necessary precautions are adhered to. The manager's name and signature, along with the date and time, should be clear.

- **Receipt**

  Here, the handover process to allow work to start is formalised.

  The workers sign the permit to formally confirm that they understand all the hazards, risks and precautions and that they will comply with all necessary control measures.

  Names should appear clearly in capital letters with signatures, dates and times.

- **Clearance/Return to Service**

  The workers sign this section of the permit to confirm that they have left the workplace in a safe condition, that work is complete and that normal operations may resume.

- **Cancellation**

  The authorising manager signs this section to accept the hand-back of the workplace from the workers. This also has the effect of cancelling the permit so that no further work can take place under its authority.

- **Extension**

  This section is included in some permit systems in case there is any overrun of the work. It allows the authorising manager to grant an extension to the timescale of the permit.

Permits are often issued in triplicate:

- One copy is displayed in the area where the work is taking place.
- One copy stays with the authorising manager.
- One copy is displayed in a central location (often on a permit board) where other permits are also displayed for clear communication.

Remember that a PTW is just a piece of paper; it does not ensure safety. What ensures safety is the management system that it represents. In some cases, permits are treated simply as unnecessary paperwork - to be filled in because someone at head office says so. This can encourage casual practices, such as authorising managers issuing permits without actually checking that control measures have been put in place, which can lead to unfortunate consequences.

A good permit system is only as good as the persons using it. To work effectively:

- Only authorised persons should issue permits.
- Permit issuers must be familiar with the hazards of the workplace and the job to be carried out.
- Precautions must be checked before permits are authorised.
- Permits must never be amended.

- The permit must be treated with respect.
- All permit conditions must be adhered to.
- Staff must be trained and competent.
- The system must be monitored to ensure it is effective.
- The PTW system must be appropriate for the nature of the business, e.g. a bakery may require a less complex system than an oil rig.
- Sufficient time must be allowed to ensure permits are issued correctly, and staff trained to understand this. Contractors, for example, may become stressed if the process is time-consuming, but must understand that they are required to adhere to the system.

Typical Permit Systems

Hot Work

Permit systems are commonly used to control hot work where naked flames will be used (e.g. propane, butane or oxy-acetylene torches) or where a significant ignition source will be created (e.g. welding or grinding operations).

Cutting with an oxy-acetylene torch requires a permit to work

Typical precautions for control of hot work:

- Flammable materials are removed from the work area.
- Items that cannot be removed are covered with fire-retardant blankets.
- Floor is swept clean.
- Wooden floor is damped down.
- A suitable fire extinguisher is at hand.
- A "fire-watcher" is present in the area.
- The work area is visited routinely after the work has finished to check the area for smouldering.

Work on Live Electrical Systems

The high risk associated with working on or near live electrical systems means that this type of work is usually subject to permit control. In particular, permits are usual for work on or near high-voltage systems.

A permit system is used to ensure that:

- Working live is justified (i.e. it is not possible to work with the power off).
- All precautions are in place.
- The workers are competent to do the work.

Machinery Maintenance

Maintenance work often involves the removal or disabling of safeguards and control systems. For large, complex industrial machinery, more than one person may be involved in the work and they may be required to work inside the machinery. This can generate high risk that might be best controlled using a permit system.

A permit system is used to ensure that:

- Work is carefully planned, assessed and controlled.
- The nature of the work is communicated to those who need to know about it.
- Power sources are isolated and locked off.
- Stored energy is released or secured.
- The workers are competent to do the work.

Confined Spaces

Entry into confined spaces can be extremely hazardous, so should always be under the control of a PTW system. This will require a competent person to carry out a risk assessment and then develop a safe system of work, which identifies all the necessary precautions for entry and the emergency arrangements that must be put in place.

Work at Height

A large proportion of workplace fatalities are caused by falls from height; this is considered a high-risk activity and is often covered by a PTW. The permit system will be used to ensure that the following factors are taken into consideration:

- Avoid working at height if possible.
- Prevent falls by providing a safe workplace, e.g. a platform with adequate edge protection.
- Minimising the distance and consequences of falls using PPE to limit falls, or safety devices, e.g. nets to catch anyone who does fall.
- Weather conditions, e.g. high wind, ice.

STUDY QUESTIONS

32. What is a permit to work?

33. What are the four key elements of a typical permit?

(Suggested Answers are at the end.)

Emergency Procedures

IN THIS SECTION...

- An organisation should develop emergency procedures to deal with foreseeable incidents such as fire, bomb threat and chemical spill.
- These procedures should cover the internal arrangements for dealing with the foreseeable incidents, which will include:
  - The foreseeable emergencies.
  - Procedures for raising the alarm.
  - Procedures to follow.
  - Provision of suitable equipment.
  - Nomination of responsible staff.
  - Provision of training and information.
  - Drills and exercises.
  - Contacting the emergency services.

Importance of Developing Emergency Procedures

Despite all the controls that can be introduced into an organisation, things can still go wrong. Accidents and incidents do happen. When they do, it is critical that the organisation has emergency procedures that can be brought into effect without delay, otherwise there may be a poor or inappropriate response that makes things worse, rather than better.

Clean up after oil spill

TOPIC FOCUS

An organisation has to develop procedures to deal with foreseeable incidents. Such incidents might include:

- Fire.
- Bomb threat.
- Spillage of a hazardous chemical.
- Release of a toxic gas.
- Outbreak of disease.
- Severe weather or flooding.
- Multiple casualty accident.
- Terrorist/security incident.

The foreseeable incidents will vary depending on many factors, such as the type of organisation and its location.

Emergency Procedure Arrangements

Having identified the foreseeable incidents, the organisation should make internal arrangements to deal with each of them, should they occur. These arrangements should include:

- **Foreseeable emergencies**: an outline of the foreseeable emergencies that might occur along with the circumstances in which they might occur and their foreseeable outcomes. This will identify what the emergencies are and why procedures need to be followed.
- **Procedures for raising the alarm**: workers needs to know how the relevant alarms are raised for different types of emergency and any escalation procedure that might apply. For example, manual call points might be used to raise the alarm in the event of fire, but radio or telephone notification to a control centre might be used in the event of a security incident.
- **Procedures to be followed**: in the event of a fire, for example, normal practice is for workers to exit the building using the signed escape routes and assemble at a designated place. In the event of a bomb threat, the procedure is often the exact opposite: to go to a room inside the building, away from windows and external walls.
- **Provision of suitable equipment**: if there is a chemical spill, for example, absorbent granules or booms might be used to contain the spill and PPE used to prevent harm to those involved in the containment operation. In the event of a release of toxic gas, respiratory protective equipment may be needed.
- **Nomination of responsible staff**: in a fire situation there is likely to be a need for fire wardens or marshals, who walk through the building to check that everyone is aware of the fire evacuation. A fire team may also be required, whose job will be to check the area where the fire is suspected to be.
- **Dealing with the media**: it is foreseeable that some emergencies will attract media attention. Procedures for handling the media should be developed and nominated staff trained in media handling techniques (such as how to answer questions from newspaper and radio reporters).
- **Arrangements for contacting emergency services**: while internal emergency arrangements must be made by the organisation to deal with foreseeable incidents, these responses will normally also involve contacting external emergency services for help. There should therefore be appropriate arrangements in place:
  - Communication equipment, e.g. land-line and mobile phones, satellite phones, or VHF radio. The more remote the location, the more difficult communication becomes.
  - Contact details, e.g. national and local emergency-service numbers. This may involve international medical evacuation as well.
  - Responsible individuals with the necessary information and knowledge nominated to make the call. In many instances, the emergency services can provide a more effective response if they are given critical information quickly.

Training and Testing

Workers will only know what to do when these various emergencies occur if they have been provided with information and training. Any nominated individuals will require additional training in their roles in the emergency, and in the safe handling of any equipment (e.g. PPE) that they might have to use. Members of the public may require information on emergency procedures, which might be provided in the form of notices, or by means of public address system announcements.

Emergency procedures should be practised to ensure that people are familiar with the actions they might be expected to take. In this way, people's responses become automatic. For example, fire evacuation drills should be conducted routinely in all workplaces, and multiple casualty accident exercises should be practised if they are a foreseeable event.

STUDY QUESTIONS

34. What is the main objective of an emergency procedure?

35. Name three typical emergencies that may require the development of emergency procedures.

(Suggested Answers are at the end.)

First Aid

IN THIS SECTION...

- An employer must provide appropriate first-aid services for their employees. This will include first-aid equipment and appropriately trained personnel. They must inform their workers of these arrangements.
- To determine what needs to be provided, an employer will have to undertake a first-aid needs assessment, which should consider various factors, such as the hazards and risks inherent in the work, the number and work pattern of workers, and the geographic location and spread of the workplace.

First-Aid Requirements

An employer has a duty to provide appropriate first-aid services for their employees. This is to allow an immediate emergency medical response to foreseeable injuries that might occur in the workplace. Three elements must be provided:

- **Facilities** - an appropriate location where first-aid treatment can be given.
- **Equipment** - suitably stocked first-aid kits and other equipment as necessary.
- **Personnel** - staff with appropriate training to deliver first-aid treatment.

The employer must notify staff of these first-aid arrangements and, in particular, the identity of trained first-aid personnel.

First-aid training

Specific first aid at work requirements may differ between countries as they are often dictated by local legislation; the next section is based on the UK legal requirements.

First-Aid Facilities

Suitable facilities should be provided where first-aid treatment can be given. As a minimum, this might consist of a room that is used for other purposes but can be quickly converted into a treatment area. In a larger workplace, a dedicated treatment room should be provided.

This room should be:

- Centrally located in an area that can be accessed by the emergency services.
- Clean and adequately heated, ventilated and lit.
- Provided with hand-wash facilities, a chair and a clinical waste bin, etc.

First-Aid Equipment

As a minimum, one fully stocked first-aid kit (box) might be provided for a small, low-risk workplace.

TOPIC FOCUS

The UK's HSE provides suggestions on what should be included in a first-aid kit, for example:

- Large triangular bandages (preferably sterile).
- Sterile plasters (individually wrapped; appropriate to the type of work).
- Disposable gloves.
- Safety pins.
- Sterile eye pads.
- Large- and medium-size unmedicated wound dressings (sterile; individually wrapped).

For more information see: www.hse.gov.uk/firstaid/index.htm

In larger workplaces, multiple first-aid kits should be positioned at various locations throughout the workplace, as well as:

- Eye-wash stations.
- Emergency showers.
- Blankets.
- Splints.
- Resuscitation equipment.
- Stretchers.
- Wheelchairs.
- Other equipment, as required.

Eye-wash station

First-Aid Personnel

Role of First Aiders

The basic role of first aiders is to keep the injured casualty alive until professional medical assistance can take over. This is sometimes referred to as the three Ps:

- Preserve life.
- Prevent deterioration.
- Promote recovery.

First-aiders also provide simple treatment for minor injuries that do not require professional treatment.

Types of First-Aid Personnel

Minimum provision would be a person available to take charge of the first-aid arrangements, which means looking after the first-aid equipment and facilities and calling the emergency services when required. Such '**Appointed Persons**' should be available at all times while people are at work. Appointed persons are not necessary where there are adequate numbers of first aiders.

Appointed persons do not need to be trained as first-aiders, but it would be of benefit if they were trained to Emergency First Aid at Work (EFAW) level. The number of appointed persons and/or emergency first-aiders will depend on a first-aid needs assessment.

Where the needs assessment shows there is a higher level of risk, first-aiders trained to the First Aid at Work (FAW) standard should be appointed in numbers appropriate to the risk and numbers of workers.

EFAW and FAW personnel must have suitable training and hold a valid certificate of competence. EFAW courses are usually one day duration. FAW courses usually run over three days. Requalification training for these courses usually takes one and two days, respectively.

The HSE provides information to help employers select suitable first-aid training providers. The HSE also advises that EFAW and FAW personnel should have annual refresher training to prevent 'skills-fade', although this is not compulsory.

Selecting Staff to be First Aiders

There are a number of factors that should be taken into account when selecting persons to fulfil the role of a first aider at work. These include:

- Being reliable, having a good disposition and good communication skills.
- Awareness of their own limitations and limitations of the training.
- Having the aptitude and ability to absorb new knowledge and learn new skills.
- Having the ability to cope with stressful situations and accept responsibility.
- Physically fit enough to deal with the demanding nature of some aspects of first aid.
- Consideration of the need for first aiders considering gender, ethnicity and religious convictions.
- The person's normal duties should be such that they can leave their work immediately at any time to attend an emergency.

First-Aid Coverage

An employer should undertake a first-aid needs assessment in order to determine what first-aid facilities, equipment and trained personnel to provide.

There should be adequate first-aid cover on all shifts worked in the workplace, with weekend, morning, afternoon and night shift work patterns all adequately provided for.

TOPIC FOCUS

Factors to consider when deciding first-aid provision and number of first aiders:

- General risk level of the workplace.
- Hazards present in the workplace.
- Accident history.
- Specific procedures required, e.g. some toxic materials have specific antidotes or first-aid protocols.
- Presence of vulnerable persons.
- Number of workers in the workplace.
- Work patterns and shift systems of workers.
- Geographic location of the workplace.
- Spread of the workplace.

The geographic location is an important issue to consider when determining first-aid provision. Workplaces within easy reach of the emergency services can perhaps provide minimal cover, but workplaces in remote locations, which the emergency services may take hours to reach, must have adequate facilities and skilled personnel available.

MORE...

Further information on first aid at work is available from:

www.hse.gov.uk/firstaid/index.htm

Leaflet INDG347(rev2), Basic advice on first aid at work, HSE, 2011, available at:

www.hse.gov.uk/pubns/indg347.pdf

STUDY QUESTION

36. What factors might need to be considered when determining the first-aid facilities for a workplace?

(Suggested Answer is at the end.)

Summary

This element has dealt with certain topics relating to the Organising section of a health and safety management system.

