RRC INTERNATIONAL

RRC Study Text

NEBOSH
International General Certificate in Occupational Health and Safety

Unit IG1: Management of Health and Safety

September 2020

nebosh

LEARNING PARTNER GOLD 335

NEBOSH INTERNATIONAL GENERAL CERTIFICATE IN OCCUPATIONAL HEALTH AND SAFETY

UNIT IG1

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RRC: IG1.1

ISBN for this volume: 978-1-912652-26-6
Second edition September 2020

ACKNOWLEDGMENTS

RRC International would like to thank the National Examination Board in Occupational Safety and Health (NEBOSH) for their co-operation in allowing us to reproduce extracts from their syllabus guides.

Unit IG1

Element 1: Why We Should Manage Workplace Health and Safety

Contents

Element 2: How Health and Safety Management Systems Work and What They Look Like

Element 3: Managing Risk – Understanding People and Processes

Element 4: Health and Safety Monitoring and Measuring

Introduction to the Certificate Course

Course Structure

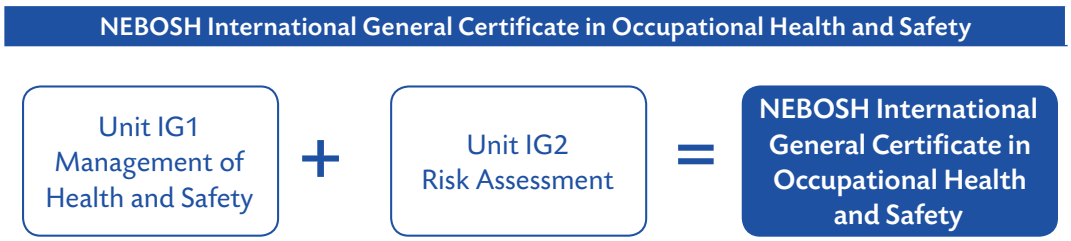
This study text has been designed to provide you with the core knowledge needed to successfully complete Unit 1 of the NEBOSH International General Certificate in Occupational Health and Safety, as well as providing a useful overview of workplace health and safety management. It follows the structure and content of the NEBOSH syllabus.

MORE...

For more detailed information about the syllabus, visit the NEBOSH website:

www.nebosh.org.uk

NEBOSH International General Certificate in Occupational Health and Safety	
Unit IG1: Management of Health and Safety – Assessed by the Open-Book Exam	
Element 1	Why We Should Manage Workplace Health and Safety
Element 2	How Health and Safety Management Systems Work and What They Look Like
Element 3	Managing Risk – Understanding People and Processes
Element 4	Health and Safety Monitoring and Measuring
Unit IG2: Risk Assessment – Assessed by the Practical Assessment	
Element 5	Physical and Psychological Health
Element 6	Musculoskeletal Health
Element 7	Chemical and Biological Agents
Element 8	General Workplace Issues
Element 9	Work Equipment
Element 10	Fire
Element 11	Electricity



The Assessments

Open-Book Exam

For everyone studying the NEBOSH IG1 unit, a new, 'open-book' exam has been introduced to replace the previous invigilated exam. This new format allows candidates to complete their qualification without needing to attend an exam venue, while maintaining the high standards and robust assessment strategy for which NEBOSH is renowned. This study text contains information and advice on how best to prepare for this exam.

NEBOSH has prepared detailed information on the open-book examinations along with a number of useful resources which you can access from the NEBOSH website. You must read and familiarise yourself with the resources NEBOSH has provided; RRC's guidance is complementary, not a replacement for NEBOSH guidance.

MORE...

For the guidance that NEBOSH has prepared see *NEBOSH Open Book Examinations: Learner Guide*, available on the NEBOSH website:

www.nebosh.org.uk

An 'open-book' exam means exactly what the name suggests: you are allowed to access your study text and other materials during the exam. However, it will require more than simply copying text to answer the exam questions; you will need to demonstrate that you understand the subject matter and can apply the topics appropriately - and this needs preparing for. Further guidance can be found in the 'Final Reminders' section later.

The NEBOSH International General Certificate open-book exam differs from the traditional question-and-answer-type format and will instead consist of a realistic workplace scenario which may describe a developing situation such as an incident or safety intervention, and you may be asked to assume a particular role, for example a safety manager. You will then be asked to carry out some tasks and each task will consist of one or more questions, where your answers will mostly be relevant to the scenario.

Another crucial difference between the two exam formats is the duration; since this exam isn't invigilated and requires time to prepare your answers, you have a 24-hour window in which to prepare, complete and submit the exam, therefore allowing for enough time to reflect and detail your answers. It may sound like a lot of time, but there is a lot you will need to do. Don't worry though - we will outline what you need to do in those 24 hours to successfully finish the exam.

NEBOSH specifies 4 to 5 hours to complete the exam; the 24 hours allow for you to prepare and choose the best time of day for you to work on the exam - it does not mean you should be working all of that time.

There is a word count currently specified of 3,000 words in total which you would not be expected to exceed. (Note that the word count is subject to change by NEBOSH.) Be aware though that it will be more difficult to pass the exam if your word count is significantly below the specified figure. The word count might provide a guide as to how extensive your answers should be and will help you to focus on what the exam is asking you to do. If we assume a word count of 3,000 words for example, distributed across all the questions, then 10-mark questions require around 300 words while 15-mark questions would require around 450 words. You also have the choice to type your answers or hand-write them.

Following the exam there will be a closing interview - you must take part in this for your mark to be awarded.

In addition to RRC's guidance, you must read the NEBOSH Open Book Examinations: Learner Guide and the NEBOSH Open Book Examinations: Technical Learner Guide, which you can download from the NEBOSH website.

MORE...

NEBOSH has prepared detailed information on the open-book examinations along with a number of useful resources which you can access at: www.nebosh.org.uk/open-book-examinations/

Practical Assessment

The practical assessment tests knowledge covered in the Unit IG2 study text (Elements 5 to 11).

This requires you to carry out a risk assessment in a workplace.

Further information and help on the practical assessment is given in the Unit IG2 study text in the Introduction to Unit IG2, the Practical Assessment Guidance sections at the end of Elements 5 to 11 and in the Unit IG2: Final Reminders section.

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.

Learning Outcomes and Assessment Criteria

Learning Outcome The learner will be able to:	Related Content	Assessment Criteria	Assessment (OBE = Open-Book Exam, P = Practical)
Justify health and safety improvements using moral, financial and legal arguments.	1.1–1.2	1.1 Discuss the moral, financial and legal reasons for managing health and safety in the workplace. 1.2 Explain how health and safety is regulated and the consequences of non-compliance.	OBE
Advise on the main duties for health and safety in the workplace and help their organisation manage contractors.	1.3	1.3 Summarise the main health and safety duties of different groups of people at work and explain how contractors should be selected, monitored and managed	OBE
Work within a health and safety management system, recognising what effective general policy, organisation and arrangements should look like.	2.1–2.2	2.1 Give an overview of the elements of a health and safety management system and the benefits of having a formal/certified system. 2.2 Discuss the main ingredients of health and safety management systems that make it effective – general policy, organisation, arrangements.	OBE
Positively influence health and safety culture and behaviour to improve performance in their organisation.	3.1–3.3	3.1 Describe the concept of health and safety culture and how it influences performance. 3.2 Summarise how health and safety culture at work can be improved. 3.3 Summarise the human factors which positively or negatively influence behaviour at work in a way that can affect health and safety.	OBE
Do a general risk assessment in their own workplace – profiling and prioritising risks, inspecting the workplace, recognising a range of common hazards, evaluating risks (taking account of current controls), recommending further control measures, planning actions.	3.4 5–11	3.4 Explain the principles of the risk assessment process. 5–11 Produce a risk assessment of a workplace which considers a wide range of identified hazards (drawn from Elements 5–11) and meets best practice standards ('suitable and sufficient').	OBE P

Learning Outcome The learner will be able to:	Related Content	Assessment Criteria	Assessment (OBE = Open-Book Exam, P = Practical)
Recognise workplace changes that have significant health and safety impacts and effective ways to minimise those impacts.	3.5	3.5 Discuss typical workplace changes that have significant health and safety impacts and ways to minimise those impacts.	OBE
Develop basic safe systems of work (including taking account of typical emergencies) and knowing when to use permit-to-work systems for special risks.	3.6–3.8	3.6 Describe what to consider when developing and implementing a safe system of work for general activities. 3.7 Explain the role, function and operation of a permit-to-work system. 3.8 Discuss typical emergency procedures (including training and testing) and how to decide what level of first aid is needed in the workplace.	OBE
Take part in incident investigations.	4.2	4.2 Explain why and how incidents should be investigated, recorded and reported.	OBE
Help their employer to check their management system effectiveness – through monitoring, audits and reviews.	4.1, 4.3–4.4	4.1 Discuss common methods and indicators used to monitor the effectiveness of management systems. 4.3 Explain what an audit is and why and how they are used to evaluate a management system. 4.4 Explain why and how regular reviews of health and safety performance are needed.	OBE

These learning outcomes and assessment criteria are published by NEBOSH in the syllabus guide for the course. It is very important that you understand all the learning outcomes.

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 newsletter, 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 Publications

Study Aids

- NEBOSH International General Certificate in Occupational Health and Safety Revision Guide
- RRC Health and Safety Law Step Notes
- RRC Occupational Health and Hygiene Step Notes
- RRC Quality Management Step Notes
- RRC Environmental Step Notes

Further Your Studies

- NEBOSH International Diploma in Occupational Safety and Health – Unit IA: Managing Health and Safety
- NEBOSH International Diploma in Occupational Safety and Health – Unit IB: Hazardous Substances/Agents
- NEBOSH International Diploma in Occupational Safety and Health – Unit IC: Workplace and Work Equipment Safety

RRC International is continually adding to its range of publications. Visit **www.rrc.co.uk/publications.aspx** for a full range of current titles.

Introduction to Unit IG1

Welcome to the first part of your NEBOSH Certificate course.

Unit IG1 has four chapters or 'elements':

- **Element 1:** contains an explanation of the reasons for managing health and safety effectively, including an examination of legal standards and an introduction to the principles of contractor management.
- **Element 2:** introduces the idea of health and safety management systems and how these are set out in organisational policies.
- **Element 3:** deals with a wide range of topics that sit at the core of effective health and safety management. Topics include health and safety culture, how this culture can be improved, risk assessment, the development of safe systems of work, and emergency procedures and first aid.
- **Element 4:** contains an explanation of active and reactive monitoring, accident reporting and investigation, and health and safety auditing.

The common theme that runs through these elements is the issue of **management**. Technical details of specific hazards or hazard groups – such as machinery, noise, hazardous chemicals, fire, etc. – are described in Unit IG2 of this course.

These first four elements are assessed by an open-book exam (the Unit IG1 exam).

The Exam

The formal assessment for the Certificate course has one open-book exam and a practical assessment.

The open-book exam tests knowledge covered in Elements 1 to 4 (Unit IG1 covered by this first study text). It does not test information covered in Elements 5 to 11 (Unit IG2 covered by the second study text).

It is recommended that you study in the same room and environment where you will carry out the open-book exam, to ensure you are comfortable and set for the exam.

Exam Requirements

The IG1 'open-book' exam is not invigilated and you have a 24-hour window in which to prepare, complete and submit the exam, therefore allowing enough time to reflect and detail your answers.

There is no choice of questions in the exam – all questions are compulsory. NEBOSH specifies 4 to 5 hours to complete the exam. The 24 hours allows you to pick the best time of day for you to work on the exam – it does not mean you should be working all that time.

Setting Up for the Exam Day

There are some things you can do to ensure you have the best possible set-up for the day:

- Make sure you can sit comfortably so that you are not distracted by uncomfortable posture. Ensure good lighting and a comfortable temperature.
- Know where your study materials are so that you spend less time looking for them at the time of the exam. Have your study materials within easy reach.
- If you live with anyone, make sure they are aware of when you are taking an exam to avoid unnecessary interruptions and distractions. Placing a friendly sign on your door may be a useful reminder for them!
- Switch off your phone, television and any other devices that may distract you.

- Have water and snacks handy.
- Ensure you can keep your computer charged up.
- If you can't take the exam at home, book a quiet room with good lighting, charging point and internet connection.

What to Do on the Day

On the day of the exam, you will be able to access the exam from 9.00 am BST by logging in to the NEBOSH platform and downloading the file. You will have 24 hours to do the exam, starting from when the exam paper becomes available. This does not mean it should take you 24 hours to do the exam, nor does it mean that you have to be working for all that time; the 24-hour window is designed to allow time for you to read and analyse the exam questions, access your course materials, plan your answers, complete and submit the assessment, as well as take necessary breaks and fulfill your other everyday commitments. The paper should take around 4 to 5 hours to complete so make sure you are aware of the time.

So, how do you best utilise this time?

This is when your planning, studying and hard work will pay off. You will have your materials ready so you will be set up for a strong start.

You are not expected to write more than 3,000 words in total. You are allowed a 10% margin - you will not gain marks for going beyond this, so your answers should be relevant, concise and focused.

RRC would strongly advise that you do not write more than 3,300 words in case examiners choose not to read beyond 3,300 words and you therefore miss out on marks.

Use your time wisely: work at your own pace but don't leave everything until the last minute. Review your materials, draft up your answers and allow time to make amendments. Take time to read the exam questions carefully. Refer to your prepared materials and notes with the following in mind:

- Your work should be your own, in other words do not copy content without referencing the source or this counts as plagiarism (more on referencing and plagiarism later).
- Do not communicate with anyone about the assessment.
- Do not ask or allow anyone to proof-read or help you with your work.

Another common mistake when doing an open-book exam is to refer to as many materials as possible; don't fall into this trap, you must be selective! Use only the materials that you need - again, this is why preparing them in advance is so important!

Don't become over-reliant on materials either, you must apply your own knowledge and argument. You want the materials to support your answer, not take over!

To pass the exam you have to get 45/100 or more (i.e. 45%).

If you do not achieve the minimum pass mark of 45%, you will receive a 'referral' and will have to retake the exam. This means you may resit the exam provided you do so within five years of passing the Unit IG2 practical assessment. You may resit as many times as you want within that five-year timescale.

You have to pass the exam (and the practical assessment) in order to achieve the Certificate qualification.

Don't worry about the details of the exam for now. We will come back to it later in this Introduction. For now it is simply worth bearing in mind, as you are reading through your Unit IG1 course materials and studying the various topics and ideas, that there is an assessment at the end and this assessment takes the form of an exam.

When you study Unit IG2 of the course, you are assessed by a practical assessment. This requires you to carry out a risk assessment exercise in your workplace on a wide range of hazards. This can be done over a period of time with full access to your course materials and other sources of information. There are rules that govern this assessment but it is not done under exam conditions. Further information on the practical assessment is given in the Unit IG2 study text.

Study Skills

As I am sure that you are keen to start your studies, you probably want to skip this introductory chapter completely and get down to some real work.

Before you begin reading Element 1, please stop and take a moment. Ask yourself:

- Have I **organised** myself to study?
- Have I thought about **when** I will study?
- Do I know **how** to study?
- Do I know how to **revise** for an exam?

These questions are important because if you simply start looking at Element 1, you may end up wasting a lot of time going over the same topics for no good reason.

Get Organised

Gather together all of the things that you might need. This will include obvious items like your book or electronic device (if you're studying the text on a screen), a notepad and a pen. But it will also include other things such as index cards (to put key notes on as a revision aid), highlighter pens, drinking water and perhaps something to play music on (if you like to study to music).

Make sure that all of these items are together in one place and readily available so that when you are in the mood to study, you can sit down and get going without delay.

When to Study

Think about the amount of time that you have available to do the work that you need to do. Think about which days of the week can be used for study. Think about what times during those days are free. Think about the other demands that you have on your time, such as work and family commitments.

You must plan your study time in and around all of these things. If you fail to plan, then you plan to fail.

At the same time think about what time of day suits you best for studying. Some people are morning larks – they like to be up and at it early. Other people are night owls and study best late in the evening or even past midnight. This needs to be factored into your planning.

And finally, think about rest and relaxation. If you work too hard, your stress levels might increase and this can have a negative impact on your ability to study effectively. Ultimately this might lead to a poor performance in the exam. So make sure that you factor in time off for recovery.

How to Study

Studying just involves reading the course materials, right?

Wrong.

Reading text on the page or screen is one part of the process. But effective studying is much more than just reading. Effective studying involves:

- Thinking about what you are reading as you are reading it.
- Comparing what you are reading with your own personal experiences and pre-existing knowledge.
- Identifying gaps in your existing knowledge.
- Reflecting on what you have read at some later stage.
- Gaining an understanding of the topics and ideas.
- Developing your memory so that the information is available for easy recall.

It is about building a mental framework, and inserting various topics and ideas into that framework to create a coherent structure that makes sense to you, that you can remember and explain to somebody else.

Think of study as doing a jigsaw puzzle. How do you do a jigsaw puzzle? You start with the corners. Then you do the edges. Then you do the easy and obvious bits in the middle. And you finish with the blue sky that is poorly defined and where one piece looks just like any other.

No-one does a jigsaw puzzle by starting at the top left corner and then doing one puzzle piece at a time from left to right and then down to the next row and along.

You are a human being; not an ink-jet printer.

So when you are studying, try this approach:

- Skim through the book and dip in and out to get a general overview of the structure of Unit IG1 and the topics covered. Jot down a few notes on a single piece of paper that summarises the overall structure and key content from this quick skim.
- Take a break. Go and do something else for a while. Or end this study period.
- Have a look at Element 1 and start reading from the beginning. When you get to something that seems a little hard or awkward, jump over that section and re-engage at the next bit that makes sense. Make very brief notes of the content that you are comfortable with. Try to keep these notes short. Capture the topics and ideas in single words or short phrases if you can. Do not re-write everything that you read.
- Take a break after 40 minutes or so. Don't study for long periods at a time as it is not productive. Concentration, understanding and retention all drop significantly if you study for periods longer than an hour.
- Continue in this way until you have looked over all four elements. Take frequent breaks as outlined above. Do not get bogged down with the difficult detail.
- Now go back to the start of Element 1 and re-read what you have already looked at. As you do this, look at your summary notes. Correct any mistakes. Add vital information that you missed out the first time. But do not write too much. Try to condense and summarise. Think about making some revision aids like the ones that are outlined later in this section.
- When you come to one of the more difficult subject areas that you skipped over before, keep reading. Step up your focus and concentration and break the topic down. Skip over the really hard parts if you have to but try to work through it more.
- Take breaks as before. Have short periods of study broken up with gaps to give your brain a rest or a distraction.
- Carry on studying all four elements in this way.

As you work through, try to consolidate and build on the things that you know and reduce the extent of the areas that you find more difficult.