In particular, this element has:

- Looked at the various parties within a workplace and the responsibilities that they have:
  - The employer - for ensuring that the workplace is safe and free of health risk.
  - Senior management - for setting policy, allocating resources and showing leadership.
  - Middle management - for making standards happen operationally.
  - Safety specialists - for giving correct advice and guidance.
  - Workers - for their own safety and the safety of others.
- Looked at other parties outside the workplace and the responsibilities that they have:
  - Controllers of premises - for ensuring that the premises they control are safe.
  - The self-employed - for their own safety and the safety of others.
  - The supply chain - for the safety of the plant, equipment and substances that they supply for use at work.
  - Joint occupiers of premises - for co-operation and co-ordination.
- Considered the responsibility that a client has for the management of contractors and outlined the steps that a client should take to choose a competent contractor and plan and monitor their work.
- Defined safety culture (as the shared attitudes, values, beliefs and behaviours relating to health and safety) and made a link between safety culture and health and safety performance.
- Outlined how safety culture might be assessed by looking at indicators such as accidents, ill health, compliance and complaints.
- Discussed the three human factors that influence a worker's behaviour: individual, job and organisational factors.
- Outlined the influence of a worker's attitude, competence and motivation on their safety-related behaviour, and considered the importance of perception.
- Looked in detail at some of the issues that must be dealt with in order to improve safety culture:
  - Clear management commitment with visible leadership and appropriate disciplinary measures.
  - Competent staff (training, knowledge, experience and skills).
  - Communication of safety information in verbal, written or graphic form through the use of notice boards, posters, etc.
  - Consultation.
  - Training at appropriate times, e.g. induction training for new staff.
- Defined the terms "hazard" (something with the potential to cause harm), "risk" (the likelihood that a hazard will cause harm in combination with the severity of outcome), and "risk assessment" (a formalised process of identifying hazards, assessing the risk they generate and then either eliminating or controlling the risk).
- Identified the aim of risk assessment - to ensure that hazards are eliminated or risk is minimised by the correct application of relevant standards.

- Explained the five-step approach to risk assessment:
  - Identify the hazards.
  - Identify the people who might be harmed and how.
  - Evaluate the risk and decide on precautions.
  - Record the significant findings and implement them.
  - Review and update as necessary.
- Considered that hazards can generate risk to both safety and health and can be identified by various methods, including task analysis, legislation, manufacturers' information and incident data.
- Explained the general hierarchy of preventive and protective measures, which rely on the correct selection of technical, procedural and behavioural controls.
- Noted several of the internal and external sources of health and safety information that are available.
- Defined "safe systems of work" as formal procedures that define safe methods of working to eliminate or minimise risk, and are based on a systematic examination of work equipment and processes to identify the hazards involved.
- Identified the role of both competent persons and workers in developing and documenting these safe systems.
- Outlined the process of task analysis, where a task is broken down into a series of steps so that hazards can be identified and risk controlled at each step. This safe working method must then be implemented and monitored.
- Explained the relevance of safe systems of work to confined space entry, lone working and working and travelling abroad.
- Outlined permit-to-work systems as a way of formalising the control of high-risk activities.
- Explained the Issue, Receipt, Clearance and Cancellation sections typical of a permit to work and outlined the use of permits in the control of hot work, work on electrical systems, machinery maintenance, confined spaces and work at height.
- Discussed why an organisation must develop emergency procedures to deal with foreseeable incidents, the internal arrangements that might be made, and the arrangements for contacting the emergency services.
- Outlined the need for an employer to provide appropriate first-aid services for employees, to include first-aid facilities, equipment and appropriately trained personnel.
- Considered the factors that must be assessed when deciding on adequate first-aid provision.

Exam Skills

QUESTION 1

(a) **Give** the meaning of the term 'perception'. **(2)**

(b) **Outline** ways in which workers' perceptions of hazards in the workplace might be improved. **(6)**

Approaching Question 1

Think now about the steps you would take to answer the question:

Step 1. The first step is to read the question carefully. This time you have been asked to "give" the meaning in part (a) - NEBOSH defines this as "provide without explanation".

Part (b) is another "outline", so more detail is required here, and perhaps an example or two to illustrate your points.

Step 2. Now highlight the key words. In this case, they might look like this:

(a) **Give** the **meaning** of the term '**perception**'. **(2)**

(b) **Outline** ways in which workers' **perceptions** of **hazards** in the workplace might be **improved**. **(6)**

Step 3. Next, consider the marks available. As always for this type of question there are eight marks available, split here as two for part (a) and six for part (b). So, for part (b) you are probably looking to provide six pieces of information, expressed as an outline.

Step 4. Read the question again to make sure you understand it and have a clear understanding of hazard perception. (Re-read your notes if you need to.)

Step 5. The next stage is to develop a plan - you are now familiar with how to do this.

The answer plan will take the form of a bullet-pointed list that you need to develop into a full answer based on the key words that you have highlighted.

HINTS AND TIPS

When you are defining "perception", don't necessarily think as a health and safety practitioner - what definition would the layman use? (Perception isn't just a health and safety term.)

Now have a go at the question. Draw up an answer plan, and then use it as the basis to write out an answer as you would in the exam.

When you have finished, compare your plan and full answer to those that follow.

Suggested Answer Outline

Perception	Improve
• Brain interpret info from senses.	• Improve visibility. • Provide training. • Minimise distractions. • Careful choice of PPE.

Now have a go at the question yourself.

Example of How the Question Could be Answered

(a) *Perception can be defined as the way people interpret information they take in through their senses, e.g. hearing and sight. Different people will perceive things in different ways.*

(b) *To improve hazard perception, a number of approaches can be used. Firstly, the hazards need to be apparent to the workers. This can be achieved by making them easy to identify, e.g. by using signs to warn of hot surfaces and painting trip hazards yellow. Hazards can also be made more obvious to workers through the use of training and awareness-raising sessions, e.g. to introduce the idea that noise can be harmful to hearing. Hazards may also not be noticed as the senses are overloaded with other information, e.g. a noisy workplace may prevent a worker hearing an approaching vehicle, so background noise levels may be reduced to address this. Finally, there may be issues affecting the way in which information is absorbed by different people - those with hearing or sight impairment may require additional steps to be taken to highlight hazards, e.g. tactile flooring near to crossing points, or vibrating pagers to warn of the fire alarm. PPE can also impair the senses - so careful selection of PPE that does not impair the senses will help.*

Reasons for Poor Marks Achieved by Candidates in Exam

- Many candidates will have lost marks for not providing the outlines required.
- Most candidates only considered training and awareness-raising and so would have limited their marks.

QUESTION 2

(a) **Give** the meaning of the term 'risk' **AND give** a workplace example. **(3)**

(b) **Identify** the key stages of a risk assessment. **(5)**

Approaching Question 2

Think now about the steps you would take to answer the question:

Step 1. The first step is to read the question carefully. This time you have been asked to "give" the meaning in part (a) - NEBOSH defines this as "provide without explanation".

Part (b) requires you to "identify" the stages of a risk assessment - you will remember that this is, in NEBOSH terms, "select and name".

Step 2. Now highlight the key words. In this case, they might look like this:

(a) **Give** the **meaning** of the term '**risk**' **AND give** a workplace **example**. **(3)**

(b) **Identify** the **key stages** of a **risk assessment**. **(5)**

Step 3. Next, consider the marks available. As always for this type of question there are eight marks available, split this time as three for part (a) and five for part (b). It's probable that you would gain two marks in part (a) for the meaning of risk and one mark for a suitable example. For part (b), you should probably aim to provide five pieces of information.

Step 4. Read the question again to make sure you understand it and have a clear understanding of why we should practise emergency procedures. (Re-read your notes if you need to.)

Step 5. The next stage is to develop a plan. The answer plan will take the form of a bullet-pointed list that you need to develop into a full answer based on the key words that you have highlighted.

HINTS AND TIPS

In part (b) you are asked for the key stages of risk assessment, and the marks available suggest five pieces of information are needed - this in itself is a big clue!

Now have a go at the question. Draw up an answer plan, and then use it as the basis to write out an answer as you would in the exam.

When you have finished, compare your plan and full answer to those that follow.

Suggested Answer Outline

Risk (Meaning)	Risk Assessment (Key Stages)
• Combining the likelihood of harm occurring and the potential severity of the harm. • Example: faulty electrical equipment.	• Identify the hazards. • Identify who could be harmed and how (including workers, visitors, contractors, vulnerable groups). • Evaluate risk and decide on precautions. • Record the significant findings and implement them. • Review and update as necessary.

Now have a go at the question yourself.

Example of How the Question Could be Answered

(a) Risk is determined by considering the likelihood of harm occurring and the potential severity of harm, damage or loss. For example, if working with faulty, mains-powered electrical equipment, there is high probability that an electric shock could be received, and the potential result is death.

(b) There are five steps to risk assessment:

1. *Identify the hazards.*
2. *Identify who could be harmed and how (including workers, visitors, contractors and vulnerable groups such as young persons, new and expectant mothers, and the disabled).*
3. *Evaluate the risk (considering likelihood and severity of harm) and decide on precautions.*
4. *Record the significant findings and implement them.*
5. *Review and update as necessary.*

Reasons for Poor Marks Achieved by Candidates in Exam

- Many candidates often confuse hazard and risk. A hazard is something with the potential to cause harm. Electricity is a hazard. The example above in part (a) shows how the knowledge that a hazard is present is used to assess the risk (what could happen and how likely it is to happen).
- Candidates who are familiar with the recommended five steps to risk assessment approach would have no problems with part (b), though many candidates seem not to understand this approach.

Element 4

Check

Learning Outcomes

Once you've read this element, you'll understand how to:

1. Outline the principles, purpose and role of active and reactive monitoring.
2. Explain the purpose of, and procedures for, investigating incidents (accidents, cases of work-related ill health and other occurrences).
3. Describe the legal and organisational requirements for recording and reporting incidents.

Contents

Active and Reactive Monitoring

IN THIS SECTION...

- Active monitoring is about checking to ensure that standards are met and that the workplace is, in fact, safe and free of health risks before any unwanted event takes place.
- Safety inspections, sampling, surveys and tours are four active monitoring methods that can be used to check conformance to standards.
- Workplace inspections play an important role in active monitoring. Various factors must be considered when setting up an inspection system, such as:
  - Type of inspection.
  - Frequency of inspection.
  - Responsibilities for inspection.
  - Competence and objectivity of the inspector.
  - Use of checklists.
  - Action planning for problems found.
- If an inspection report is written, then it must be effective. This requires an appropriate writing style, structure, content, emphasis and the use of persuasive argument to justify recommendations.
- Reactive monitoring is about measuring safety performance by reference to accidents, incidents and ill health that have already occurred.

Introduction to Active and Reactive Monitoring

Health and safety performance should be monitored. This can be done using various methods that fall into two broad categories:

- **Active monitoring** - checking to ensure that health and safety standards are correct in the workplace before accidents, incidents, or ill health are caused.
- **Reactive monitoring** - using accidents, incidents and ill health as indicators of performance to highlight areas of concern.

In all workplaces both types of monitoring are useful.

Monitoring should be a line-management function, but remember that senior management has responsibility for ensuring that effective health and safety performance monitoring systems are in place.

Health and safety performance should be monitored

Active Monitoring

Active monitoring is concerned with checking standards before an unwanted event occurs. The intention is to identify:

- Conformance with standards, so that good performance is recognised and maintained.
- Non-conformance with standards, so that the reason for that non-conformance can be identified and corrective action taken.

There are many different ways of actively monitoring health and safety performance. We will outline some of them in the following sections.

Performance Standards

In order to actively monitor health and safety, you have to identify exactly what to monitor and what level of performance is acceptable, i.e. the performance standard.

You could actively monitor the following activities to give a measure of performance:

- Number and quality of risk assessments covering work activities.
- Provision of health and safety training to schedule.
- Completion of consultative committee meetings to schedule.
- Completion of workplace inspections to schedule.
- Completion of safety-review meetings to schedule.

All these management activities are likely to be taking place in the workplace, so it is possible to assess whether they are happening or not. In most instances, you can also measure the degree to which they are happening and perhaps assess their quality. For example, a standard might be that when contractors start new work on site there should be suitable and sufficient risk assessments to cover their work. The presence or absence of risk assessments can be checked. The number of risk assessments can be measured to quantify compliance. The quality of each risk assessment can be judged. In this way, a full picture of compliance can be built up.

HINTS AND TIPS

Note - risk assessments are not an active monitoring technique, but measuring how many were carried out vs. how many were planned to be completed is. Similarly, training is not active monitoring, but measuring the percentage of attendees who showed up for the planned training is. This is a subtle but important distinction.

Systematic Inspections

One popular way to actively monitor health and safety performance is to carry out systematic inspections. These inspections can focus on the four Ps:

- **Plant** - machinery and vehicles, as well as any statutory inspections and examinations.
- **Premises** - the workplace and the working environment.
- **People** - working methods and behaviour.
- **Procedures** - safe systems of work, method statements, permits to work, etc.

An inspection might concentrate on one, several or all four of these areas. Systematic inspection regimes usually exist in many different forms within different workplaces.

For example, in a distribution warehouse there might be:

- A **daily** inspection regime, where forklift-truck drivers inspect their own vehicles at the start of each shift - **Plant**.
- A **weekly** inspection regime, where supervisors check that forklift trucks are being driven safely - **People**.
- A **monthly** inspection regime, where the manager checks the entire warehouse for housekeeping - **Premises**.

- A **six-monthly** thorough examination of each forklift truck by a competent engineer to ensure safety of the load-bearing parts - **Plant**.
- An **annual** inspection regime for the storage racking to ensure structural integrity - **Premises**.

If this series of inspections is in place, then it is possible to monitor the degree to which each is being carried out successfully. In this way, two different types of active monitoring are being carried out: one on the workplace directly (the four Ps), and one on the performance of those checks.

Safety Inspections, Sampling, Surveys and Tours

These are four slightly different methods of active monitoring, each of which has a place in an active monitoring regime. (Remember that the actual names given to these methods may vary between workplaces.)

Weekly inspection by a site supervisor

Safety Inspections

The term 'safety inspection' means a regular, scheduled activity, with comparison to accepted performance standards. It can be applied to:

- The **routine** inspection of a workplace to determine if general standards of health and safety are acceptable, or if corrective action is necessary (e.g. a quarterly housekeeping inspection in an office).
- The **statutory** inspection of an item by a competent person to fulfil a legal requirement (e.g. the annual thorough examination of an item of lifting equipment).
- The **periodic** inspection of plant and machinery as part of a planned maintenance programme (e.g. a mechanic inspects the brakes on a lorry on a regular basis to ensure they are not excessively worn).
- The **pre-use checks** carried out by workers before they use certain items of plant and machinery (e.g. the start-up checks carried out by a forklift-truck driver).

All these inspections can be repeated routinely to form an inspection regime, and can all be recorded to provide evidence of inspection.

Safety Sampling

This is the technique of monitoring compliance with a particular workplace standard by looking at a representative sample only. If a big enough sample is collected, then there is a strong likelihood that the results of the sample will reflect the results for the workplace as a whole.