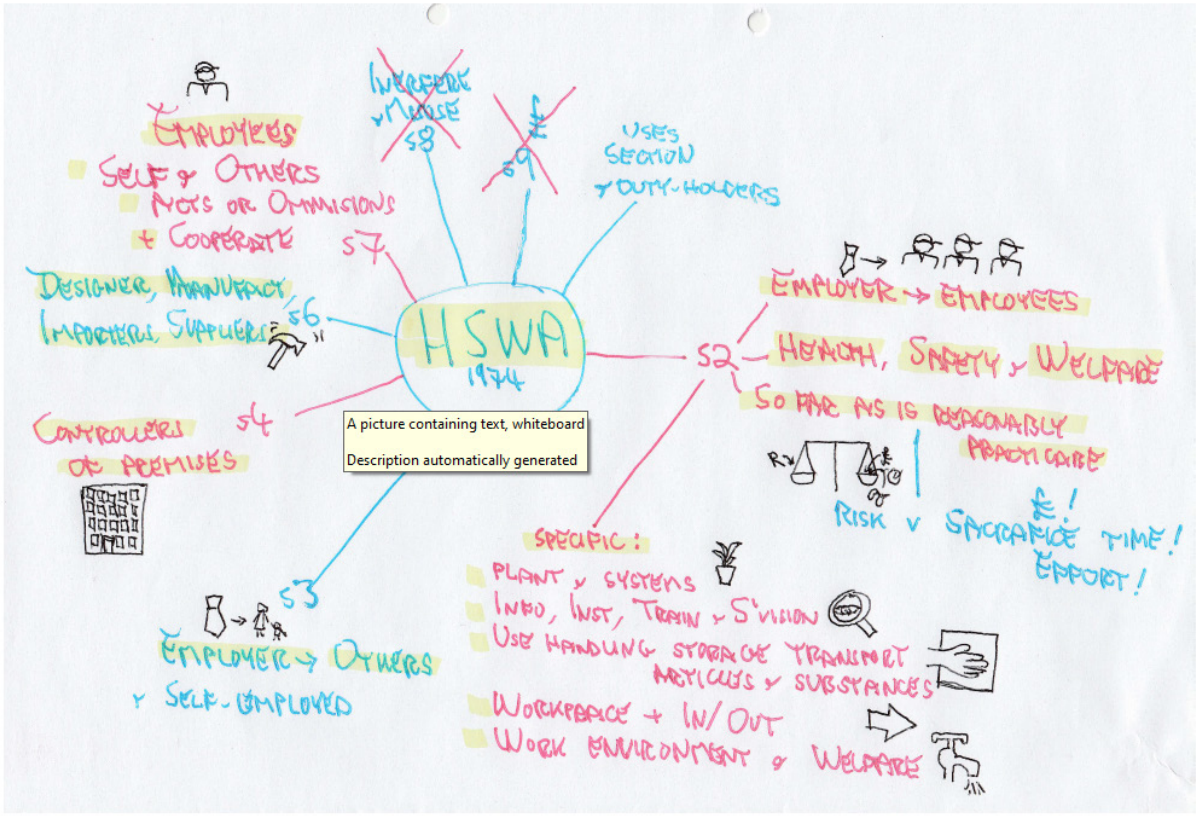
Remember what we are aiming to do here – get a general idea of what the picture is, then do the corners, then the edges, then the easy bits in the middle, then the sky.

How to Organise your Notes

As you work through your materials and organise your notes, keep in mind that the exam questions will not be looking for word-for-word facts quoted in your study text. Rather, the answers to the exam questions are all about interpretation and application of the facts, and demonstrating that you understand how topics connect with each other. This may seem overwhelming at first since there is a lot of content to get through - so here are a few tips on how to keep your notes organised and make them easily accessible:

- Make sure your notes are clear and legible.
- Use flash cards for handy prompts or reminders, such as definitions or formulae.
- Use coloured highlighters for any important topics; you can create your own colour coding system, for example yellow highlighting for definitions, green highlighting for legal references, etc.
- Page markers or sticky notes are a great way to help you find content quickly.
- Draw mind maps; they are an excellent way to see how topics link with each other.
- Make a poster that summarises a topic area.
- Make a note of relevant web searches or links.
- Include any responses to queries you raised with your tutor.

Flash cards are great for learning definitions. Stick them on your fridge or office door



An example of a mind map on the main ideas of the UK Health and Safety at Work Act

MORE...

For mind map how-tos and tips, here are some useful links:

Mind Mapping: Writing Centre Learner Guide
(https://www.adelaide.edu.au/writingcentre/sites/default/files/docs/learningguide-mindmapping.pdf)

The University Blog: Mind Mapping to Help Study
(https://theuniversityblog.co.uk/2010/12/06/mind-mapping-to-help-study/)

University of Portsmouth: Mind Mapping
(https://www.port.ac.uk/student-life/help-and-advice/study-skills/mind-mapping?_ga=2.123970698.1685194902.1588601826-1015065824.1588601826)

Revising for the Exam

One of the reasons for including information about the exam here is that it is essential that you think about the exam early on so that you start making revision notes and aids as a normal part of your study routine. Here are some suggestions about how you can do this:

- Don't just read the book.

- Read the book and make condensed notes.
- Read the book and highlight key words and ideas on the page.
- Read the book and draw a mind map.
- Record some audio notes about what you have just read.
- Make a large poster that summarises a topic.
- Make some flash cards using index cards.
- Write key ideas on sticky notes and stick them everywhere.

Build this into your study routine so that you are doing these things as you read through the elements. It gives you an activity to do while you are studying. It will help you focus because you have to concentrate to decide what to write. It will also help you when you are reviewing your study notes (see below).

Your ability to retain information drops off quite quickly after a period of study. But this drop in retention can be minimised by leaving a short gap and then briefly reviewing what you have just studied. This review should be quick, perhaps just a few minutes. And it should come about 10 minutes after you have finished your study period. If you repeat this review after 24 hours then it improves retention even more. And if the review is repeated again after a few days, it tops up your memory and helps even more.

Something to aim for:

- Study for 40 minutes or so.
- Take a 10-minute break.
- Review your study notes (<5 minutes).
- A day later, review your study notes (<5 minutes).
- A few days later, review your study notes (<5 minutes).

In other words, repetition is the key to building rapid future recall. If you repeatedly review topics and ideas over time, that information will be much more readily available to you when you are sat in the exam.

Basic Exam Skills

In the exam, it is very important to answer the question that is being asked and to relate your answer to the scenario given where appropriate. To do this you have to understand both the question and the scenario. If you interpret a question wrongly and provide an answer for the question that you think is in front of you, then you will not get the marks.

To help you understand what a question is asking, there's a step-by-step approach that you can adopt when answering exam questions:

- **Step 1: Read the scenario** – the first step is to read the scenario carefully. Take care with this as it is very easy to misread words in the rush to get writing.
- **Step 2: Look at the task (or question).** If this has several parts then read all parts – there may be things in the later parts which help you understand the first part.
- **Step 3: Look at the marks.** These give an indication of how much you will need to write and how long you should spend on a question or part of a question.
- **Step 4: Re-read the scenario and task question(s).** Check that you have properly interpreted and understood them.
- **Step 5: Draw up a plan.** This might be a list or a mind map that helps you unload information quickly. .

The above exam technique is tried and tested and is the best way to approach exam questions. We go into more detail about this in the Exam Skills sections at the end of Elements 1 to 4.

You must also remember to monitor the time. You have a 24-hour period in which to complete the exam. Be aware of your progress through the tasks and remember to allow time for reviewing your answers.

There is more information and help on exams both in the Exam Skills sections and in the Unit IG1: Final Reminders section.

Enjoy Unit IG1 of the course!

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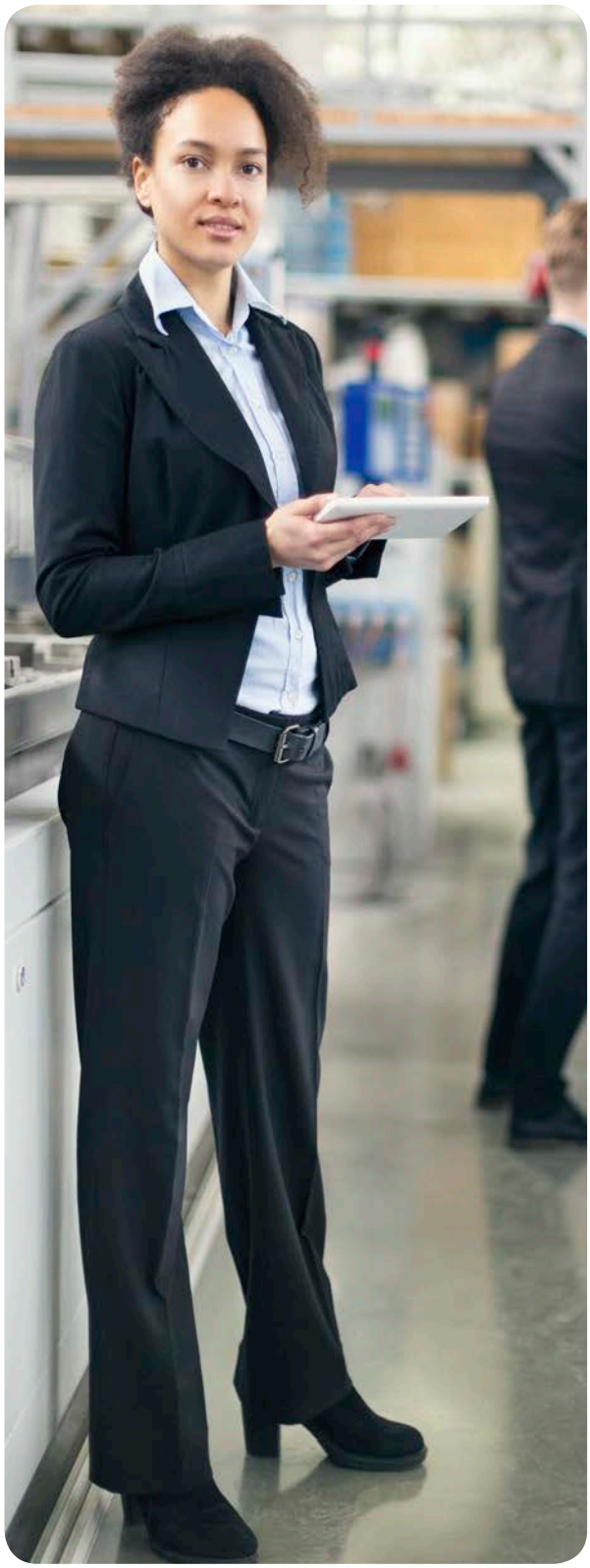
Element 1

Why We Should Manage Workplace Health and Safety



Learning Objectives

Once you've studied this element, you should be able to:

1. Discuss the moral, financial and legal reasons for managing health and safety in the workplace.
2. Explain how health and safety is regulated and the consequences of non-compliance.
3. Summarise the main health and safety duties of different groups of people at work.
4. Explain how contractors should be selected, monitored and managed.

Contents

Morals and Money

IN THIS SECTION...

- The three main reasons why an organisation has to manage health and safety are: moral, legal and financial. In this first section we look at the two of these; the moral and financial reasons.
- 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 harm is morally unacceptable and society as a whole demands that people are safe while at work.
- The 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.

Introduction to Key Terms

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.

The Moral Reason for Managing Health and Safety

The following global statistics have been published by the International Labour Organization (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.

Fishing is a high-risk sector

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/global/topics/safety-and-health-at-work

These statistics 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. This suffering is **morally** unacceptable.

Employers (through management) control the premises, equipment and working practices used by workers to produce the goods and services that the employer requires. Employers, therefore, have a **moral** responsibility to provide safe and healthy working conditions.

In simple terms, the moral reason can be summarised as, 'it's the right thing to do'. It is right and proper that workers go to work to earn a living and return home in the same state, not suffering from ill health or serious physical injury. People expect this as a fundamental right. Workers expect it. Society expects it. Over time, this societal expectation has been translated into legal standards. In this way, the moral argument drives legislation.

The Financial Reason for Managing Health and Safety

Personal injury accidents, worker ill health and property damage cost money. When an accident or ill-health 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 financial resources of an organisation and, in some cases, can put an organisation out of business. This is the **financial** argument for managing health and safety. It is sometimes referred to as the business case because it focuses on money.

When an accident occurs, the organisation will face both direct and indirect costs:

- **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.

Examples of **direct** costs:

- First-aid treatment.
- Worker sick pay.
- Repairs to, or replacement of, damaged equipment and buildings.
- Lost or damaged product.
- Lost production time while dealing with the injury.

Examples of **indirect** costs:

- Reduction in staff morale (which impacts on productivity, quality and efficiency).
- General difficulties in recruiting and retaining staff as a result of the accident.
- Loss of goodwill of customers following delays in production and fulfilling orders.
- 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

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.

Fire can be insured against

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. The British regulator, the Health and Safety Executive (HSE) have estimated that uninsured losses are between 8 and 36 times greater than insured losses. They provide a rough average figure of 10 times. This is sometimes referred to as the 'uninsured loss iceberg'; because the greater losses are unseen below the waterline (and are quite capable of sinking the ship).

TOPIC FOCUS

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 associated with a legal claim for compensation.	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.

It is worth remembering that, even if a loss is covered by insurance, most insurance policies come with an excess and with a limit. The excess is the amount of money that will be payable by the organisation before any payment is forthcoming from the insurer (e.g. the first £5,000 of any claim). The limit is the cap above which the insurer will not pay (e.g. if you have £2 million building and contents fire insurance but it costs £3 million to rebuild and re-stock your premises, then the insurer will only pay the first £2 million, and the remaining sum is uninsured).

MORE...

The HSE website provides helpful guidance on the business case for health and safety:

www.hse.gov.uk/business

STUDY QUESTIONS

1. Define:
   (a) Health.
   (b) Safety.
   (c) Welfare.
2. Explain the three reasons why an organisation should manage health and safety.
3. Give three insured costs and three uninsured costs that might arise from a workplace accident.

(Suggested Answers are at the end.)

Regulating Health and Safety

IN THIS SECTION...

- The legal reason for managing workplace health and safety relates to the framework of laws that govern the conduct of businesses and organisations.
- The International Labour Organization (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.

Legal Reasons for Managing Workplace Health and Safety

The **legal** reason for managing health and safety relates 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 the management of health and safety risks. 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.

The International Framework

There are no truly global laws 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.

Health and safety is a priority around the world

A key player in the area of international legal standards in health and safety is the International Labour Organization (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.

Many 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 they provide the work, the workplace, the tools, systems and methods used, 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 they can fulfil their 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 their 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/global/standards/introduction-to-international-labour-standards/conventions-and-recommendations

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 (or authority) responsible for enforcing health and safety law. Such an agency is effectively the 'health and safety police force'. In some circumstances the agency may actually 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.

Breaching health and safety law can lead to criminal prosecution

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.

DEFINITION

CIVIL LAW

The branch of law concerned with the right of individuals, for example, compensating people for harm that is done to them through no fault of their own.

Other International Standards

The International Organization for Standardization (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.

There is an internationally recognised standard for health and safety management. The ISO standard, **ISO 45001** *Occupational health and safety management systems,* is compatible with other management system standards such as ISO 9001and ISO 14001.

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

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

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

(Suggested Answers are at the end.)

Who Does What in Organisations

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.
- When two or more employers share a workplace they must co-operate and co-ordinate their activities to ensure good health and safety standards.
- When a client takes on the services of a contractor, both parties have shared responsibilities for ensuring good standards of health and safety.
- The client must carefully select contractors on the basis of their health and safety competence. This can be done by looking at the contractors' policy documents, accident and enforcement history, references, qualifications and experience.
- The client must ensure that contractors carry out risk assessments and develop method statements for their work so that the work is properly planned and co-ordinated. The client must monitor and manage contractors to ensure that they work safely to agreed methods.

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); 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 this element to remind yourself of the employer's duties. It is important to consider who an employer owes a duty to:

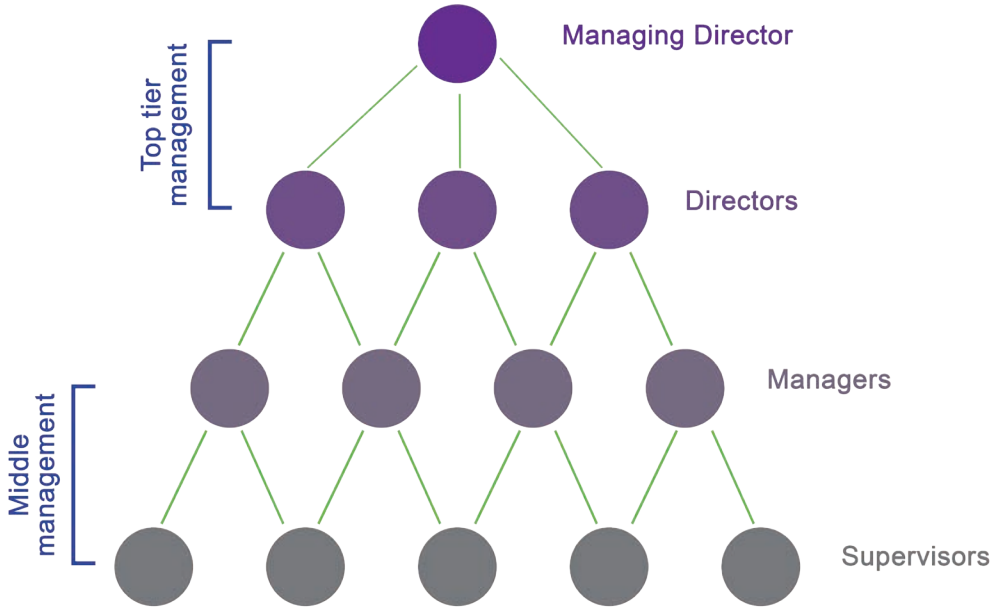
- Their own workers (employees) to ensure their health and safety.
- Other workers who might be working within their workplace but are not direct employees such as casual workers, agency workers and contractors.
- Workers who are not their employees and are not working in their workplace but are carrying out work on their behalf, such as contractors installing a piece of machinery on behalf of the employer at someone else's premises.

- People who might be in their workplace but not carrying out work on their behalf; such as visitors.
- People who might be outside their workplace, but are affected by their work activities; such as members of the public passing by.

So, an employer has 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.



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.

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 their job description and in the organisation's health and safety policy documentation (outlined later in Element 2).

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.

The Shared Responsibilities of Joint Occupiers of Premises

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 is set out in **ILO C155 (Article 17)**: *"Whenever two or more undertakings engage in activities simultaneously at one workplace, they shall collaborate in applying the requirements of this Convention."*

And in **ILO R164 (Recommendation 11)**: *"Whenever two or more undertakings engage in activities simultaneously at one workplace, they should collaborate in applying the provisions regarding occupational safety and health and the working environment, without prejudice to the responsibility of each undertaking for the health and safety of its employees. In appropriate cases, the competent authority or authorities should prescribe general procedures for this collaboration."*

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.

When many companies share a building, a building management committee may prove useful

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.

Contractor Management

Contractors are used widely in the workplace, either to deliver a specific project or skill, or to deliver extra labour when needed. For example, a site wanting to extend the premises would usually take on a building contractor to deliver the project rather than employing the manpower directly, in the same way a company may engage a self-employed training contractor to deliver a training course.

Contractors are engaged by clients in lots of different circumstances at work. A contractor may be engaged to perform a one-off service, such as the refitting of an IT suite, or they may be engaged on a more permanent basis to provide in-house catering or cleaning services.

Quite clearly, it is not in the interest of health and safety for the client to ignore the risks associated with the contractor's work or for the contractor to ignore the risks inherent in the client's workplace.

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.

Note that the word 'contractor' can be used to indicate both the company providing a contract service, and the individual workers who work to provide that service.

CLIENT

A person or organisation who engages a contractor.

Shared Duties

Contractors are responsible for their own health and safety and the health and safety of others who might be affected by their work activities.

A **contractor company** (e.g. a cleaning company) is an employer in their own right. They therefore owe a duty to:

- Their workers (the individual contract cleaners doing the work in a client's premises).
- Other people (such as the client's workers and visitors to the client's premises) who might be affected by their work.

And the **individual cleaners** doing the work in the client's premises are **workers** of the contract cleaning company.

They therefore owe a duty to:

- Themselves.
- Other people (such as fellow workers, the client's workers and visitors to the client's premises) who might be affected by what they do.

The **client** (as an **employer**) owes a duty to:

- Their own workers.
- Others who might be affected by their work, including:
  - The contract cleaners in the premises.
  - Any other workers in the premises (such as other contractors).
  - Visitors to the client's premises.

The individual **workers** of the client also owe a duty to:

- Themselves.
- Other people (such as contract cleaners, fellow workers, visitors) who might be affected by what they do.

Put simply, the contractor and their workers owe a duty to everyone, and the client and their workers also owe a duty to everyone. The key thing to recognise from the above is that the responsibility for ensuring health and safety is therefore **shared** between the client and the contractor. It is in both parties' interests to ensure that each does everything that might be considered **reasonable** in the circumstances to discharge their duties and avoid criminal liability.

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

- Selection of contractors.
- Planning and co-ordination of the work.
- Monitoring and managing the work.