For example, if the standard in a large office complex is that all 1,200 fire extinguishers must be inspected annually by a competent engineer, then there are several ways to monitor this standard:

- Check the maintenance records to ensure each and every fire extinguisher has been signed off.
- Check all 1,200 fire extinguishers directly by inspecting every one.
- Check a representative sample of, say, 50 extinguishers selected at random from various locations around the complex.

The last method in this example is safety sampling. It provides better evidence of compliance to the standard than simply checking the engineer's maintenance records, since they may have signed extinguishers off without ever inspecting them. It is also far less time-consuming and onerous than checking all 1,200 extinguishers directly.

Safety Surveys

A safety survey is a detailed examination of one particular issue or topic, e.g. a detailed examination of the provision of emergency lighting within a building. The word "survey" can be used to refer to various types of detailed examination:

- Environmental monitoring is a form of safety survey, e.g. a noise assessment usually requires that a noise survey is carried out by a competent person using a sound-level meter.
- A structural survey is a detailed examination of the structural integrity of a building or item.
- A staff survey is an examination of workers' opinions, usually collected by asking staff to fill in a questionnaire.

All of these types of survey might be used to actively monitor safety.

Safety Tours

A safety tour is a high-profile inspection of a workplace carried out by a group or team, including managers. The tour may be formal, but can also be informal - a walk-around looking at points of interest (usually unscheduled). The group carrying out the tour should include managers from the area being inspected and possibly worker representatives, safety specialists, occupational health specialists, engineers and workers from the area.

One of the objectives of the tour is to raise the profile of health and safety and to demonstrate management interest. To achieve this, a key feature of a safety tour is that the group interacts with workers as they go about their normal work routines. This is a high-profile, visible event where management have the opportunity to interact and show their commitment to health and safety to the workforce. This can have a powerful effect on safety culture.

Benchmarking

Benchmarking is the process of comparing performance against similar organisations or national standards. This can be done using both active monitoring indicators, such as survey results, and reactive indicators, such as accident statistics (discussed later). For a large organisation with many sites at different locations, it may be possible to benchmark internally by comparing the performance of one site to another. In other cases, it may be possible to benchmark against other companies or organisations within the same business or industry, even though these may be competitors in a business sense. Best practice in health and safety management can still be shared. Alternatively, benchmarking may be done against national standards published by the HSE or trade or industry associations.

Arrangements for Workplace Inspections

Certain factors must be considered before a workplace inspection system is introduced, including:

- The **type of inspection** - inspections are carried out for a number of different reasons and they examine different aspects of safety in the workplace. Is this a statutory inspection to ensure legal compliance? A general workplace inspection looking at plant and premises? A pre-start inspection for an item of machinery?
- The **frequency of inspection** - likely to be determined by both the type of inspection and the level of risk. For example, a general workplace inspection might be conducted in an office once a month, but once a week in a workshop environment to reflect the higher risk. The frequency of statutory inspections is normally determined by the relevant law. Pre-start checks should usually be carried out at the start of every shift.

Workplace safety inspection

- **Allocation of responsibilities** - those responsible for ensuring that inspections take place should be identified, as should the employees who will be carrying out the inspections.
- The **competence and objectivity of the inspector** - essential characteristics of whoever is conducting the inspection; the person should have the necessary training, knowledge and experience. In some instances, certification to a specific standard will be required. In other situations, all that is necessary is an understanding of the workplace, health and safety principles, and a willingness to ask questions. An inspector also needs to be impartial and objective in their approach, even when looking at an area that they are very familiar with. Training may be required for those who will be conducting inspections.
- The **use of checklists** - these are valuable tools for use during the inspection process. Checklists ensure that:
  - All points are covered by the inspector.
  - There is a consistency of approach to the process.
  - There is a form of written record of the inspection and its findings.
- However, checklists do have their weaknesses, the most important being that an inspector might only deal with the points on the checklist. They may ignore issues that exist in the workplace if they are not included on the checklist.
- **Action planning** for problems found - so that appropriate action is taken following the inspection to resolve issues in a timely manner. An inspection system that identifies a problem or issue but then does not result in action being taken is a flawed system. There must be clear identification of the:
  - Corrective action required.
  - Persons responsible for taking that action.
  - Priorities/timescales.

The inspection system can be documented and formalised once procedures based on all these factors have been agreed upon.

TOPIC FOCUS

Factors to take into account when determining the frequency of inspections:

- Statutory requirements may dictate an inspection frequency.
- The activities carried out and the level of risk.
- How well established the process is, e.g. new equipment may require more frequent monitoring.
- Risk assessments may suggest inspections as a control measure.
- Manufacturers may make recommendations in relation to inspection frequency and content.
- The presence of vulnerable workers, e.g. young and inexperienced people.
- Findings from previous inspections, which may suggest compliance concerns.
- Accident history and results of investigations.
- Enforcement authorities may recommend inspections.
- Whether workers have voiced concerns.

Example Inspection System

The head office of a bank introduces an inspection system to actively monitor general health and safety standards. A set of formal arrangements is documented and included in the safety policy of the company. These arrangements describe:

- The **purpose** of the inspection system - to monitor general health and safety standards.
- The **frequency** of the inspections - once a month for all areas.
- **Competence of inspectors** - the need for inspecting managers to attend a one-day course on the inspection system.
- The **persons responsible** - managers of a particular level for ensuring that inspections are carried out, managers of the next level down for actually doing the inspections.
- **Inspection checklist** - a generic checklist that is appropriate to all office areas, which may be tailored by the inspector if necessary.
- **Follow-up arrangements** - an action plan table is created and included on the inspection checklist.

TOPIC FOCUS

Typical topic headings that might be included in a generic inspection checklist:

- **Fire safety** - including emergency escape routes, signs and extinguishers.
- **Housekeeping** - general tidiness and cleanliness.
- **Environment issues** - e.g. lighting, temperature, ventilation, noise, etc.
- **Traffic routes** - safety of both vehicle and pedestrian routes.
- **Chemical safety** - appropriate use and storage of hazardous substances.
- **Machinery safety** - e.g. correct use of machine guards and interlocks.
- **Electrical safety** - e.g. portable electrical appliance safety.
- **Welfare facilities** - suitability and condition.

It is worth noting that students will be carrying out a workplace inspection in the second half of their studies to identify hazards and corrective actions as part of the practical assessment.

Effective Report Writing

Many inspection systems require the inspector to write a report summarising their main findings and recommendations. In some cases, this report is presented in a standard proforma style, where the inspector simply fills in blank spaces on a report form. In other instances, a more narrative-style report is required where the inspector has much wider scope to explain and describe what they found and what they recommend should be done about it. If this sort of inspection report is written, then it must be effective. Things to consider for an effective report:

Worker completing an inspection report

- **Writing Style**

  The language used in the report must be formal and free of slang and jargon. The tone of language must be factual and persuasive. The report must be concise. Busy managers do not have time to read long, rambling sections of text.

- **Structure**

  A typical report structure is:

  - **Executive summary** - a concise overview of the main findings and recommendations.
  - **Introduction** - a few sentences to outline where and when the inspection took place, who was present and the reasons for it.
  - **Main findings** - this can perhaps be divided up into specific topic areas. For each topic, the problem highlighted should be described in a factual manner and any relevant legal standard identified.
  - **Recommendations** - the immediate, medium- and long-term actions needed to remedy each of the issues found should be identified, along with timescales and responsible persons. Actions should be prioritised on the basis of risk. Justification of the recommendations should be included.
  - **Conclusions** - a short section to end the report.

- **Content**

  The significant findings of the inspection should be presented. Trivia and minor issues should be omitted. The report must be factual and concise. Evidence of what was observed might be presented.

- **Emphasis**

  Emphasis should be placed on the key issues. Including trivia will detract from the main message and could result in issues being missed.

- **Persuasiveness**

  The report needs to be persuasive and drive the reader to take action, so use of the "moral, social (or legal) and economic (or financial)" arguments for good health and safety standards can be used here.

- **Justified Recommendations**

  Any recommendations made should be justified. Recommendations might be presented in an action plan:

Recommended action	Priority	Timescale	Responsible person
Tidy the office	Medium	1 Week	Office Supervisor

Reactive Monitoring

Reactive monitoring uses incidents, ill health and other unwanted events and situations as indicators of health and safety performance to highlight areas of concern. By definition, this means 'reacting' after things have gone wrong. This indicates two weaknesses with reactive monitoring:

- **Things have already gone wrong**; things are being put right after the event rather than before.
- **It measures failure**, which is a negative aspect to focus on.

Despite these weaknesses, reactive monitoring is a valid tool for an organisation to use, as long as some forms of active monitoring are being carried out as well. Reactive monitoring can be carried out by learning lessons:

- From one individual event, such as an accident, dangerous occurrence, near miss or case of ill health.
- From data gathered from large numbers of the same types of event.

The first method involves event reporting, recording and investigation (see later in this element). The second method is concerned with the collection and use of statistics.

HINTS AND TIPS

There is often some confusion about the categorisation of "near misses" as active or reactive. Whilst they are responding before someone has been hurt, they are still "reactive" as something unwanted has happened, it just could have been a lot worse.

Statistics

Data can be collected and reported about a number of different unwanted events, such as:

- Accidents.
- Dangerous occurrences.
- Near misses.
- Cases of ill health.
- Complaints from the workforce.
- The number and type of formal enforcement actions taken against the organisation.
- The number and value of civil claims for compensation against the organisation.
- Cost of accidents, e.g. damage repairs.

This data can then be analysed to see if there are any:

- **Trends** - consistent increases or decreases in the number of certain types of event over a period of time.
- **Patterns** - collections or hot-spots of certain types of event.

This analysis usually involves converting the raw data (i.e. the actual numbers) into an **accident rate** so that more meaningful comparisons can be made.

One popular accident rate used to measure an organisation's safety performance is the **Accident Incidence Rate** (AIR):

$$\text{AIR} = \frac{\text{Number of accidents during a specific time period}}{\text{Average number of workers over the same time period}} \times 1{,}000$$

(The answer is in units of 'accidents per 1,000 workers'.)

This allows meaningful comparison of accident statistics from one year to the next, even though the numbers of workers in the workplace may have changed.

Example

A large factory has 20 lost-time accidents in one year but 35 lost-time accidents the next. This appears to represent an increase of 75%, indicating that the factory's safety standards have slipped and it has become a more dangerous place to work.

However, when the number of workers employed in the factory is taken into account and the AIR for each year is calculated:

Year 1: 800 workers:

$$\text{AIR} = \frac{20}{800} \times 1{,}000 = \textbf{25 lost-time accidents per 100 workers}$$

Year 2: 1,500 workers:

$$\text{AIR} = \frac{35}{1{,}500} \times 1{,}000 = \textbf{23 lost-time accidents per 1,000 workers}$$

The accident rate for both years is actually very similar, so the original conclusion was incorrect. The workplace has not become more dangerous; the increase in the number of accidents occurred because more people now work in the factory.

Of course, statistics do sometimes show a false picture of what is happening in the workplace and there are times when they can be deliberately manipulated to present a desired result. Statistics should always be used and interpreted carefully to ensure that what the data seems to be showing is what is actually happening. For example, after a training course on accident reporting has been delivered to staff, the accident rate increases dramatically. This seems to indicate that more accidents are occurring. In fact, the same number of accidents is happening as has always happened, but now all the accidents are being reported, recorded and seen by management. The increase is caused by improved reporting, which, in turn, has been caused by better awareness of the reporting procedures created by the training course.

STUDY QUESTIONS

1. Define reactive and active monitoring.
2. What do we mean by systematic monitoring?
3. Identify the sources of information that might be used in reactive monitoring.
4. Identify the purpose of workplace inspections.
5. What is the difference between a safety inspection and safety tour?
6. What role does senior management have in workplace inspections?
7. Why are checklists used in inspections?
8. What should the introductory part of an inspection report contain?

(Suggested Answers are at the end.)

Investigating Incidents

IN THIS SECTION...

- Incidents should be investigated for several reasons, perhaps the most important of which is to discover the causes so that corrective action can be taken to prevent similar incidents from happening again.
- Incidents can be categorised in terms of their outcome: near miss, accident (injury and/or damage), dangerous occurrence and ill health.
- Basic incident investigation procedure is to:
  - Gather factual information about the event.
  - Analyse that information to draw conclusions about the immediate and root causes.
  - Identify suitable control measure.
  - Plan the remedial actions.

Introduction to Incident Investigation

Unfortunately, in spite of an organisation's best efforts, accidents do happen. When they happen, it is important that the incident is reported, recorded and investigated in an appropriate and timely manner.

Function of Investigations

When an accident, or some other type of incident, occurs in the workplace it should be investigated and the investigation recorded. Incident investigations are an example of a reactive monitoring measure.

A workplace accident

There are many reasons for conducting investigations, but one of the most important is that having happened once, an accident may happen again; and when it happens again the outcome may be as bad as, or worse than, it was the first time. It is therefore important to understand exactly why the accident occurred so that corrective action can be taken to prevent a recurrence. Often the only thing that separates a near miss or a minor-injury accident from a serious-injury accident is luck (or chance). The place where one worker trips and stumbles on the steps one day, may be the place where another worker will trip, fall and break their arm the next. It follows that all incidents should be examined to determine the **potential** for serious harm, injury or loss. Where this potential exists, a thorough investigation should be carried out to prevent that potential from becoming actual.

It is also likely that if near-miss events are rigorously reported there will be a far greater number of events to consider, providing more data, which can help highlight the deficiencies in the safety management system.

This is not to say that all incidents should be thoroughly investigated in great depth and detail - that would be a waste of time and effort in many cases - but that all incidents should be examined for potential so that a decision can be made as to whether a more detailed and thorough investigation is required. This idea is sometimes formalised into an organisation's investigation procedures.

TOPIC FOCUS

Reasons for investigating incidents:

- **To identify the immediate and root causes** - incidents are usually caused by unsafe acts and unsafe conditions in the workplace, but these often arise from underlying, or root causes.
- **To identify corrective action to prevent a recurrence** - a key motivation behind incident investigations.
- **To record the facts of the incident** - people do not have perfect memories, and accident investigation records document factual evidence for the future.
- **For legal reasons** - accident investigations are an implicit legal duty imposed on the employer, in addition to the duty to report incidents.
- **For claim management** - if a claim for compensation is lodged against the employer, the insurance company will examine the accident investigation report to help determine liability.
- **For staff morale** - non-investigation of accidents has a detrimental effect on morale and safety culture because workers will assume that the organisation does not value their safety.
- **For disciplinary purposes** - though blaming workers for incidents has a negative effect on safety culture, there are occasions when an organisation has to discipline a worker because their behaviour has fallen short of the acceptable standard.
- **To enable risk assessments to be reviewed and updated** - an incident suggests a deficiency with the risk assessment, which should be addressed.
- **For disciplinary purposes** - though blaming workers for incidents has a negative effect on safety culture (see Element 3), there are occasions when an organisation has to discipline a worker because their behaviour has fallen short of the acceptable standard.
- **For data-gathering purposes** - accident statistics can be used to identify trends and patterns; this relies on the collection of good quality data.