Selection of Contractors

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.

(Continued)

TOPIC FOCUS

- 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 and Co-ordination of 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 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.

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 and Managing 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 health and 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.

We will cover permit-to-work systems in more detail in Element 3.

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

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.

STUDY QUESTIONS

7. Which categories of people does an employer owe a duty to?
8. List the criteria that might be used to assess the suitability of a contractor to undertake work on behalf of a client.
9. What are the responsibilities of the client and the contractor where a contractor is working in a client's workplace.

(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:

- 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: moral, legal and financial.
- Identified some of insured and uninsured costs associated with accidents and ill health.
- 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.
- 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.
- Joint occupiers of premises – for co-operation and co-ordination.
- Explained the shared responsibilities that exist when work is carried out by contractors for a client.
- Outlined a basic framework for the selection, monitoring and control of contractors by clients.

Exam Skills

Introduction

To pass the NEBOSH Certificate, you need to perform well during your 'open-book' exam. An 'open- book' exam means exactly what the name suggests: you can access your study text and other materials during the exam. However, it will require more than simply copying text to answer the exam questions; you will need to demonstrate that you understand the subject matter and can apply the topics appropriately - these need preparing for.

Here we will consider some practical guidelines that can be used to increase success in your 'open- book' exam. The NEBOSH International General Certificate 'open-book' exam differs from the traditional question-and-answer-type format and will instead consist of a realistic workplace scenario which may describe a developing situation such as an incident or safety intervention, and you may be asked to assume a particular role, for example a safety manager. You will then be asked to carry out some tasks. Each task will consist of one or more questions, where your answers will mostly be relevant to the scenario.

Wider Reading, Research and References

During the 'open-book' exam you are allowed to access many different types of resources such as RRC study text and revision guides, professional journals, digital resources on the Internet such as HSE guidance, bilingual dictionaries, etc. Remember though that this is not a substitute for thorough study of your course materials and specific preparation in the form of revision to ensure that you are familiar with all the topic areas included in the syllabus. NEBOSH "will not be looking for anything from your answers that has not been covered in the Unit syllabus".

NEBOSH has designed the 'open-book' exam "to assess the same learning outcomes to the same level" as the previous method of examination. It will "measure depth of understanding" and require you to apply your knowledge to the scenario given rather than simply recalling memorised information. It is therefore "very important that you prepare and revise" for the assessment.

Wider Reading and Research

As part of your preparation, NEBOSH recommends that you should:

- "Complete wider reading so you don't have to do this during the examination."
- Conduct "wider research to understand how your studies relate to the real world".

To help with this you should make use of the MORE... boxes included in your course material. These highlight additional resources related to the topics you've been studying. Reading them will assist you in increasing the depth of your understanding and applying it to real life situations.

The links in MORE... boxes are current at the time of publication of your materials but may have changed since, e.g. due to an item being moved elsewhere, being replaced or perhaps withdrawn from publication altogether.

HINTS AND TIPS

If the link in a **MORE...** box no longer works, you can search for the item in question by entering its title in a search engine such as Google or Bing. This should lead you to its current location if it's still available on the Web. In the event that it's no longer available, your tutor may be able to suggest a replacement.

If a link to a section of the HSE website no longer works, you may be able to find a current link by searching the HSE website. (The A-Z topic list at the foot of the screen is a useful starting point.)

Your wider reading may also include research using other resources mentioned in your course materials or resources that you've found yourself, perhaps by entering a topic name in a search engine. Always be careful though to use only authoritative sources for your research, such as Government or official websites, and to safeguard the security of your personal information.

Making Use of Your Resources

NEBOSH states that "You are expected to offer your own analysis and presentation of information gained from your research". So you need to:

- Organise your notes in advance so that you can find things quickly.
- Use your own words to express what you've learned and apply the knowledge you've gained.

You are permitted though to make reference to sources, ideas or work of other people or organisations. Where you do so, it's important to acknowledge where that information comes from because your open-book exam response must be your own work and you don't want to be guilty of plagiarism and subject to investigation by NEBOSH.

DEFINITION

PLAGIARISE

"To steal ideas or writings from another person and present them as one's own".

(Source: The Chambers Dictionary)

References

Direct Citations

You may want to quote specifically from a publication you've accessed. Here you should put the quote in inverted commas and make it clear where it's from. (See also **Reference List** below.)

Example:

UK HSE guidance INDG163 states that "A risk assessment is not about creating huge amounts of paperwork, but rather about identifying sensible measures to control the risks in your workplace".

Indirect Citations

You may just want to refer to information that you've read without quoting from it directly. In this case, express it in your own words but make sure that you identify the source. (See also Reference List below.)

Example:

UK HSE guidance (INDG163) identifies five steps to risk assessment.

Reference List

Your exam answers should include a list of the materials you've referred to – those you've quoted from, those you've mentioned and any other materials that you looked at during the exam. This doesn't count towards the word limit for your answers and it would be best to make the list as you write your answers to ensure that the list is complete.

We don't recommend using the Harvard (or any other) referencing system for this purpose because NEBOSH has made it clear that a simple list is all that is required.

Your list should be at the end of your answer document and should include:

- the title of the publication/document,
- the author,
- the year of issue, and
- a Web address (for Internet publications).

Example:

HSG65 Managing for health and safety, HSE, 2013

(https://www.hse.gov.uk/pubns/priced/hsg65.pdf)

INDG163 *Risk assessment – A brief guide to controlling risks in the workplace*, HSE, 2014

(https://www.hse.gov.uk/pubns/indg163.pdf)

(In the above Example:

- INDG163 is included because quoted from and referred to in the text.
- HSG65 is included because consulted during the exam.)

Note: If you use the NEBOSH answer sheet, there is a place there for your references.

Exam Technique

The 'open-book' exam will test you on your ability to "demonstrate analytical, evaluation and creative skills as well as critical thinking" and how you apply your learning to your answers. In other words, you will need to show what you can do with your knowledge to solve the problems presented to you - and this may take practice. To assist you in showing your knowledge, let us look at a step-by-step approach that you can adopt when answering your exam questions.

Step 1	**Read the scenario** - the first step is to read the scenario carefully. Take care with this as it is very easy to misread words in the rush to get writing. It's likely you will read the scenario more than once.
Step 2	**Look at the first task** - a task is an activity or piece of work that will be part of a larger project. The task may be split up into several sub-tasks. The task is used to indicate the questions. Read each question carefully. This is what your knowledge is being tested on - so your answer must address the question. Demonstrating knowledge alone will not gain marks - your knowledge has to be applied to the task - so you need to clearly understand the question being asked.
Step 3	**Look at the marks** - each task or sub-task, question or part of a 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 that demonstrates an analytical evaluation of the task that has been set. The marks available give an indication of how much you will need to write and, to a lesser extent, how long you should spend on this part of each question.
Step 4	**Re-read** the scenario and task question - to check that you have properly interpreted them and understood them. There are no marks available for answering the task 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 gain 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. Your plan can use information from the scenario to support your answer.

When it comes to the exam, there is no need to submit your plan.

When writing your answer, you must ensure that the structure of the task appears in the structure of your answer. So, for example, if the task 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 questions. One long paragraph of text that contains all parts of the answer jumbled up together cannot gain 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 task. 'Open-book' exams are a new approach for NEBOSH but the education sector has used 'open-book' exams for a long time.

NEBOSH gives a 24-hour window of time to reflect different time zones learners work and live with. You are not expected to spend 24 hours completing the exam. You will, however, need to monitor your progress on completing all the tasks and you should plan for drafting answers, reflection and amending answers, building in time for breaks.

Remember, too, that there will be an overall word count for the exam. It's important not to exceed the recommended total by more than 10% so do allow time to check this.

Practice Exam Questions

At the end of Elements 1 to 4 there is a practice exam 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 can be included. Examining bodies encourage this and it will enhance your answers.

The study text provides some useful links to external sources – look out for the '**More...**' boxes within the materials – these contain useful links to relevant topics.

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

Question

Scenario

You have been appointed as the competent person to assist managers in undertaking their responsibilities for health and safety. You have noticed that managers seem reluctant to investigate accidents. A worker of a newly appointed manager has been injured when a reversing vehicle struck the worker, causing an injury that required treatment in hospital.

You decide to schedule a meeting with the manager to discuss the possible costs involved. A meeting scheduled for one hour has been arranged with yourself and the manager for you to discuss the costs of incidents in the workplace.

Task: Costs of Incidents

Prepare some notes for discussion at the meeting. You want to make clear financial arguments so that the manager understands the business case for managing health and safety.

You decide your notes should cover direct and indirect cost examples:

(a) Direct costs. **(5 marks)**

(b) Indirect costs. **(5 marks)**

(Total: 10 marks)

Approaching the Question

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

Step 1 The first step is to **read the scenario** carefully. Note that this is a new manager of a worker who has been seriously injured. This means information should be easy to understand and examples can be used to support that understanding. We do not want the manager to be confused.

You are asked to provide "some notes" so will need to structure your approach accordingly.

Step 2 Now look at the **task** – prepare some notes using two headings:

(a) Direct costs.

(a) Indirect costs.

Step 3 Next, consider the **marks** available. In this task, there are 10 marks, distributed between two parts. Tasks that are multi-part are often easier to answer because there are additional signposts in the question to keep you on track. In this task, you have to create some notes that are easy to understand, giving an example for each part that can aid understanding. You will need to provide around 10 or more different pieces of information (including examples) in total for this task. The headings will allow you to keep your responses separate – this will also help the examiner when marking!

Step 4 **Read the scenario and task again** to make sure you understand them and have a clear understanding of costs. (Re-read your study text if you need to.)

Step 5 The next stage is to **develop a plan** – there are various ways to do this. Remind yourself, first of all, that you need to be thinking about 'direct' and 'indirect' costs. Each part requires examples.

Suggested Answer Outline

Start with a general introduction:

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

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 re-training additional employees (e.g. for cover).
- Damaged customer relationships.
- Damaged public image.

You may not have to use all the examples given – choose which ones you could explain in a meeting with a new manager. Now have a go at the question yourself.

Example of How the Question Could be Answered

When we have an incident there is often injury to a worker or property damage. The costs associated with an incident can be large. Because they have not been budgeted for, they can severely affect the cash flow of the business. This may make it difficult to purchase raw materials or pay workers.

Incident costs can be divided into two types of costs, namely direct and indirect costs. Direct costs are measurable costs arising directly from the incident. Indirect costs are those costs that result as a consequence of an incident. Indirect costs are often difficult to put a numerical value against and they can be difficult to identify.

(a) ***Direct Costs***

In the recent incident where the worker was struck by a reversing vehicle, the costs associated with the first-aid treatment are direct costs. When the worker arrives at the hospital for treatment, they (the hospital) will be able to allocate a cost to the treatment given. This cost is often recovered from the worker's company. If the enforcing authority decides to prosecute, then the legal fees involved are direct costs.

(b) ***Indirect Costs***

This meeting is effectively an indirect cost – it's all part of the investigation process while we try to establish the costs of the incident and ways to prevent a recurrence. The morale of other workers may be affected having seen or heard about this incident. This may affect productivity or work quality – an indirect cost that is difficult for us to quantify.

Reasons for Poor Marks Achieved by Exam Candidates

- Giving examples of costs that are incorrectly assigned to direct or indirect categories.
- Not following a structured approach, so not identifying direct and indirect costs.
- Exceeding the overall word count for the whole exam by more than 10%. The examiner may not read excessively long explanations.
- Not providing an answer to the task question at all. If you do not attempt all tasks, you cannot get any marks for the task questions you omit.
- Not considering the scenario – in this case a new manager – so overly complex explanations or highly detailed examples may not attract marks.

References

NEBOSH Open Book Examinations: Learner Guide - Guidance document for preparing for the open book examination for NG1, IG1, NGC1 and IGC1 units, NEBOSH, 2020

https://www.nebosh.org.uk/documents/open-book-examination-learner-guide

The Chambers Dictionary, Chambers, 2005

INDG163 *Risk assessment – A brief guide to controlling risks in the workplace*, HSE, 2014

https://www.hse.gov.uk/pubns/indg163.pdf

HSG65 *Managing for health and safety*, HSE, 2013

https://www.hse.gov.uk/pubns/priced/hsg65.pdf

Element 2

How Health and Safety Management Systems Work and What They Look Like

Learning Objectives

Once you've studied this element, you should be able to:

1. Give an overview of the elements of a health and safety management system and the benefits of having a formal/certified system.
2. Discuss the main ingredients of health and safety management systems that make it effective – policy, responsibilities, arrangements.

Contents

Occupational Health and Safety Management Systems

IN THIS SECTION...

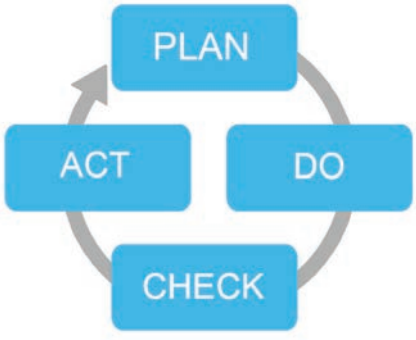
- Two widely recognised Occupational Health and Safety Management Systems (OHSMSs) exist for the systematic management of health and safety, ILO-OSH 2001 and ISO 45001; both are based on the Plan-Do-Check-Act management cycle.
- The ILO-OSH 2001 OHSMS can be summarised as: Policy, Organising, Planning and implementation, Evaluation, Action for improvement, and Audit.
- ISO 45001 is an externally verified OHSMS standard that can be summarised as: Context of the organisation, Leadership and worker participation, Planning, Support, Operation, Performance evaluation, and Improvement.

Introduction to Occupational Health and Safety Management Systems

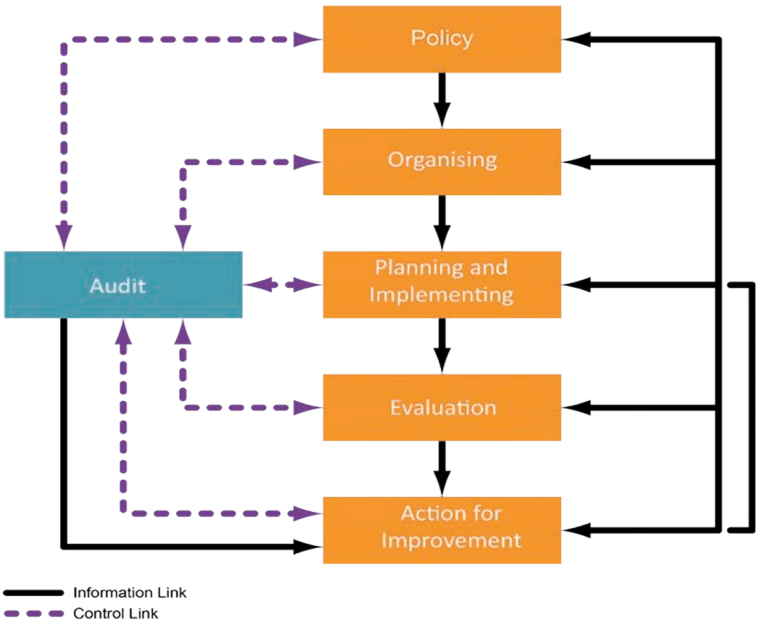
The management of workplace health and safety must be considered systematically within any organisation of any significant size, in the same way as any other form of management. A systematic approach to the management of an organisation's health and safety is referred to as an Occupational Health and Safety Management System (OHSMS). There are two common OHSMSs use by organisations internationally. These are usually identified by reference to their publication code numbers: 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 OHSMS standard published by the International Organization for Standardization (ISO). Organisations are free to develop their own OHSMS, but working to a recognised standard can be an advantage.

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

- **Plan** – set your aims and objectives and then plan how to achieve them.
- **Do** – put your plans into effect; implement them.
- **Check** – monitor your performance towards the aims and objectives that you set yourself.
- **Act** – routinely review progress and change what you are doing if it looks like you are missing your targets.



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 SMS 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 SMS will not remain static but will develop over time to become increasingly appropriate and useful to the organisation that it exists to serve.

Note: in the outline the location of each element in the PDCA cycle has been indicated in brackets after the element title just to help.

MORE...

Find more information at:

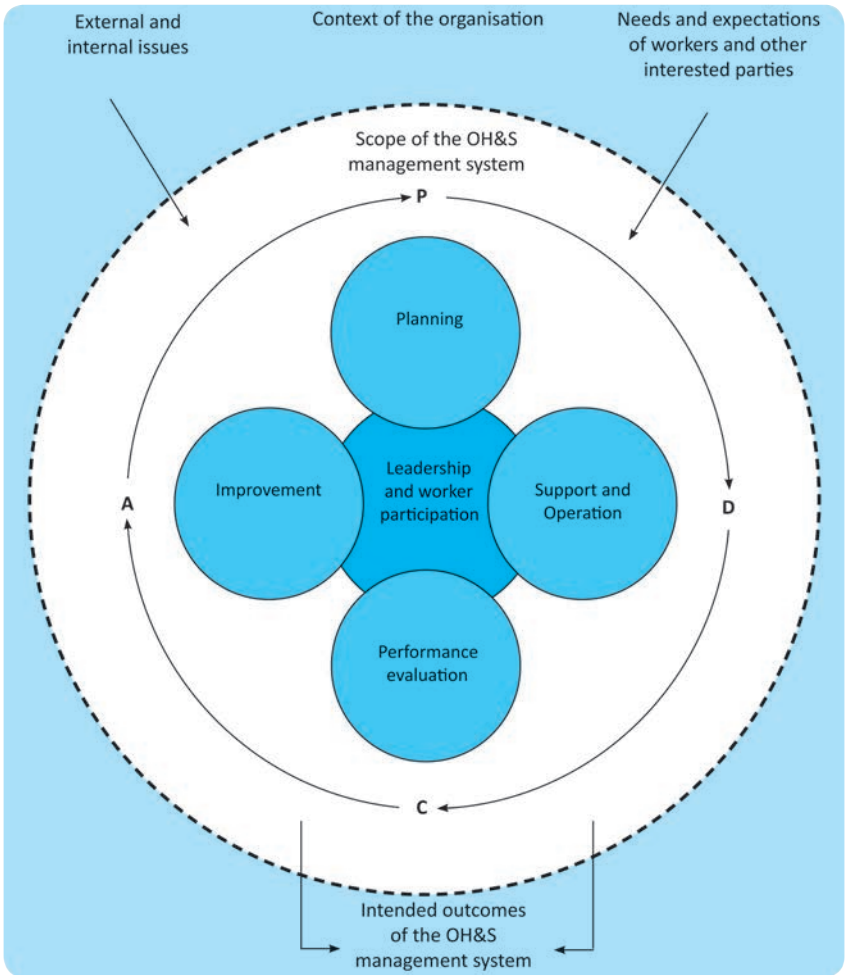
www.ilo.org/safework/info/standards-and-instruments

ISO 45001: The Occupational Health and Safety Management System Standard

The ISO standard **ISO 45001** provides an OHSMS 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 SMS that can stand up to close scrutiny. ISO 45001 is based on the PDCA management cycle and 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).

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:



ISO 45001

- **Context of the organisation** (management system framework) – requires that the 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 (OHS) management.
- **Performance evaluation** (Check) – requires the systematic internal monitoring and reviewing of OHS 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 OHS management activities such as safety inspections to identify non-conformities and accident investigation.

The Benefits of 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) 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 OHS management is integrated into the routine functioning of the organisation. This can give the organisation a competitive advantage when competing against other organisations for contracts or further work.

Certification is something an organisation can be proud to achieve

Certification is an expensive process but the costs of achieving and maintaining certification are often outweighed by the financial benefits associated with having a robust formal/certified OHSMS.

Whether an organisation is using the ILO-OSH: 2001 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 OHSMS outlined in ISO 45001 *Occupational health and safety management systems*?
2. What is the role of 'evaluation' in the ILO OSH-2001 OHSMS?

(Suggested Answers are at the end.)

Making the Management System Work – The Health and Safety Policy

IN THIS SECTION...