Types of Incident

Incidents can be categorised according to their nature and outcome:

- **Accident**

DEFINITION

ACCIDENT

An unplanned, unwanted event which leads to injury, damage or loss.

For example, a worker on the ground is struck on the head and killed by a brick dropped by another worker on a 5m-high scaffold; or, a lorry driver misjudges the turning circle of his vehicle and knocks over a barrier at the edge of a site entrance, crushing the barrier beyond repair. Note that in both of these examples the acts are not carried out deliberately. An accident is unplanned. Any **deliberate** attempt to cause injury or loss is therefore not an accident.

Accidents can be further subdivided into:

- **Injury accidents** - an unplanned, unwanted event which leads to personal injury of some sort.
- **Damage-only accident** - an unplanned, unwanted event which leads to damage to equipment or property.

- **Near Miss**

DEFINITION

NEAR MISS

An unplanned, unwanted event that had the potential to lead to injury, damage or loss, but did not, in fact, do so.

For example, a worker drops a brick from a 5m-high scaffold and it narrowly misses another worker standing on the ground. No injury results and the brick is not even broken. The only thing that separates accidents and near misses is the outcome of the event. An accident causes loss, a near miss does not.

- **Dangerous Occurrence**

DEFINITION

DANGEROUS OCCURRENCE

A specified event that has to be reported to the relevant authority by statute law.

For example, under the UK's **Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013 (RIDDOR)** certain types of event have to be reported to the relevant authority, even though no injury or ill health may have resulted. For example, the failure of the load-bearing parts of a crane is a dangerous occurrence. No person has to be injured by the failure, the failure itself is reportable. This topic is dealt with in more detail later in this element.

Reporting of these dangerous occurrences to the relevant authorities is usually a requirement of law in most countries and regions around the world.

- **Work-Related Ill Health**

DEFINITION

WORK-RELATED ILL HEALTH

Diseases or medical conditions caused by a person's work.

For example, dermatitis is a disease of the skin often caused by work activities, especially when the handling of solvents, detergents or irritant substances is involved.

Work-related ill health includes diseases and conditions related to exposure to:

- Toxic substances, e.g. lead poisoning caused by exposure to lead fumes.
- Harmful biological agents, e.g. legionnaires' disease caused by exposure to legionella bacteria.
- Physical or ergonomic hazards, e.g. noise-induced hearing loss caused by exposure to excessive noise.
- Ergonomic hazards, e.g. upper limb disorder caused by repetitive handling.
- Psychological hazards, e.g. clinical depression caused by excessive pressure.
- Ill health can result from a single incident. For example, it is possible to develop dermatitis as a result of a single exposure to an irritant substance. However, many forms of ill health do not result from a single incident but from ongoing or long-lasting working conditions or multiple exposures.

Accident Ratios

Accident ratios (often referred to as **accident triangles**) display the relationship between numbers of accidents with different outcomes. Research shows that this relationship forms a triangle, with the most serious outcomes being the least numerous (at the top) and those with proportionally higher numbers but less serious results forming the base. There are a number of different triangles used to display these relationships; one proposed by Bird is given in the following figure:

Frank Bird's accident triangle

The important message of the accident triangle is that serious-outcome accidents tend to happen rarely and randomly. They are notoriously difficult to predict (if they were not, it would be easy to prevent them from happening). Near misses/incidents, on the other hand, happen far more frequently (600 times more frequently according to Bird). Many near misses will be minor events of little or no consequence; if they happen again there would be no serious outcome.

But some near misses will have the potential for very serious injury. These near misses should be thoroughly

investigated and preventive measures put in place. In this way, a serious-outcome incident is prevented.

Note that accident ratio studies are based on statistical ratios. They cannot be used to predict exactly when a certain type of event might occur. For example, just because an organisation has had 600 near misses/incidents reported, does not mean that the very next type of event will be a serious-injury accident. That is an over-simplification of the accident triangle. The triangle also doesn't say that every near miss could actually result in a serious injury - it is a statistical relationship only.

Basic Investigation Procedures

When investigating an accident or other type of incident, there are some basic principles and procedures that can be used:

Step 1: Gather factual information about the event.

Step 2: Analyse that information and draw conclusions about the immediate and root causes.

Step 3: Identify suitable control measures.

Step 4: Plan the remedial actions.

However, before the investigation can begin, there are two important issues that should be considered:

- **Safety of the scene** - is the area safe to approach? Is immediate action needed to eliminate danger even before casualties are approached?
- **Casualty care** - any injured people will require first-aid treatment and may need hospitalisation. This is, of course, a priority. It is also worth considering the welfare of uninjured bystanders who may be in shock.

Once immediate danger has been eliminated and casualties have been attended to, a decision may have to be made about the type or level of investigation. Is this to be a:

- Relatively simple investigation of an incident that caused no or only minor outcomes and did not have the potential to cause serious outcomes?
- More in-depth and thorough investigation of an incident with serious outcomes or potential for serious outcomes?

The first type of investigation might be carried out by the line manager of the area; the second type often involves a team of investigators, which might include a safety specialist, senior managers, a technical specialist and perhaps worker representatives.

It may be useful for an organisation to develop a checklist to guide the investigator through the process and act as a memory aide.

TOPIC FOCUS

Items that could be included on an accident investigation checklist:

- Personal details of the person involved.
- Time and location of the accident.
- Type and severity of the injury sustained.
- Whether the injured person had been given first aid, had returned to work or had been sent to hospital.
- Underlying medical condition of the injured person.
- Task being undertaken at the time of the accident.
- Working environment as far as weather, standard of lighting and visibility were concerned.
- Condition of the floor or ground.
- The type and condition of any personal protective equipment that was being worn.
- Details of the training and information received.
- Details of any relevant risk assessments that had been carried out.
- Any previous similar accidents that had occurred.

Step 1: Gathering Information

- Secure the scene as soon as possible to prevent it being altered.
- Collect witnesses' details quickly, before they start to move away. In some cases it may help to remove witnesses from the scene and ask them to wait in a separate area. If there are many witnesses it may be better to separate them from each other to prevent them from conferring with each other and developing an 'agreed' story.
- Collect factual information from the scene and record it. This might be done by means of:
  - Photographs.
  - Sketches.
  - Measurements.
  - Videos.
  - Written descriptions of factors such as wind speed, temperature, etc.
  - Physical evidence such as samples, or the equipment that has failed.
  - Marking up existing site/location plans.

  The investigator should come prepared with the appropriate equipment to record this information.
- Once the scene has been thoroughly examined, move on to the second source of information: witnesses.

  Witnesses often provide crucial evidence about what occurred before, during and after incidents. They should be interviewed carefully to make sure that good-quality evidence is gathered.

Accident investigator taking measurements

TOPIC FOCUS

Good witness interview technique requires that the interviewer should:

- Hold the interview in a quiet room or area free from distractions and interruptions.
- Introduce themselves and try to establish rapport with the witness using appropriate verbal and body language.
- Explain the purpose of the interview (perhaps emphasising that the interview is not about blaming people).
- Use open questions, such as those beginning with What?, Why?, Where?, When?, Who?, How?, etc. that do not put words into the witness' mouth and do not allow them to answer with a "yes" or "no".
- Keep an open mind.
- Take notes so that the facts being discussed are not forgotten.
- Ask the witness to write and sign a statement to create a record of their testimony.
- Thank the witness for their help.

- Once witnesses have been interviewed, move on to the third source of information: documentation. Various documents may be examined during an accident investigation, such as:
  - Company policies.
  - Risk assessments.
  - Training records.
  - Safe systems of work.
  - Permits to work.
  - Maintenance records.
  - Site plans, area layout plans.
  - Previous accident reports.
  - Sickness and absence records.

Step 2: Analysing Information

The purpose here is to draw conclusions about the **immediate** and **root** causes of the incident.

Immediate causes are the obvious causes that gave rise to the event itself. These will be the things that occurred at the time and place of the accident. For example, a worker slips on a patch of oil spilt on the floor, injuring his back as he falls backwards and hits the ground. The immediate cause of the back injury is hitting the ground, but there are many contributors to this cause. It is common to think of these in terms of unsafe acts and unsafe conditions. So here, for example, we might have the slippery oil (unsafe condition), and the worker walking through it (unsafe act).

Underlying or **root causes** are the things that lie behind the immediate causes. Often, root causes will be failures in the management system, such as:

- Failure to adequately supervise workers.
- Failure to provide appropriate PPE.

- Failure to provide adequate training.
- Lack of maintenance.
- Inadequate checking or inspections.
- Failure to carry out proper risk assessments.

For example, with the slip we described above, the root causes might be a poorly maintained machine that has leaked oil onto the floor, and a poorly inspected and maintained workshop with broken light fittings and inadequate lighting levels. Here, the worker might be blameless on the basis that, given those conditions, the accident was bound to happen eventually.

Many of the accidents that happen in workplaces have one immediate cause and one underlying or root cause. If that one root cause is identified and dealt with, then the accident should not happen again. For example, if a worker twists their ankle in a pothole in the pavement, then the obvious solution is to fill the pothole in. It might also be worth asking how long the pothole had been there. If it had been there for a long time, why was it not spotted sooner? And if it had been spotted, why had it been left unrepaired with no interim measure being taken to protect people?

These questions might identify an underlying cause, such as inadequate inspection and maintenance, or failure to put interim measures in place while waiting for maintenance work to be carried out.

In contrast to this single-cause idea, some workplace accidents are complex and have multiple causes: there are several immediate causes for the accident and each of these has underlying, or root causes. For example, a worker might be struck by a load being carried by a forklift truck. **Immediate causes** for such an accident might be:

- Failure to secure the load on the pallet.
- Poor road positioning of the truck close to a pedestrian exit.
- Aggressive braking by the truck driver.
- An inattentive pedestrian stepping out in front of the truck.

On investigation, each of these immediate causes might have their own separate **root causes**, such as:

- No training for the driver, who is new to the workplace, has not worked with this type of load before and is unaware of the load-securing technique required.
- Lack of segregation of pedestrian and traffic routes; no barriers and no markings to separate the two.
- Lack of proper driver induction into their new workplace so they are unaware of the layout and position of pedestrian exits, etc.
- Poor maintenance of the truck.
- No refresher training for existing staff, meaning that experienced staff have become complacent.

If there are multiple causes for the accident, then it is important that each of these causes is identified during the investigation - otherwise, incomplete remedial action will be taken and similar accidents may happen in the future.

Step 3: Identify Suitable Control Measures

Once the immediate and underlying causes of the accident are known, appropriate control measures can be identified. It is important that the correct control measures are established - otherwise, time, money and effort will be wasted on inadequate and unnecessary measures that will not prevent similar occurrences in the future.

Control measures must be identified to remedy both the immediate and underlying causes. Immediate causes are usually easy to identify - if there is a spill of oil on the floor, clean it up; if the guard is missing from the machine, reattach it.

Underlying causes can be harder to determine because they reflect failure of the management system. However, it is essential that the correct control measures to remedy the failure of the management system are identified because this will help prevent similar accidents occurring in similar circumstance across the entire organisation. For example, if a worker slips on some oil that has leaked out of a vehicle in the distribution depot, an employer may:

- Clean up the oil leaking out of the vehicle (the immediate cause), but fail to deal with the underlying cause (lack of inspection and maintenance). This could lead to more leaks, which in turn may lead to more pedestrian slips (and perhaps, vehicle skids).
- Clean up the oil leaking out of the vehicle and deal with the underlying cause (by introducing a proper inspection and maintenance system). In this instance, there is a good chance that most oil leaks will be prevented in the future for all vehicles in the fleet at all locations.

Perhaps the most important questions to ask when identifying control measures are:

- If this action is taken, will it prevent this same accident from happening in exactly the same way at this location?
- If this action is taken, will it prevent other similar types of accident from happening in similar locations in the future?

If the answer to both of these questions is "no", then you need to identify other control measures.

Step 4: Plan the Remedial Actions

An accident investigation should lead to corrective action being taken, in just the same way as a workplace inspection will. Remedial actions can be presented in an action plan:

Recommended action	Priority	Timescale	Responsible person
Introduce induction training for all new drivers	Medium	1 month	Warehouse manager

When the action plan is being prepared, appropriate immediate and interim control measures must be given suitable priorities and timescales.

Unsafe conditions must not be allowed to persist in the workplace. Dangerous practices and high-risk activities must be dealt with immediately. This means that immediate action must be taken to remedy these circumstances when they are discovered. Machinery and equipment may have to be taken out of action, certain work activities suspended, and locations evacuated. These responses cannot be left until the investigation has been completed. They will have to be implemented immediately to ensure safety while the investigation is in progress.

There may be interim control measures that can be introduced in the short- to medium-term to allow work to proceed while longer-term solutions are being worked out. For example, hearing protection might be introduced as a short-term control measure until the maintenance of a piece of machinery that is producing excessive noise has been completed. A perimeter guard might be fitted around an overheating machine that would ordinarily be protected with a fixed enclosed guard while new cooling units are sourced and delivered.

Underlying causes will often demand significant time, money and effort to remedy. It is essential, therefore, that the remedial actions that will have the greatest impact are prioritised and timetabled first. There may be actions that have to be taken (to address a management weakness, or to achieve legal compliance) that will not be as effective in preventing future accidents. These actions should still be taken, but with a lower priority.

TOPIC FOCUS

The **contents of a typical incident investigation report** may include:

- Date and time of the incident.
- Location of the incident.
- Details of the injured person/persons involved (name, role, work history).
- Details of injury sustained.
- Description of the activity being carried out at the time.
- Drawings or photographs used to convey information on the scene.
- Details of witnesses and witness statements.
- Immediate and underlying/root causes of the incident.
- Assessment of any breaches of legislation.
- Recommended corrective action, with suggested costs, responsibilities and timescales.
- Estimation of the cost implications for the organisation.