- An organisation's occupational health and safety management system is implemented through its health and safety policy. 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 other managers, who are required to implement it.
- 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.

Introduction to Health and Safety Policies

The foundation stone of an effective OHSMS 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.

Policy informs practice at all levels

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

1. 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.
2. 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-hazard manufacturing company may be very different from that of a large, high-hazard oil and gas multinational.

Standards and Guidance

Article 14 of the International Labour Organization'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."*

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 Britain this legal requirement is set out in the **Health and Safety at Work, etc. Act 1974** (section 2(3)).

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

The Three Parts of a Health and Safety Policy

A policy is normally presented in three parts (sections or elements):

- **General Statement of Intent/ Statement of General Policy** – 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).

Policy documents can be hefty documents

General Statement of Intent/Statement of General Policy

This spells out the organisation's overall approach to health and safety management and its aims and objectives. This is where those at the very top of the organisation set out their vision for the organisation in the context of health and safety performance; where they would like the organisation to be. It must commit the organisation to achieving legal compliance. 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 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 (e.g. the Chief Executive Officer (CEO) or Managing Director (MD)) to authorise the policy and indicate that the policy commitment comes from the highest level.
- Dated to indicate when the current statement was prepared and to provide a reference point for review.

TOPIC FOCUS

Aims

The Statement of Intent may recognise some general aims 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.

Aims can sometimes be very aspirational in nature; they do not have to reflect exactly where the organisation's current performance is. They reflect where the organisation would like to be. For example, the aspiration aim: 'zero harm'. These types of aim are sometimes referred to as the organisational vision.

Objectives/Targets

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 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**'. For example, if fatal road-accident rates in an industry as a whole are one for every 1,000,000 miles driven, the target for a particular organisation may be to achieve a better rate.

Setting SMART Objectives

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, it is possible.

- **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; 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.

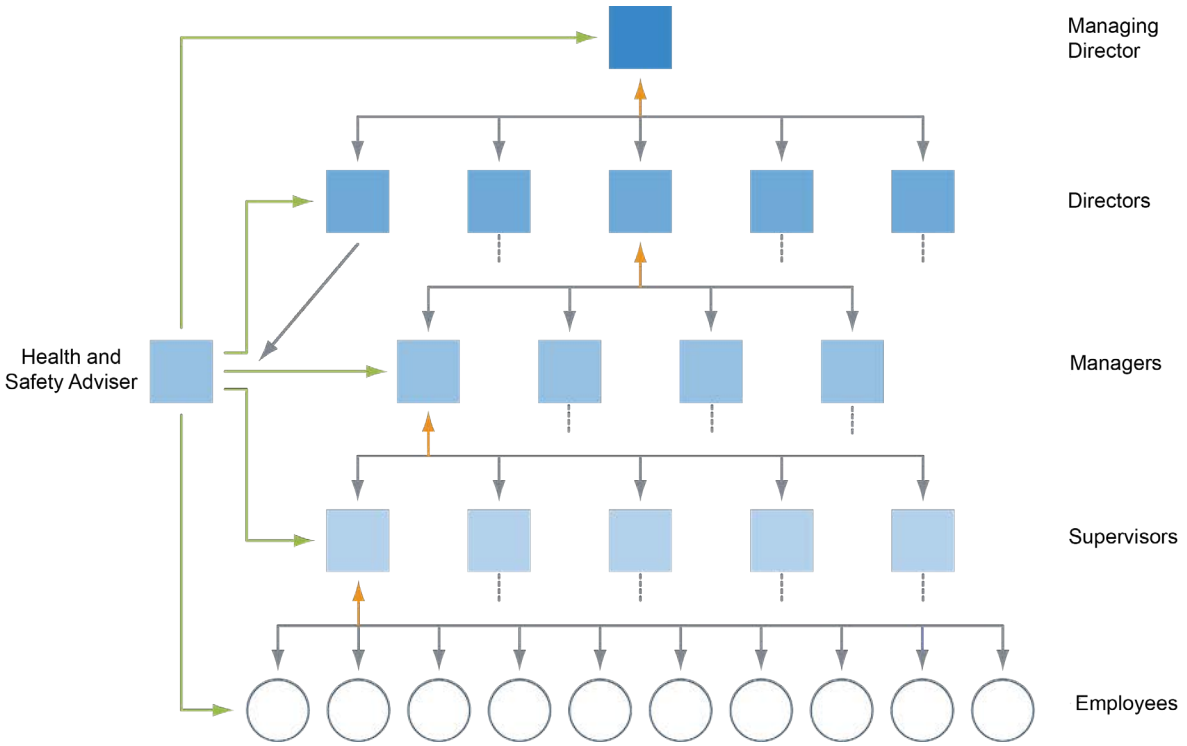
When setting health and safety objectives, consideration should be given to:

- 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, or insurance companies.
- 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 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.

Organisational 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 common 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 Organisational Roles and Responsibilities 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, or 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 or fire marshals).
- **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 activities.

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 considered 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.

MORE...

For information on health and safety policies see:

www.hse.gov.uk/toolbox/managing/writing.htm

STUDY QUESTIONS

3. Why might the health and safety policy of two organisations, both undertaking similar work, be different?
4. What are the three key parts 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 OHSMSs and health and safety policies.

In particular, this element has:

- Outlined the ILO-OSH 2001 OHSMS, which can be summarised as: Policy, Organising, Planning and implementation, Evaluation, Action for improvement, and Audit.
- Outlined the ISO 45001 OHSMS 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

Scenario

You have been appointed as the competent person to assist managers in undertaking their duties under health and safety legislation. In preparation for a health and safety committee, you undertake a review of the organisation's health and safety policy. A copy is available on the organisation's intranet system. You undertake a simple survey of workers and can find no one who knows it is there. On examining the policy, you form the opinion that it's poorly structured and has no aspirational aims or objectives.

Task: Health and Safety Management Systems

You decide to prepare a briefing document for your manager. This will be used to discuss with the organisation's Managing Director the requirements for a health and safety policy and the reasons why safety targets are required. It needs three clear headings:

(a) ILO requirements for health and safety policies. **(2 marks)**

(b) Why the organisation needs safety targets. **(6 marks)**

(c) Proposed structure for the health and safety policy. **(2 marks)**

(Total: 10 marks)

Approaching the Question

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

- **Step 1 –** the first step is to **read the scenario** carefully. Note that this is for the Managing Director (MD). The MD is unlikely to be a safety specialist. This means information should be easy to understand and examples can be used to support that understanding. We do not want the MD confused or presented with over-ambitious targets.

  You are asked to provide a 'briefing document' so will need to structure your approach using the three headings given.

- **Step 2** – now look at the **task** – prepare some notes under the three headings:

  (a) ILO requirements for health and safety policies.

  (b) Why the organisation needs safety targets.

  (c) Proposed structure for the health and safety policy.

- **Step 3** – next, consider the **marks** available. In this task, there are 10 marks available, so it is expected that around 10 or 11 different pieces of information should be provided. Tasks that are split into parts are often easier to pick up marks on, because the signposts NEBOSH use are so much easier to see. The first part of the task is worth 2 marks, so citing the ILO requirements will get 1 of those marks. The second part is an explanation of why organisations should set health and safety targets and is worth 6 marks, so you will need 6 points in this section. Simply supplying possible targets will not gain the marks though; you need to be explaining why the organisation needs to have targets. The third part is worth 2 marks; reference to the sections of a health and safety policy with a brief explanation will gain these marks.

- **Step 4** – read the scenario and task again to make sure you understand them and have a clear understanding of health and safety policy and safety targets. (Re-read your study text if you need to.)

- **Step 5** – the next stage is to develop a plan – there are various ways to do this. Remind yourself, first of all, that you need to be thinking about a briefing document your manager will discuss with the Managing Director. It has three headings: 'ILO requirements', 'safety targets' and 'structure for a health and safety policy'. So, the answer plan will take the form of a bullet-pointed list that you need to develop into a full answer.

Suggested Answer Outline

(a) International Labour Organisation (ILO) requirements:

- ILO Occupational Safety and Health Recommendation R164.
- Must be written.
- Bring to the attention of workers in a language or medium the workers easily understand.

(b) Why safety targets?

- Management commitment.
- Focus on important issues.
- Motivate staff.
- Encourage ownership.
- Enable performance measurement.
- Identify improvements made.
- Identify trends.
- Enable review of performance.

(c) Structure of a policy:

- General statement of intent.
- Organisation section.
- Arrangements section.
- Now have a go at the question yourself.

Example of How the Question Could be Answered

(a) The International Labour Organisation (ILO) requirements for an organisation to have a health and safety policy are established by ILO Occupational Safety and Health Recommendation R164. This Recommendation requires an organisation to bring the policy to the attention of the workers. This must be done in a language or medium the worker readily understands. Following a survey to establish how well policy has been brought to the attention of our workers, we have concluded that we have failed in this aspect of the Recommendation.

(b) By setting targets for health and safety, an organisation's management are making a clear statement of their commitment to monitoring and meeting the standards set for health and safety. Targets enable management to prioritise and focus resources on issues where target levels are not being met. Employees are likely to be motivated to achieve a target set (e.g. number of hours without an accident exceeding the previous month's total). Targets are also likely to encourage ownership in health and safety – employees being involved in the attainment of a target are likely to strive to meet that target, which is likely to encourage safe behaviour. Management may well want to measure tangible gains in health and safety to justify expenditure and effort in supporting improvement programmes. Implicit in setting targets is the measurement of the activity being targeted – management may be able to identify trends from this activity to anticipate whether targets will be met, exceeded or failed. Targets enable management to meet the standards set by the safety management system used (e.g. zero tolerance to not wearing PPE).

(c) Health and safety policies are normally presented in three sections.