STUDY QUESTIONS

9. What is the prime purpose of an accident investigation?
10. What are the four steps of the investigation process?
11. Identify the categories of staff who might be considered useful members of an internal accident investigation team.
12. List the types of record which might be consulted during an accident investigation.
13. What are the two categories of immediate cause of accidents/incidents?
14. An employee has been hit by a reversing vehicle in a loading bay. List possible immediate causes and root causes.

(Suggested Answers are at the end.)

Recording and Reporting Incidents

IN THIS SECTION...

- Arrangements should be made for the internal reporting of all work-related incidents, and workers should be encouraged to do so.
- Records of work-related injuries should be kept.
- Data collected from incident reports can be used for statistical analysis to identify patterns and trends in the workplace.
- Incident statistics can be used to communicate safety performance to various groups within the organisation, such as the safety committee, senior management and the workforce.
- Certain types of incident - such as fatalities, major injuries, occupational diseases and some dangerous occurrences - have to be reported to external agencies.

Recording and Reporting Requirements

DEFINITIONS

REPORTING

The process of informing people that an incident has occurred - this can be **internally** within the organisation or **externally** to enforcing authorities or insurers, etc.

RECORDING

The process of documenting the event.

Work-related incidents should be reported internally by workers to management. The system put in place by an organisation to allow for this should be described in the **Arrangements** section of the organisation's safety policy.

It is standard practice for workers to verbally report incidents to their immediate line manager, followed by completion of an internal incident report form. There are occasions when this simple verbal reporting procedure is not appropriate, and a more complex reporting procedure then has to be introduced. For example, a lone-working contractor visiting a client's premises may have to report their accident to the client as well as to their immediate line manager.

Internal Incident Reporting Systems

When establishing an incident-reporting policy, the organisation should be clear about the type of incident that has to be reported by workers. It is usual to include a list of definitions in the policy so that workers understand the phrases used. For example, if the organisation wants workers to report near misses, it must specify this in the policy and be clear about what the phrase 'near miss' actually means.

Having established an incident-reporting policy, the organisation must encourage workers to report all relevant incidents. Unfortunately, there are many reasons why workers do not report incidents.

TOPIC FOCUS

Barriers to reporting - reasons why workers might not report incidents:

- Unclear organisational policy on reporting incidents.
- No reporting system in place.
- Culture of not reporting incidents (perhaps due to peer group pressure).
- Overly complicated reporting procedures.
- Excessive paperwork.
- Takes too much time.
- Blame culture.
- Belief that management does not take reports seriously.
- Concern over the impact on the company or departmental safety statistics (especially if this is linked to an incentive scheme).
- Reluctance to receive first-aid treatment.
- Apathy.

The organisation should try to remove each of these barriers to ensure that every relevant incident is reported in a timely manner. Most of these barriers can be dealt with by having a well-prepared, clearly-stated policy, adopting user-friendly procedures and paperwork, and training staff in the procedures. An organisation can take disciplinary action against workers who fail to report incidents if they have been given the training and means to do so.

Internal reporting to line manager

If fatal or major injuries, high-cost events, high-profile incidents or environmental events occur, it will be necessary to notify certain internal personnel immediately. Senior management, human resources, safety and/or environmental management and worker representatives may all have to be notified. Action by these staff may then be required to inform external parties as necessary, e.g. the family of the casualty, external authorities, insurance companies, public relations advisors, etc. These internal and external contact procedures, or **escalation procedures**, should be documented in the incident reporting section of the safety policy.

Incident Recording

When a work-related incident is reported, a record is usually created of that event (in some instances the report is filed in written form, so reporting and recording are one and the same thing).

As a minimum, organisations should keep a record of all work-related accidents that result in personal injury. This is usually dictated by regional statute law and there is often a standard accident record form or book that should be used. This record must then be kept by the organisation; the length of time that it has to be retained is usually also subject to statute law.

TOPIC FOCUS

Typical contents of an internal accident record:

- Name and address of casualty.
- Location of accident.
- Details of treatment given.
- Details of any equipment or substances involved.
- Details of person completing the record.
- Date and time of accident.
- Details of injury.
- Description of event causing injury.
- Witnesses' names and contact details.
- Signatures.

Separate forms can also take account of near misses (see below) and reports of ill health. These do not need to include standard accident book data as there is no explicit legal requirement to keep a record of most near misses.

Organisations often have separate forms for the recording of accidents (as above) and the recording of accident investigations. This is an important distinction to make; the **accident record** is the initial record of the basic facts of the injury; the **accident investigation report** is the detailed examination of what caused that injury and why it happened (immediate, underlying and root causes) as well as the corrective actions required to prevent recurrence. These do not have to be recorded in the same document.

Reporting of Events to External Agencies

Most countries have statute law that requires certain types of event to be reported to relevant government appointed agencies. All countries agree that **fatal accidents** must be reported, however the level of detail of other types of event that need to be reported differs between countries.

A typical accident report form

Typical reportable events include:

- Accidents resulting in **major injury**, e.g. an amputation, such as loss of a hand through contact with machine parts.
- **Dangerous occurrences**, e.g. the failure of an item of lifting equipment, such as the structural failure of a passenger lift during use.
- **Occupational diseases**, e.g. mesothelioma, a form of cancer of the lining of the lung, as might be contracted by someone exposed to asbestos.

Other types of event often fall into this reporting regime, such as **lost-time injuries**, where workers are unable to perform their normal duties for a certain time period. Local statute law usually specifies how these reports are made and the timescales for reporting.

The International Labour Organisation (ILO) has published several international standards on recommended reporting procedures. The principal reference is the **2002 Protocol to the Occupational Safety and Health Convention 1981 (P155)**; this greatly expands on the general reporting standards of Article 4 of the **Occupational Safety and Health Convention 1981 (C155)**. It is supported by Recommendation 194, which lists types of diseases that should be reported to national governments.

MORE...

Further information on incident reporting to external authorities can be found at:

www.ilo.org

www.hse.gov.uk/riddor/report.htm

Data Collection, Analysis and Communication

Once an incident has been reported and a record of that report has been made, the record is usually collected by a nominated responsible person, such as a safety assistant. Information can then be extracted from the report and the report filed.

Appropriate data from the report can be entered into a computer database for analysis so that relevant and useful information about trends and patterns can be obtained. This can be done using a standard spreadsheet application or custom-designed software. The exact nature of the analysis will depend on the information that was collected, and should be able to answer questions, such as:

- What is the trend in accident incidence rate over the last five years?
- What are the most common types of accident?
- What are the most common types of injury?
- Between what times of day do most accidents occur?
- Which part of the body is most frequently injured?
- Which department has the highest accident rate?
- What is the accident rate trend for a particular part of the organisation?
- Where do most accidents occur in the workplace?

This information can then be used to target certain areas where problems have been identified. For example, if an increase in the number of hand injuries in a particular department has been highlighted, this can be investigated. If there has been an overall decrease in the accident rate over the last five years but that trend has reversed over the last year, research can be carried out into the reasons for this.

The results of statistical analysis of accident data are usually presented in graphic form, using line graphs, bar charts and pie charts. This is because tables of numbers are difficult to analyse and interpret; people find it much easier to interpret and understand the same information in graphic form.

Within an organisation, there are certain people who may be interested in this incident data and their interpretation:

- Directors - who have to report on safety performance to shareholders.
- Senior management - responsible for developing policy and allocating resources.

- The health and safety committee - involved in steering the organisational strategy.
- Worker representatives - concerned about protecting the interests of workers.
- Workers themselves.

Different types of report might be prepared for different target audiences. It is customary to post information about accident statistics on notice boards.

Lessons Learnt

One of the most important phases of incident reporting, recording and investigation is the action that is taken as a result. This is often published internally as 'lessons learnt', so that improvements can be made as a result of the incident, and so that the organisation is seen to take such matters seriously. This should be carried out without breaching the confidentiality of the injured person.

STUDY QUESTIONS

15. Who is usually initially responsible for reporting accidents and safety-related incidents?
16. What is the purpose of analysing information about accidents?
17. To whom do the results of accident investigations have to be communicated?
18. What actions should be taken following a serious injury at work?

(Suggested Answers are at the end.)

Summary

This element has dealt with active and reactive monitoring, investigating incidents and recording and reporting incidents.

In particular, it has:

- Differentiated between active monitoring (checking to ensure that standards are met before any untoward event takes place) and reactive monitoring (measuring safety performance by reference to accidents, incidents and ill health that have already occurred).
- Outlined some active monitoring methods (inspections, sampling, surveys and tours) and explained the factors that must be considered when setting up an inspection system.
- Considered how to write an effective inspection report.
- Considered the reasons for accident investigation, perhaps the most important of which is to discover the causes so that corrective action can be taken to prevent similar incidents from happening again.
- Categorised incidents in terms of their outcome: near miss, accident (injury and/or damage), dangerous occurrence and ill health.
- Described a basic investigation procedure:
  - Gather factual information about the event.
  - Analyse that information to draw conclusions about the immediate and underlying/root causes.
  - Identify suitable control measures.
  - Plan remedial actions.
- Outlined the arrangements that should be made for the internal reporting of all work-related incidents and the records of work-related injuries that should be kept.
- Explained how data collected from incident reports can be used for statistical analysis to identify patterns and trends in the workplace and how this data might be communicated to various groups within the organisation, such as the safety committee, senior management and the workforce.
- Defined the types of incident that have to be reported to external agencies, such as fatalities, major injuries, occupational diseases and dangerous occurrences.

Exam Skills

QUESTION

Identify:

(a) **FOUR** active (proactive); and **(4)**

(b) **FOUR** reactive; **(4)**

means by which an organisation can monitor its health and safety performance.

Approaching the Question

Think about the steps you would take to answer the question:

Step 1. As always, read the question carefully. This should be a relatively quick question to answer, as you just have to "identify" active and reactive monitoring techniques.

Step 2. Now highlight the key words. In this case, they might look like this:

Identify:

(a) **FOUR active** (proactive); and **(4)**

(b) **FOUR reactive**; **(4)**

means by which an organisation can **monitor** its health and safety **performance**.

Step 3. Next, consider the marks available. The question specifically asks for FOUR active and FOUR reactive techniques, so if you provide more than that only the first four will be marked!

Step 4. Read the question again to make sure you understand the difference between active and reactive monitoring. (Re-read your notes if you need to.)

Step 5. The next stage is to develop a plan - you are now familiar with how to do this.

The answer plan will take the form of a bullet-pointed list that you need to develop into a full answer based on the key words that you have highlighted.

Now have a go at the question. Draw up an answer plan, and then use it as the basis to write out an answer as you would in the exam.

When you have finished, compare your plan and full answer to those that follow.

Suggested Answer Outline

Active (Proactive)	Reactive
• Safety tours. • Safety inspections. • Safety survey. • Safety sampling.	• Accident reporting and accident data. • Ill health/absence reporting/data. • Incident reporting, including near misses. • Complaints. • Prosecutions and enforcement actions. • Cost of claims. • Property damage reports.

Now have a go at the question yourself.

Example of How the Question Could be Answered

(a) Four active monitoring techniques could be:

- *Safety tours carried out by managers to monitor safety standards and identify hazards.*
- *Safety inspections carried out by a safety representative.*
- *Survey to monitor noise levels by a specialist.*
- *Safety sampling exercise to check compliance with rules on the use of PPE.*

(b) Four reactive monitoring techniques could be:

- *Collecting accident and incident data and reports, and analysing trends.*
- *Analysing absence and sickness data.*
- *Reviewing complaints from employees.*
- *Calculating the cost of claims brought due to injuries, and analysing trends.*

Reasons for Poor Marks Achieved by Candidates in Exam

Some candidates could only provide accident data as a reactive measure when, in reality, there are lots of other examples!

Element 5

Act

Learning Outcomes

Once you've read this element, you'll understand how to:

1. Explain the purpose of, and procedures for, health and safety auditing.
2. Explain the purpose of, and procedures for, regular reviews of health and safety performance.

Contents

Health and Safety Auditing

IN THIS SECTION...

- Auditing is the systematic, objective, critical evaluation of an organisation's health and safety management system.
- Preparations have to be made before an audit commences.
- During an audit, three different types of evidence will be sought: documents and records, interviews, and direct observation in the workplace.
- Audit reports feed information back into the review process so that action can be taken for continual improvement.
- Audits can either be conducted by external personnel or internal staff. There are strengths and weaknesses to both types.

Definition, Scope and Purpose of Auditing

Health and safety auditing can be defined as:

> *"The structured process of collecting independent information on the efficiency, effectiveness and reliability of the total health and safety management system and drawing up plans for corrective action."*

DEFINITION

HEALTH AND SAFETY AUDITING

A shorter definition might be that auditing is:

The systematic, objective, critical evaluation of an organisation's health and safety management system.

Health and safety audits share many common features with financial, quality and environmental management audits; the basic principles are the same.

Auditing is a mechanism for verifying that an organisation's safety management system is in place and operating effectively. It is:

- **Systematic** - the audit follows a series of logical steps and stages and follows a prepared plan.
- **Objective** - all findings are evidence-based.
- **Critical** - it highlights areas of non-compliance or non-conformance.

The intention of an audit is to provide critical feedback on the management system so that appropriate follow-up action can be taken. The audit process can, therefore, be viewed as rather negative, since it will tend to focus on areas of weakness and non-conformance. In fact, some audits do not make any mention of any positive aspects of the safety management system at all; they focus entirely on the weaknesses. This is, however, inherent in the purpose of the audit - to identify weaknesses so that they can be dealt with. Auditing is, in effect, another form of active monitoring.

Audit - structured process of collecting information

The Distinction Between Audits and Inspections

An **audit** focuses on management systems:

- It examines documents, such as the safety policy, arrangements, procedures, risk assessments, safe systems of work, method statements, etc.
- It looks closely at records, such as those created to verify training, maintenance, inspections, statutory examinations, etc.
- It verifies the standards that exist within the workplace by interview and direct observation.

An **inspection** is a simpler process of checking the workplace for uncontrolled hazards and addressing any that are found.

For example, we might "inspect" the fire extinguishers in a building to verify that they are where they should be, correctly signed, labelled with an in-date inspection, tagged and pinned.

But we can "audit" the fire extinguisher management system for a site to verify that:

- There is an adequate policy on fire extinguishers.
- Annual extinguisher maintenance records are complete and up-to-date.
- Weekly extinguisher visual inspections are being done and recorded.
- Training records on extinguisher use are kept and are complete and up-to-date.
- Incident reports are created and kept of any event requiring the use of fire extinguishers.
- Workers appear to understand how to use fire extinguishers correctly.
- The fire extinguishers are in the correct location and are labelled, tagged and pinned as expected.

Most of this information can be gathered by looking at documents and records, but some if it has to be collected by talking to people and direct observation in the workplace.

The Audit Process

Different audits are run in slightly different ways. What follows is a fairly typical audit process.

Pre-Audit Preparations

Before the audit starts, the following should be defined:

- The scope of the audit - will it cover just health and safety, or environmental management as well?
- The area of the audit - one department? One whole site? All sites?
- The extent of the audit - fully comprehensive (which may take weeks), or more selective?
- Who will be required - auditors will need to be accompanied during their visit and will need access to managers and workers for information-gathering, therefore those required for interviews should be notified in advance.
- Information-gathering - it is common practice for auditors to ask for copies of relevant documentation before starting the audit so that they can prepare.

The organisation will have to ensure that the auditor is competent, i.e. that they have the relevant qualifications, experience and knowledge to do the job well. This can apply to both internal and external auditors. If internal staff are used as auditors, sufficient time and resources will have to be allocated so that they can be trained and developed in that role.

All of these elements of the audit process require the allocation of sufficient management time and resources.

During the Audit

Auditors use three methods to gather factual information:

- Reference to **paperwork** - the documents and records that indicate what should be happening and what has happened relevant to a particular issue.
- **Interviews** - word-of-mouth evidence given by managers and workers.
- Direct **observation** - of the workplace, equipment, activities and behaviour.

Auditors will sometimes seek to collect evidence so that their findings cannot be refuted; this can be done by copying paperwork, taking photographs and having a witness to corroborate word-of-mouth evidence.

An auditor's favourite phrases are: "Show me" and "Can you prove it?"

Auditor examining policy documents

TOPIC FOCUS

Typical information examined during an audit:

- Health and safety policy.
- Risk assessments and safe systems of work.
- Training records.
- Minutes of safety committee meetings.
- Maintenance records and details of failures.
- Records of health and safety monitoring activities, e.g. tours, inspections, surveys, etc.
- Accident investigation reports and data, including near-miss information.
- Emergency arrangements.
- Inspection reports from insurance companies, etc.
- Output from regulator visits, e.g. visit reports, enforcement actions, etc.
- Records of worker complaints.

At the End of the Audit

Verbal feedback is usually provided at the end of an audit; for some audits, this will involve a presentation to the management team. This verbal feedback will be followed by a written report. The report will make recommendations for improvement and indicate priorities and timescales.

The verbal feedback and report are usually presented to senior management for action and/or praise, as required. This is a demonstration of leadership and, in some cases, it is a requirement in the standards being audited. The management team have the authority and resources to take action where required, and may also need to adjust the organisational goals and objectives.

Actions Taken Following Audits - Correcting Non-Conformities

After the audit, the feedback and report may contain a number of findings that require action. These may be classified according to their significance. For example, in the ISO systems, the feedback is prioritised as:

- **Major non-conformance** - a significant issue or breach, which requires urgent action. This could result in the failure of the safety management system and/or result in injury. In ISO terms, a major non-conformance would be grounds for refusing certification.
- **Minor non-conformance** - an issue that is less serious in nature and unlikely to result in injury or a breakdown of the system. In ISO terms, a minor non-conformance would require corrective action, but certification would be granted.
- **Observations** - an opinion given by the auditor, which the organisation could decide to act on.

It is essential that an audit is followed up with action to correct non-conformities. These corrective actions will usually be checked during the next audit. In some auditing systems, this will be done through an interim follow-up visit or audit that simply looks at the way that the previous audit recommendations have been addressed.

Responsibility for Audits

It is the responsibility of the organisation to establish and implement health and safety auditing. There are circumstances when external authorities, such as enforcement authorities or insurance companies, will carry out audits; or an organisation may have to be audited in order to achieve or maintain certain certifications (e.g. ISO 45001 certification).

Once an audit has been carried out and feedback has been received in the form of recommendations for improvement, it is the responsibility of management to ensure that the feedback is acted upon. This is normally done through the review process (see later) by creating action plans.

External and Internal Audits

Audits are often carried out by safety specialists from outside the organisation. They can also be done by in-house staff. In many instances both types of audit are carried out at different frequencies by the organisation. There are advantages and disadvantages to both types.

	Advantages	Disadvantages
External Audits	• Independent of any internal influence. • Fresh pair of eyes. • May have wider experience of different types of workplace. • Recommendations often carry more weight.	• Expensive. • Time consuming. • May not understand the business so make impractical suggestions. • May intimidate workers so get incomplete evidence.
Internal Audits	• Less expensive. • Auditors already know the business so know what can be realistically achieved. • Improves ownership of issues found. • Builds competence internally.	• Auditors may not notice certain issues. • Auditors may not have good knowledge of industry or legal standards. • Auditors may not possess auditing skills so may need training. • Auditors are not independent so may be subject to internal influence.

STUDY QUESTIONS

1. Define the term 'health and safety auditing'.
2. Outline the differences between health and safety audits and workplace inspections.

(Suggested Answers are at the end.)

Reviewing Health and Safety Performance

IN THIS SECTION...

- Health and safety performance should be reviewed by managers at all levels within the organisation on a routine basis to ensure that management systems are working effectively.
- Reviewing performance relies on data gathered from various sources, such as accident data, inspection reports, absence data, safety tours and audits.
- Safety specialists usually play a key role in collecting this data and reporting on performance.
- Senior management then have a role in evaluating this information so that appropriate priorities and resources can be allocated.
- Reviews enable action to be taken so that health and safety performance is continually improved.

Purpose of Regular Reviews

Reviewing health and safety performance is a key part of any health and safety management system. The purpose of a review is to identify any key areas that need to be addressed and should be carried out by managers at all levels within the organisation on a routine basis. Each review is likely to have a different focus and will be conducted at different planned intervals. For example:

Are we on target?

- A full review of safety management might be undertaken at the highest level of the organisation (board of directors/senior management) on an annual basis.
- The management team may meet every quarter to carry out a review to ensure that performance remains on track (clearly, reviewing progress only once a year is not enough!). This information will feed into the annual review.
- A review of departmental performance might be conducted every month, with the information in the departmental reviews being fed into the quarterly management team review.

The essence of the review process is to answer the questions:

- Are we on target?
- If not, why not?
- What do we have to change?

For example, if the board of directors set an objective for the organisation to achieve a 5% reduction in the lost-time accident incidence rate within one year, and the board reviews performance at the end of that year and a 6% reduction has been achieved, then clearly the organisation is on target (for this objective) and a new objective can be set for the coming year, with the intention of achieving continual improvement.

Effective performance reviews provide information not only to the board of directors, summarising the health and safety performance of the organisation, but also to the workers. This demonstration of commitment to continual improvement can boost morale and help establish a positive health and safety culture.

TOPIC FOCUS

Reasons why an organisation should review its health and safety performance:

- To identify whether the organisation is on target. If not on target, why not?
- To continually improve. What do we have to change so that we continually improve? For example, are there risks that aren't being controlled adequately? What needs to be done about them?
- Because monitoring is an essential part of any management system.
- Because reviews are a required part of accreditation to a management system such as ISO 45001.

Personnel Involved in the Review Process

It is good practice to make line managers responsible for reporting on health and safety performance for the areas under their control. This ensures that they view health and safety as one of their personal responsibilities, creates ownership, and raises the profile of health and safety. In some cases, line managers are in a position to gather information and data on health and safety performance themselves. In many instances, however, line managers will rely to some degree on the safety specialist (safety officer, manager or co-ordinator) to provide that information. The safety specialist is well placed to collect evidence about performance and will usually be responsible for reporting on safety performance direct to senior management/directors.

Routine performance review meeting

In addition, the senior management team should be involved in reviewing the performance of the area under their control, with the annual review of the organisation's performance being carried out by the board/directors.

Issues to be Considered in Reviews

Reviewing health and safety performance relies to a great extent on having good quality, reliable information about current and past performance, which usually depends on data gathering. One of the first steps in the review process is gathering this information and data.

There is a wide range of topics for consideration in the review, including:

- Legal compliance - the organisation must be aware of any legal compliance issues, and therefore the review should recognise any areas of legal non-compliance.
- Accident and incident data - concerning injury accidents, property-damage accidents, lost-time accidents, reportable events, etc., often taken from accident records and accident investigation reports, together with the review of corrective and preventive actions arising from investigations, to ensure that these have been implemented.
- Safety surveys, tours and sampling and inspections - information and data gathered from general workplace inspection reports and statutory inspections may provide evidence of conformance or non-conformance to standards.
- Absence and sickness data - concerning work-related ill health; gathered from absence monitoring records or perhaps the occupational health department (if one exists).

- Audit reports - findings of internal and external audits should be reviewed, which may present detailed and comprehensive information on the safety management system and its effectiveness.
- Achievement of objectives - where specific targets have been set for the organisation as a whole or parts of the organisation, achievement towards these targets can be measured.
- Enforcement action - such as reports from inspectors, enforcement notices and prosecutions.
- Previous management reviews - in particular, the completion of actions identified during those reviews.
- Legal and best practice developments - it is important that the organisation remains up-to-date with its legal responsibilities and responds to any changes. There may also be technological or best practice changes that can be taken into consideration to further improve the workplace.
- Other sources - such as:
  - Quality assurance reports.
  - Results of participation and consultation.
  - Communications and complaints from external sources.
  - Monitoring data/records/reports.

These performance indicators can then be used to evaluate the performance of the organisation against the required standards.

These standards might be:

- Legal standards established by legislation.
- Organisational standards that go above and beyond legal compliance.

Outputs from the Reviews

Various outputs will arise from the review process. Records of management reviews should be retained. There may be retention durations set within standards, but, in any case, the reviews should be recorded in order to demonstrate that an adequate review was carried out in accordance with legal requirements (e.g. in the UK, the **Management of Health and Safety at Work Regulations 1999**). Records of reviews will often take the form of minutes of review meetings and action plans showing that agreed actions have been completed.

Some organisations will also be required to report annually to shareholders on their health and safety performance through the annual company report.

Finally, the review process should form part of the continual improvement process of the organisation. Strategic targets are set by senior management - these targets are then channelled down through the organisation and reviewed by line management at different levels:

- **Senior management** set strategic targets.
- **Middle management** review performance in the areas under their control and set targets to bring their area in line with the strategic targets.
- **Junior management** review performance and set local targets that will collectively allow the strategic targets to be achieved.

This means health and safety reviews, at all levels, must feed directly into action plans. These plans should identify the actions to be taken by responsible persons by appropriate deadlines. In this way, continual improvement of health and safety performance can be achieved.

Role of the Board and Senior Management

The board of directors/senior management have a crucial role to play in reviewing health and safety performance across the entire organisation on a periodic basis, often annually. This review will normally rely on information collected and prepared by the safety specialist. The board/senior team may be required to make a declaration or statement to stakeholders based on this review.

As a result of the review, senior management may reassess the policy statement of intent and update it, if required. Most importantly, they should use the review process as an opportunity to prioritise and allocate resources. What are the new priorities for the organisation in light of the review? What resources need to be provided to allow these priorities to be achieved?

STUDY QUESTIONS

3. Performance review is concerned with ensuring that incident investigations are properly concluded. True or false?
4. What is the purpose of reviewing health and safety performance?
5. Who should take part in reviews of the occupational health and safety management system?
6. How often should reviews of the occupational health and safety management system take place?
7. What typical outputs from the management review need to be documented and maintained as a record of the review process and as evidence of its effectiveness?

(Suggested Answers are at the end.)

Summary

This element has dealt with auditing and reviewing health and safety performance.

In particular, it has:

- Defined auditing as the systematic, objective, critical evaluation of an organisation's health and safety management system.
- Outlined the steps of an audit process, considered the types of information that might be used as evidence, and identified the strengths and weaknesses of external and internal auditing.
- Outlined the part that health and safety performance review has to play in ensuring continuous improvement.
- Identified the information sources that might be used in reviewing performance and the role that senior management has in establishing priorities and resources.

Exam Skills

QUESTION

(a) **Give** the meaning of the term 'health and safety audit'. **(2)**

(b) **Outline** key areas that may be covered within a health and safety audit. **(10)**

(c) **Explain** how the findings of a health and safety audit can be used to improve health and safety performance. **(8)**

Approaching the Question

Think about the steps you would take to answer the question:

Step 1. The first step is to read the question carefully. Note that for part (a) of the question you are required to "give" the meaning of a term, so you need to provide, without explaining, the meaning of 'health and safety audit'. Part (b) requires an "outline", so you will need to pick out the most important features of a health and safety audit. Part (c) requires you to "explain" how the findings from an audit can be used to improve performance, so you will need to give a clear account of this process.

Step 2. Now highlight the key words. In this case they might look like this:

(a) **Give** the **meaning** of the term '**health and safety audit**'. **(2)**

(b) **Outline key areas** that may be covered within a health and safety audit. **(10)**

(c) **Explain** how the **findings** of a health and safety audit **can be used to improve** health and safety performance. **(8)**

Step 3. Next, consider the marks available. In this question there are 20 marks available. In part (a) of the question, you are asked to "give" the meaning of the term, which is worth two marks. So you should be able to provide this meaning in one sentence. Part (b) is worth ten marks, so you need to outline at least ten factors to gain all the marks available. Part (c) is worth eight marks, and since an 'explanation' of how findings can be used to improve health and safety performance will take the form of sentences, you will need between four and six sentences.

Step 4. Read the question again to make sure you understand it and have a clear understanding of audits. (Re-read your notes if you need to.)

Step 5. The next stage is to develop a plan - there are various ways to do this. First, remind yourself that this question is all about auditing: what an audit is, what it entails and how audits benefit the organisation. To construct your sentence for part (a), list the elements in an audit and then write them into a sentence. For part (b), list the key factors that the audit will cover so that you can construct your outline answer by placing each factor into a sentence. Using examples to illustrate your answer will help convince the examiner that you understand the requirement for this aspect of the audit. For part (c), you will need to list how the findings can benefit the organisation - each bullet-pointed item on this list should have related subsections to give you the depth that is needed to meet the requirements for an "explanation". So, the answer plan will take the form of bullet-pointed lists that you need to develop into a full answer.

The whole question should take around 25 minutes to plan and write up, perhaps with five minutes at the end to read through and make any minor changes or additions.

Now have a go at the question. Draw up an answer plan, and then use it as the basis to write out an answer as you would in the exam.

When you have finished, compare your plan and full answer to those that follow.

Suggested Answer Outline

Part (a)
• Structured. • Systematic. • Critical. • Independent. • Information. • Effectiveness. • Reliability. • Corrective actions.
Part (b)
• Health and Safety Policy. • Allocation of roles and responsibilities. • Risk assessments. • Specific hazard control. • Fire safety. • First aid. • Contractors. • Accident reporting. • Consultation. • Maintenance of records. • Recommendations.
Part (c)
• Compliance vs. non-compliance and reasons for failure. • Strengths and weaknesses, enabling benchmarking. • Informing and enabling remedial action. • Evidence of commitment to health and safety; communicate findings. • Prioritising and resource allocation. • Continual improvement.

When you have an answer plan that meets the requirements of the question, have a go at providing a full answer under examination conditions. Give yourself 20 minutes to write the answer (this time-frame assumes you have spent five minutes on the answer plan). Your handwriting must be legible - if the examiner cannot read what is written then it cannot be marked. You will not be penalised in the exam for poor grammar or spelling, as long as your answer is clear and can be understood.

Remember, you can always contact your tutor if you have any queries or need any further guidance on how to answer this question.

Now have a go at the question yourself.

Example of How the Question Could be Answered

(a) A structured, systematic, critical review of independent information collected on the effectiveness and reliability of the organisation's health and safety management system and suggested corrective actions.

(b) The key areas to be covered by a health and safety audit would be the organisation's Health and Safety Policy, ensuring that one existed and that it was communicated to employees. The audit should check that roles and responsibilities for health and safety have been allocated to individuals and that they understand their roles. The audit can review risk assessments to ensure they are suitable and sufficient, they are current and actions identified on them completed. The audit should ensure that specific hazards such as manual handling, work at height or the control of substances hazardous to health are appropriately managed. Auditors can ensure that fire safety is properly managed with emergency procedures in place. Arrangements for first aid can be audited to ensure provision is adequate, as well as auditing arrangements for the control of contractors. Auditors may cover accident reporting both internally within the organisation and externally reporting to the authorities. Auditors should review the arrangements for consultation within the organisation and ensure that consultation does take place. Auditors can consult maintenance records of machinery to establish that guarding to machines is maintained, as well as ensuring those machines with a statutory requirement for maintenance are maintained. Auditors should also provide recommendations for improving the existing system.

(c) The findings from a health and safety audit may be used to distinguish areas of compliance with legislation from those areas that do not meet the necessary standard to comply. The audit should also identify the reasons why non-compliance exists and the nature of the non-compliance. The audit may also have distinguished areas of strength from areas of weakness in the management of health and safety. This may facilitate benchmarking by management with other organisations to ensure they are managing health and safety responsibilities in line with industry standards, and to assist management to direct often scarce resources where they are most required. The findings from the audit can be communicated to staff to ensure that standards are maintained or improved and to indicate that management is motivated to be proactive in the provision of a safe place of work, keeping health and safety on the business agenda. An audit enables management to follow a programme of continual improvement by focusing on eliminating deficiencies.

Reasons for Poor Marks Achieved by Candidates in Exam

- Confusing an audit with an inspection.
- Giving the reasons for carrying out an audit rather than outlining the key areas an audit should cover.
- Providing insufficient detail to meet the requirements of "outline" or "explain".
- Being unable to explain how the findings from an audit can be used to improve health and safety performance.
- Not being well prepared - you must read and re-read your course notes.

International General Certificate

Revision and Examination

The Last Hurdle

Now that you have worked your way through the course material, this section will help you prepare for your NEBOSH examination. This guide contains useful advice on how to approach your revision and the exam itself.

Your NEBOSH Examination

The NEBOSH examination will consist of one question paper which contains one 20-mark question and ten 8-mark questions. You are allowed two hours in which to complete the exam paper and you should answer all the questions.

To pass the exam, you must obtain a minimum of 45% of the total marks available.

If your performance is less than the pass mark then you will be "referred". This means you may resit the examination provided you do so within five years of the original sitting. You may resit as many times as you want within that five-year timescale.

Be Prepared

It may be some time since you last took an exam. Remember, success in an exam depends mainly on:

- **revision** - you have to be able to remember, recall and apply the information contained in your course material; and
- **exam technique** - you have to be able to understand the questions and write good answers in the time available.

Revision and exam technique are skills that can be learnt. We will now look at both of these skills so that you can prepare yourself for the exam. There is a saying that goes: "proper planning and preparation prevents a poor performance". This was never truer than in an exam.

Revision Tips

Using the RRC Course Material

To begin your revision, you should read through all of the topics at least once. This first read through should be done slowly and carefully.

Having completed this first revision reading of the course materials, consider briefly reviewing all of it again to check that you understand all of the elements and the important principles that they contain. At this stage, you are not trying to memorise information, but simply checking your understanding of the concepts. Make sure that you resolve any outstanding queries with your tutor.

Remember that understanding the information and being able to remember and recall it are two different things. As you read the course material you should **understand** it; in the exam, you have to be able to **remember**, **recall** and **apply** it. To do this successfully, most people have to go back over the material repeatedly.

Re-read the course material and make notes that summarise important information from each element. **You could use index cards** and create a portable, quick and easy revision aid.

Check your basic knowledge of the content of each element by reading the Summary. The Summary should help you recall the ideas contained in the text. If it does not, then you may need to re-visit the appropriate sections of the element.

Using the Syllabus Guide

We recommend that you download a copy of the NEBOSH Guide to this course, which contains the syllabus for your exam. If a topic is in the syllabus then it is possible that there will be an examination question on that topic.

Map your level of knowledge and recall against the syllabus guide. Look at the Content listed for each element in the syllabus guide. Ask yourself the following question:

If there is a question in the exam about that topic, could I answer it?

You can even score your current level of knowledge for each topic in each element of the syllabus guide and then use your scores as an indication of your personal strengths and weaknesses. For example, if you scored yourself 5 out of 5 for a topic in Element 1, then obviously you don't have much work to do on that subject as you approach the exam. But if you scored yourself 2 out of 5 for a topic in Element 3 then you have identified an area of weakness. Having identified your strengths and weaknesses in this way you can use this information to decide on the topic areas that you need to concentrate on as you revise for the exam.

You could also annotate or highlight sections of the text that you think are important.

Another way of using the syllabus guide is as an active revision aid:

- Pick a topic at random from any of the elements.
- Write down as many facts and ideas that you can recall that are relevant to that particular topic. Go back to your course material and see what you missed, and fill in the missing areas.

Exam Hints

Success in the exam depends on achieving 45% across the entire paper. It doesn't matter if any of the marks come from section one or section two of the paper; similarly, it does not matter if you score really well on some questions and really poorly on other questions. As long as you achieve an overall score of 45%. Marks are awarded for setting down ideas that are relevant **to the question asked** and demonstrating that you understand what you are talking about. If you have studied your course material thoroughly then this should not be a problem.

One common mistake in answering questions is to go into too much detail on specific topics and fail to deal with the wider issues. If you only cover half the relevant issues, you can only achieve half the available marks. Try to give as wide an answer as you can, without stepping outside the subject matter of the question altogether. Make sure that you cover each issue in appropriate detail in order to demonstrate that you have the relevant knowledge. Giving relevant examples is a good way of doing this.

We mentioned earlier the value of using the syllabus to plan your revision. Another useful way of combining syllabus study with examination practice is to create your own exam questions by adding one of the words you might find at the beginning of an exam question (such as 'explain' or 'identify' or 'outline') in front of the syllabus topic areas. In this way, you can produce a whole range of questions similar to those used in the exam.

Before the Exam

You should:

- Know where the exam is to take place.
- Arrive in good time.
- Bring your examination entry voucher, which includes your candidate number, photographic proof of identity, pens, pencils, ruler, etc. (Remember, these must be in a clear plastic bag or wallet.)
- Bring water to drink and sweets to suck, if you want to.

During the Exam

- Read through the whole exam paper before starting work, if that will help settle your nerves. Start with the question of your choice.
- Manage your time. The exam is two hours long. You should attempt to answer all 11 questions in the two hours. To do this, you might spend:
  - 25-30 minutes answering Question 1 (worth 20 marks), and then
  - 8-9 minutes on each of the ten remaining 8-mark questions.
- Check the clock regularly as you write your answers. You should always know exactly where you are, with regard to time.
- As you start each question, read the question carefully. Pay particular attention to the wording of the question to make sure you understand what the examiner is looking for. Note the verbs (command words), such as 'describe', 'explain', 'identify', or 'outline' that are used in the question. These indicate the amount of depth and detail required in your answer. As a general guide:
  - 'Explain' and 'describe' mean give an understanding of/a detailed account of something.
  - 'Outline' means give the key features of something.
  - 'Identify' means give a reference to something (could be name or title).
- Pay close attention to the number of marks available for each question, or part of a question - this usually indicates how many key pieces of information the examiner expects to see in your answer.
- Give examples wherever possible, based either on your own personal experience, or things you have read about. An example can be used to illustrate an idea and demonstrate that you understand what you are saying.
- If you start to run out of time, write your answers in bullet-point or checklist style, rather than failing to answer a question at all.
- Keep your handwriting under control; if the examiner cannot read what you have written, then he or she cannot mark it.
- You will not be penalised for poor grammar or spelling, as long as your answers are clear and can be understood. However, you may lose marks if the examiner cannot make sense of the sentence that you have written.

Unit IGC1

Suggested Answers

No Peeking!

Once you have worked your way through the study questions in this book, use the suggested answers on the following pages to find out where you went wrong (and what you got right), and as a resource to improve your knowledge and question-answering technique.

Element 1: Foundations in Health and Safety

Question 1

Health and safety has to compete with other management priorities, particularly those associated with the production of goods and services which is the basic rationale of an organisation. It may be seen as an unproductive cost which conflicts with the requirement to keep costs low.

Question 2

(a) Health can be simply defined as the absence of physical and psychological disease.

(b) Safety is the absence of risk of serious personal injury or the state where the risk of harm has been eliminated or reduced to an acceptable level.

(c) Welfare means access to basic facilities such as toilets, washing stations, drinking water, changing rooms and places to prepare and/or eat food and drink.

Question 3

The three reasons why an organisation should manage health and safety are moral, economic (or financial) and social (or legal).

Question 4

Insured costs (any three from the following): damage to plant, buildings and equipment; compensation paid to workers; medical costs; legal costs (civil claims).

Uninsured costs (any three from the following): production delays or downtime; loss of raw materials; accident investigation time; criminal fines and legal costs; sick pay for injured workers; overtime to make up for lost production; hiring and training new employees; loss of business reputation.

Question 5

Any three from:

- To provide workplaces and work equipment, and use work methods, which are safe and no risk to health.
- To provide appropriate instructions and training.
- To provide necessary supervision.
- To put in place health and safety arrangements adapted to suit the size and nature of the undertaking.
- To provide any necessary personal protective clothing and equipment free of charge.
- To ensure that the hours of work do not adversely affect employees' safety and health.
- To remove any extreme physical and mental fatigue.
- To stay up to date with knowledge in order to comply with the above.

Question 6

Any two from:

- Take reasonable care of their own safety and that of other people who might be affected by the things that they do and the things that they fail to do.
- Comply with safety instructions and procedures.
- Use all safety equipment properly and not tamper with it.
- Report any situation which they believe could be a hazard and which they cannot themselves correct.
- Report any work-related accident or ill health.

Question 7

The consequences for an employer of non-compliance with health and safety responsibilities include:

- Enforcement action or prosecution through the criminal courts by the relevant authorities. These criminal actions are brought on behalf of the state.
- Compensation claims from the injured victims, perhaps resulting in action through the civil courts. Civil action is brought by the aggrieved person.

Element 2: Plan

Question 1

The elements of ISO 45001 are:

- Context of the organisation (framework).
- Leadership and worker participation (framework).
- Planning (Plan).
- Support (Do).
- Operation (Do).
- Performance evaluation (Check).
- Improvement (Act).

Question 2

The role of 'evaluation' in the ILO OSH-2001 safety management system is to ensure that the organisational arrangements, health and safety standards and operational systems and measures are working effectively and, where they are not, to provide the information required to revise them.

Question 3

The health and safety policy of two organisations, both undertaking similar work, might be different because the policy is a reflection of the particular circumstances of each organisation; so any variations in size, nature and organisation of operations, etc. will mean that the health and safety policies will also vary.

Question 4

The three key elements of a health and safety policy are the General Statement of Intent, the Organisation section (i.e. roles and responsibilities), and the Arrangements section.

Question 5

Either the senior director or the chief executive officer should sign the policy statement, indicating the organisation's commitment at the highest level.

Question 6

All workers have certain health and safety responsibilities; they must act responsibly and safely at all times, and do everything they can to prevent injury to themselves and to others (such as fellow workers, visitors and members of the public) and co-operate with their employer.

Question 7

A safety organisation chart shows the hierarchy of roles and responsibilities for health and safety, and the lines of accountability between them.

Question 8

The circumstances that might give rise to reviews, either of general policy or specific aspects of it, include:

- Changes in the structure of the organisation, and/or changes in key personnel.
- A change in buildings, workplace or worksite.
- When work arrangements change, or new processes are introduced.
- When indicated by a safety audit or a risk assessment.
- Following enforcement action or as the result of the findings from accident investigations.
- Following a change in legislation.
- If consultation with employees or their representatives highlights deficiencies.
- If requested by a third party.

Element 3: Do

Question 1

An employer owes a duty to their own employees, other people (both workers and non-workers) who may be in their workplace, other workers who may be carrying out work on their behalf outside of the workplace, and other people who may be outside their workplace but affected by the undertaking.

Question 2

Common duties of workers are to:

- Take reasonable care of their own health and safety and that of other persons who may be affected by their acts or omissions at work.
- Co-operate with their employer so far as is necessary to enable the employer to fulfil their legal obligations.

Question 3

Where business premises are rented, it would depend on the terms of the tenancy agreement as to whether the employer is responsible for health and safety matters relating to points of entry to, and exit from, the workplace. Responsibility lies with the person who may be said to control that particular aspect of the premises. This would often not be the employer but the controller of the premises, for example, the landlord or property management agency.

Question 4

All people involved in the design, manufacture and supply of articles and substances, insofar as it relates to their own role, are responsible for:

- Ensuring that the articles and substances are safe and without risks to health.
- Carrying out any necessary tests.
- Providing end-users with information about the article/substance (this might cover intended use, limitations and inherent hazards, as well as how to use it properly).

Question 5

In general terms, when a contractor is working in a client's workplace, the client would be responsible for the workplace and environment, and the contractor for the job that they are carrying out. Both parties would be responsible for the health and safety of their own workers, but they would also be responsible for the health and safety of other people who might be affected by their work. So, the contractor would be responsible for the safety of the client's employees if they were carrying out work that might injure the client's employees; and the client might be partly responsible for the safety of members of the public if they might be injured by the work that the contractors were carrying out. In this way, the duties and responsibilities are shared by both the client and the contractor.

Question 6

Your definition should cover the main points given in the element:

- Safety culture is the shared attitudes, values, beliefs and behaviours relating to health and safety; or
- safety culture is the way that all the people within an organisation think and feel about health and safety and how this translates into behaviour.
- It can be positive or negative.

Question 7

An individual's peers exert influence over his/her behaviour through the influence of peer group pressure. This is the process by which social groups form in the workplace, group behaviour is established ('norms'), and then social pressure is exerted to force individuals to comply with the group behaviour. There will usually be one or more group leaders who influence the group to a very high degree.

Question 8

The organisational factors, the job factors and the individual factors. Collectively these are the three "human factors" that influence safety-related behaviour.

Question 9

The key job factors that can impact on safety-related behaviour include:

- Task.
- Workload.
- Environment.
- Display and controls.
- Procedures.

Question 10

Perceptual distortion occurs when something is not recognised for what it is. The senses work (sight, hearing, smell, etc.) but the brain does not correctly interpret the sensory information sent to it. This can arise as a result of illness, inexperience, poor education and training, drugs and alcohol, fatigue, etc.

Question 11

Employees can be involved in the improvement of workplace health and safety by:

- Encouraging their participation in safety committees and other safety meetings.
- Asking for their suggestions for improvements (perhaps using a suggestions box or similar scheme).
- Involving them in the selection of PPE and other equipment.
- Providing them with hazard-spotting and defect-reporting systems.
- Encouraging their participation in safety tours and inspections, audits, risk assessments, accident investigations and the development of procedures and safe systems of work.
- Involving them in the presentation of safety training, and the supervision/mentoring of new employees, particularly young persons.
- Including them in the design or selection of safety posters.

Question 12

The following table shows the main merits and limitations of the two forms of communication:

	Merits	Limitations
Written	Permanent record. Can be referred back to. Can be written carefully, avoiding jargon. Widely distributed with ease.	Indirect. Impersonal. Immediate feedback not available. Language/literacy issues may exist.
Verbal	Personal and direct. Immediate feedback. Allows exchange of views.	Language barriers. May not be heard. Information may be missed. No written record.

Question 13

Mostly, graphic symbols or pictograms are incorporated into safety signs and put on hazard-warning labels.

Question 14

The first priority in induction training should be to set out what to do in the event of a fire or other major incidents, and the general instructions and procedures to be followed for safe movement around the workplace. These are the priorities. The induction training can then move on to other topics.

Question 15

There are various times when training should be provided, including:

- When people change their job, where new rules and procedures need to be followed.
- When there are significant changes to work equipment, substances or activities.
- Refresher training.
- After an accident, or near miss.
- When the law or standards change.

Question 16

Hazards will always exist in the workplace and, usually, it is not possible to eliminate them. Risk can be controlled and reduced. This is a central principle of health and safety management.

Question 17

The aim of risk assessment is to eliminate hazards, or reduce risk to an acceptable level. The objectives are to prevent personal injury and ill health, to achieve legal compliance, and to reduce the costs associated with losses.

Question 18

The techniques used for identifying hazards are task analysis, examination of legislative requirements and associated guidance, examination of manufacturers' information and analysis of incident data.

Question 19

The five steps involved in risk assessment are: identify the hazards, decide who might be harmed and how, evaluate the risks and decide on precautions, record the findings and implement them, and review the assessment and update, if necessary.

Question 20

Apart from office workers, other staff groups who require special consideration during a risk assessment in an office environment are maintenance staff, cleaners, contractors, visitors, young workers, lone workers, new and expectant mothers, and disabled staff.

Question 21

The factors used to evaluate risk are the likelihood of harm occurring and the severity of that harm.

Question 22

Residual risk is the level of risk remaining after the application of safety precautions. It should be only low-level, acceptable risk.

Question 23

Factors that might trigger the review of a risk assessment include: changes in legislation; a significant change in work practices and processes; installation of new machinery and equipment; new information becoming available on the hazards/risks; recurring accidents or patterns of ill health; enforcement action; results of monitoring/auditing; or employment of a category of personnel (e.g. disabled) not previously taken into account.

Question 24

The general hierarchy of preventive and protective measures:

- Elimination.
- Substitution.
- Engineering controls.
- Administrative controls.
- Personal protective equipment.

Question 25

The type of sign represented by each pictogram:

1. Mandatory action - must put litter in bins.
2. Prohibition - not drinking water.
3. Safe condition - drinking water.
4. Warning - radiation hazard.

Question 26

Personal protective equipment should be used when it has not been possible to eliminate the hazard or reduce risk to acceptable levels by the use of engineering controls, working methods or administrative controls. PPE is a last resort.

Question 27

Internal data sources include: accident records; medical records; absence records; risk assessments; maintenance reports; joint inspections with safety representatives; audits, surveys, sampling and tours; safety committee meeting minutes.

External data sources include: national legislation (e.g. regulations); safety data sheets from manufacturers and suppliers; enforcing authority publications such as Codes of Practice and Guidance Notes; manufacturers'/suppliers' maintenance manuals; national/international standards (BS, BS-EN and ISO standards); information from local safety groups; information from trade associations; information from journals and magazines.

Question 28

A safe system of work is a formal procedure that results from a systematic examination of the tasks of a work process, in order to identify all the hazards and define methods of working that eliminate those hazards, or minimise the risks associated with them.

Question 29

Involving employees in the development of safe systems of work contributes to strengthening the safety culture because it enables them to gain a deeper understanding of hazards and risks, and of the way in which safe systems of work will minimise those risks. It also encourages ownership of key controls by the employees involved in their development.

Question 30

Technical or engineering controls are those that are applied directly to the hazard itself in order to minimise the risk. Procedural controls define the way in which work should be carried out in relation to the hazard. Behavioural controls define how the individual operator, or groups of workers, must act in relation to the hazard.

Question 31

Instruction, training and supervision form a part of safe systems because only people who have been given appropriate training and instruction should be allowed to undertake the work. Supervision is necessary to ensure that staff follow their instructions and training.

Question 32

Permits to work are formal documents specifying the work to be done, the hazards, and the precautions to be taken. Work can only start when safe procedures have been defined and put into place. The permit provides a clear written record, signed by a responsible manager or supervisor, that all foreseeable hazards have been considered and all the necessary actions have been taken. It should usually be in the possession of the person in charge of the operation before work can begin.

Question 33

The four key elements of a typical permit are:

- Issue.
- Receipt.
- Clearance/return to service.
- Cancellation.

Question 34

The main objective of an emergency procedure is to ensure the safety and health of staff and others who might be affected by the emergency. In some instances, minimising other losses associated with the emergency will also be a priority. Preventing an escalation of the emergency may also be important.

Question 35

Typical emergencies that may require the development of emergency procedures include fire or explosion; bomb threat; spillage of a hazardous substance; release of a toxic gas; outbreak of disease; severe weather or flooding; multiple casualty accident; or a terrorist/security incident.

Question 36

The factors that might need to be considered when determining the first-aid facilities for a workplace are number of workers; hazards in the workplace and general risk level; accident history; specific work processes; geographic spread of the workplace; geographic location of the workplace and proximity to the emergency services; vulnerable groups in the workplace; and presence of members of the public.

Element 4: Check

Question 1

Reactive monitoring is where accidents and other incidents are investigated to find out what went wrong and identify action to prevent recurrence. It also involves the use of accident statistics to identify trends and patterns in accident history. Active monitoring is where existing conditions are inspected to identify and correct sub-standard matters before any sort of incident occurs.

Question 2

Systematic monitoring involves the planned, regular examination of standards in the workplace as a matter of routine.

Question 3

The information used for reactive monitoring comes from accident and incident reports, accident and incident investigations, issues raised by employees and failings identified by external agencies (e.g. insurance companies or enforcement authorities).

Question 4

The purpose of workplace inspections is to ensure that the control measures are operating effectively and that they are appropriate to current conditions in the workplace.

Question 5

Safety inspections are routine examinations of workplace conditions carried out by a competent person(s) (e.g. the weekly inspection of a workshop by the workshop supervisor). Safety tours are high-profile inspections carried out by a team of people, including managers.

Question 6

Senior management has responsibility for ensuring that effective workplace inspection regimes are in place and are operated effectively. This will include receiving reports and overseeing/agreeing action. In addition, the visible involvement of senior managers in inspections is to be encouraged for the commitment it demonstrates towards safety and the effect on the promotion of a positive health and safety culture.

Question 7

Checklists help ensure a consistent, systematic and comprehensive approach to checking all the safety elements to be covered during an inspection.

Question 8

The introductory part of an inspection report should set the scene, outlining what the report is about, why it has been written (the aim), when and where the inspection took place, and who carried it out.

Question 9

The main purpose of an accident investigation is to find the cause, with the intention of preventing a recurrence.

Question 10

Four steps of the investigation process:

1. Gather factual information about the event.
2. Analyse that information and draw conclusions about the immediate and root causes.
3. Identify suitable control measures.
4. Plan the remedial actions.

Question 11

The categories of staff who may be useful in an internal investigation might include the immediate line manager (of the injured person, or of the area where the accident took place), a member of senior management, a worker representative, a safety officer/practitioner, an engineer, and technical expert, if relevant.

Question 12

The types of records to be consulted during an accident investigation might include:

- Inspection and maintenance records.
- Risk assessments.
- Safe systems of work, or permits to work.
- Environmental measurements.
- Medical records.
- General and specific safety reports and analyses that relate to the circumstances.
- Training and other personnel records.
- Minutes of safety committee meetings.

Question 13

The two categories of immediate cause of accidents/incidents are unsafe acts and unsafe conditions.

Question 14

An employee has been hit by a reversing vehicle in a loading bay:

Immediate Causes	Root Causes
Mechanical failure (faulty brakes).	Inadequate maintenance procedures.
Driver failed to see pedestrian.	Inadequate lighting or driving in poor weather conditions.
Pedestrian not wearing high-visibility jacket.	No rule about high-visibility jackets, or not enforced.
Driver's vision restricted by goods.	Lack of housekeeping arrangements. Lack of banksman/signaller.
Human error on part of driver or pedestrian.	Lack of training and awareness.

Question 15

The person usually initially responsible for reporting accidents and safety-related incidents is the involved employee or, if they are not able to, a colleague. In some circumstances it might be the first aider who gave treatment or the immediate line manager. Company policy will dictate which option is best.

Question 16

The purpose of analysing information about accidents is to identify the underlying and root causes and to provide information about trends and patterns in workplace accidents.

Question 17

The result of an individual accident investigation should be communicated to the person involved, his/her immediate manager and the relevant worker representative. Depending on the seriousness of the accident and the extent of the underlying causes, it may also be necessary to inform other managers in the organisation, including senior management, and the safety committee. For reportable accidents, the results might also be notified to the relevant agency.

Question 18

Following a serious injury at work, the following actions should be taken:

- Make the area safe (in some circumstances, this might need to be done first so there is no risk to those giving assistance).
- Ensure casualty is treated with first aid, and then further medical treatment if necessary.
- Isolate the scene so evidence is not disturbed.
- Inform the victim's next of kin.
- Notify enforcing authority, if relevant.
- Arrange any necessary counselling or support.
- Set up investigation team:
  - Collect evidence, including photographs, measurements, etc.
  - Take statements from witnesses.
  - Determine immediate and root causes.
  - Report findings, making recommendations to prevent recurrence.
- Inform safety representatives, and issue internal information.
- Advise insurers.
- Implement recommendations, revise work procedures and risk assessments.
- Monitor situation and review as necessary.

Element 5: Act

Question 1

Health and safety auditing is the structured process of collecting independent information on the efficiency, effectiveness and reliability of the total health and safety management system and drawing up plans for any corrective action necessary. Or, alternatively, the systematic, objective, critical evaluation of an organisation's health and safety management system.

Question 2

Differences Between Audits and Workplace Inspections	
Audit	**Workplace Inspection**
Has the aim of assessing the health and safety management system of an organisation.	Has the aim of assessing the use and effectiveness of control measures.
A long process involving the examination of the entire management system.	A relatively short process looking at practices in part of the workplace.
Based primarily on review of documentary evidence, backed up by some observations and interviews of personnel at all levels.	Primarily based on observations, perhaps involving very limited scrutiny of paperwork and interview of operators.
Long, comprehensive report that records areas of concern and weaknesses in the management system.	Short report identifying key corrective actions required.
Detailed planning required; requires considerable resources.	Only limited planning; and main resource required is the inspectors' time.
Typically done annually.	Usually done on a daily, weekly, monthly, or quarterly frequency.
Aims to improve systems at a high level, with ultimate effect of improvements cascading down to operating level. Is a strategic tool, addressing long-term progress.	Focuses on activities and equipment at operational level, though remedial actions may address system faults.

Question 3

True, performance review is concerned with ensuring that incident investigations are properly concluded - but it is concerned with more than just this one aspect of reactive monitoring. It encompasses the review of all forms of health and safety performance and, where there are deficiencies, taking corrective action.

Question 4

The purpose of reviewing health and safety performance is to ensure that the organisational arrangements, health and safety standards and operational systems and measures are working effectively and, where they are not, to identify the corrective actions needed.

Question 5

Senior management should review the operation of the occupational health and safety management system to ensure that it is being fully implemented and that it remains suitable for achieving the organisation's policy and objectives.

Reviews should be instigated by senior managers but also involve managers, supervisors and occupational health and safety specialists. It may also be appropriate to involve safety representatives or representatives of employee workplace safety in the review process, particularly if the health and safety committee is the forum where part of the review takes place.

Question 6

Reviews of the occupational health and safety management system should perhaps take place:

- Monthly at a local level - involving local management and supervisors.
- Three-monthly at a divisional/departmental level - involving middle management levels.
- Annually across sites or the organisation as a whole - at board level.

Question 7

Typical outputs from the management review that need to be documented and maintained as a record of the review process and as evidence of its effectiveness include:

- Minutes of the review.
- Documented revisions to the health and safety policy and health and safety objectives.
- Specific corrective actions for individual managers with target dates for completion.
- Specific improvement actions with assigned responsibilities and target dates for completion.
- Date for review of corrective action.
- Areas of emphasis to be reflected in the planning of future management system audits.