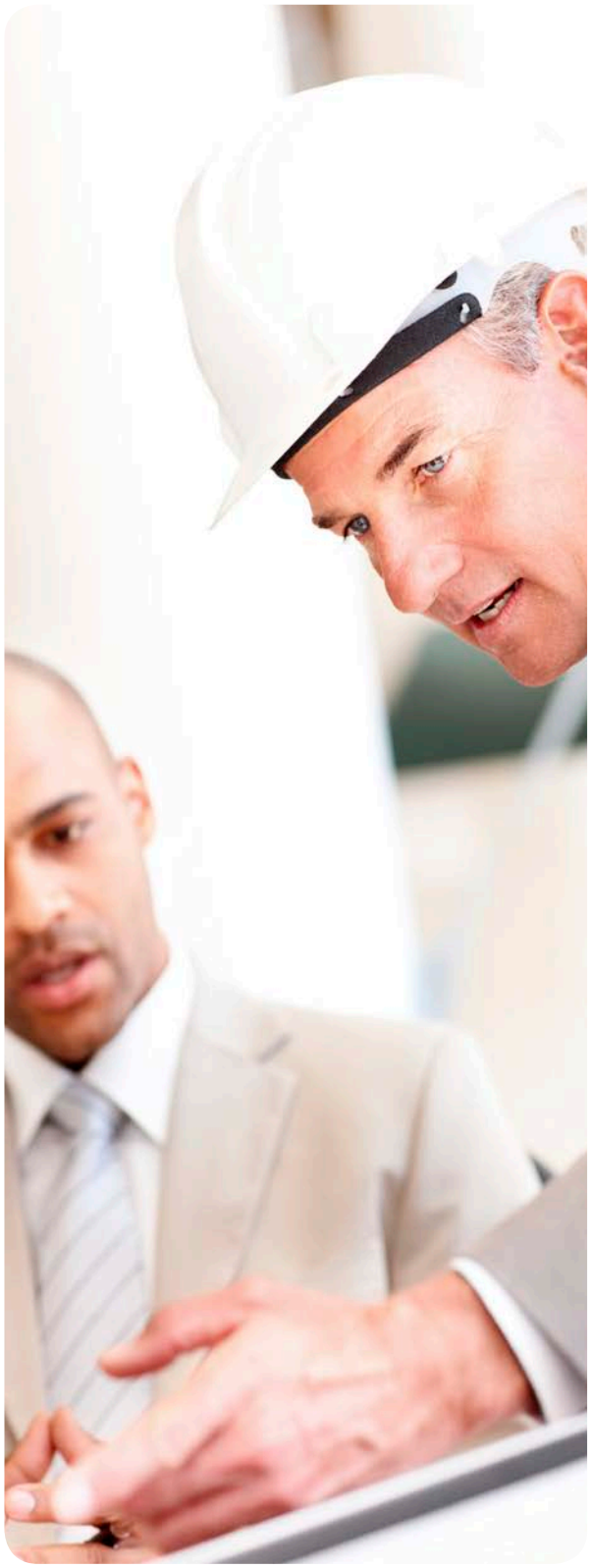
- *A General Statement of Intent/Statement of General Policy which captures the organisation's philosophy in relation to the management of health and safety.*
- *Organisation section – which indicates the communication pathways and levels of authority by showing roles and responsibilities.*
- *Arrangements section – which supplies the arrangements made for the effective management of health and safety such as risk assessments, etc.*

Reasons for Poor Marks Achieved by Exam Candidates

- Citing the wrong Recommendations.
- Not following a structured approach for the briefing document; failing to provide information on the three subject areas.
- Not explaining a wide enough spectrum of reasons to set targets (6 marks were available) and going into great detail on focusing on improvement which ultimately can only be worth one or two marks.

Element 3

Managing Risk – Understanding People and Processes



Learning Objectives

Once you've studied this element, you should be able to:

1. Describe the concept of health and safety culture and how it influences performance.
2. Summarise how health and safety culture at work can be improved.
3. Summarise the human factors which positively or negatively influence behaviour at work in a way that can affect health and safety.
4. Explain the principles of the risk assessment process.
5. Discuss typical workplace changes that have significant health and safety impacts and ways to minimise those impacts.
6. Describe what to consider when developing and implementing a safe system of work for general activities.
7. Explain the role, function and operation of a permit-to-work system.
8. Discuss typical emergency procedures (including training and testing) and how to decide what level of first aid is needed in the workplace.

Contents

Health and Safety Culture

IN THIS SECTION...

- The health and 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. It will either be positive or negative.
- There is a strong link between health and 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

An organisation's 'culture' is not written down or 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).

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.

All organisations have a 'culture'

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

DEFINITION

HEALTH AND SAFETY CULTURE

The shared attitudes, values, beliefs and behaviours relating to health and safety. These will either be positive or negative.

The health and safety culture of an organisation is the way that everyone within the organisation thinks and feels about health and safety and how this is reflected in their behaviour. This is concerned with peoples' attitudes and opinions; what they believe and value; their perceptions of the importance of health and safety; and how these thoughts and beliefs influence their health and safety-related behaviour.

Importantly the culture is created and shared by people within the organisation. This is the group way of thinking about health and safety. It is not simply one person's way of thinking. Though it is often the case that certain individuals will be very influential in establishing and maintaining the culture.

An organisation's health and safety culture will either be positive or negative. In that it will either encourage and promote positive health and safety views, opinions and behaviours, or it will encourage and promote negative ones.

MORE...

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

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

Relationship Between Health and Safety Culture and Performance

There is a strong link between an organisation's health and safety culture and its health and safety performance. Organisations with a strong, positive culture tend to perform well, whereas those with a weak negative culture perform badly.

Positive Culture

In an organisation with a positive health and 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 do likewise.

The majority of people work safely because they *want* to. Not simply because they *have* to. Even without close supervision. Because this is the way that things are done in the organisation.

People in the organisation who do not share the group 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 might be dismissed for working unsafely.

In an organisation like this, it is easy to see the clear link between health and safety culture and 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 health and safety culture because, when there is one, it has a direct influence on worker behaviour.

Negative Culture

In an organisation with a negative health and 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 an interference. 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, such as short-term profit, 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 because of the influence of peer group pressure (see later). If not, they may well leave because they do not like the organisational culture or feel unsafe in work situations.

In an organisation like this it is easy to see that there will be a lack of proper attention to health and safety, standards will not be understood or worked to, behaviour will be poor and accidents and ill health will occur as a result.

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 (i.e. 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).

Indicators of Health and Safety Culture

There are many indicators of an organisation's health and safety culture that will show if it is strong and positive, or negative. Because health and safety culture is partly defined as how people think and feel (their attitudes, their beliefs and their priorities) and these are intangible concepts and difficult to measure. So, rather than trying to assess the health and safety culture directly, it is often easier 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 health and 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 health and 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. An accident rate that is higher than the national average might be seen as an indicator of a negative health and safety culture.

Looking at the quality of investigations that follow accidents and the effort that is put into preventing a recurrence is another way of using accidents as an indicator of health and safety culture. In an organisation:

- With a positive health and 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 health and safety culture, superficial accident investigations are carried out, reports are of poor quality, and follow-up action is either not taken, or is ineffective (and may focus on blaming the worker rather than identifying why it happened).

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 health and safety culture.

Absenteeism

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, as we noted above. 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, may be linked to poor health and safety culture.

DEFINITION

MORALE

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

Staff Turnover

An organisation with a positive health and 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 health and safety culture, while high staff turnover may indicate the opposite.

Compliance with Safety Rules

In an organisation with a positive health and 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 health and safety culture has influenced workers' behaviour in a positive way.

Where there is a negative health and 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 health and 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 health and 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 called '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 new workers to behave unsafely in an attempt to fit in with group norms. Even though new 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.

One way to deal with the negative impact of peer group pressure is to tackle the influential people within the group, the ones responsible for establishing group norms of behaviour. If their behaviour can be changed then everyone else's will likely 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 health and 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

1. Define health and safety culture.
2. How do a worker's peers exert influence over their behaviour?

(Suggested Answers are at the end.)

Improving Health and Safety Culture

IN THIS SECTION...

- The health and 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.
- Noticeboards, 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 standards rigorously. This is done by establishing the organisation's health and safety policy with clear aims and objectives to be achieved.

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 health and safety culture.

Visible leadership 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 (see Element 4).
- Promoting changes to improve health and safety.
- Enforcing the company safety rules.

On the last point, managers must be able to recognise and enforce the correct safety standards. They must be able to praise and reward good behaviour and they must be able to challenge and correct poor safety-related behaviour. Workers must not be allowed to carry out their work unsafely without being challenged. If this is allowed to persist, management will quickly lose the ability to challenge any unsafe behaviour and will be unable to enforce discipline. This means that sometimes workers have to be taken into formal disciplinary procedures for failure to comply with safety requirements. In some cases their behaviour may be so bad that this results in dismissal for gross misconduct.

Importantly managers must not over-use disciplinary action against workers for health and safety failings. Simplistic over-reliance on disciplinary action can create a blame-culture where workers and managers become fearful of reporting near misses and other incidents or raising problems and concerns. A strong blame culture is incompatible with a positive health and safety culture. This is not to say that managers should never use disciplinary action for health and safety failure. A balance must be struck and appropriate disciplinary action should be used where it is just and fair to do so.

Competent Workers

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 health and 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.

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

Verbal communication uses 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 limitations associated with this method. If verbal communication is to be used to convey safety-critical information to workers, these limitations must be overcome.

Benefits	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

Written communication uses the written word (e.g. report, memo, e-mail, notice, company handbook, policy document, operating instructions, risk assessment, minutes of meetings).

Benefits	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

Graphic communication uses 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 a photo showing a guard being used correctly in the operating instructions for the machine).

Benefits	Limitations
• May be 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.

Broadcasting Methods

There are various ways of broadcasting health and safety information using the three methods outlined 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:

- **Noticeboards** – 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 health and safety culture.

Benefits	Limitations
• Often graphic and therefore avoid language barriers. • Can be eye-catching and generate interest. • Low cost. • Can reinforce key messages.	• Can quickly become part of the surroundings. • May be defaced. • Can trivialise important issues. • 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 that they have properly understood it.

Co-operation and Consultation

A positive health and safety culture can only be created in an organisation with effective 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 their 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 their workers and changes their 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 their employees on health and safety matters.

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 advisers 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 paid time off 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/forum 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

Training

Health and safety training can be defined as the planned, formal process of acquiring and practising knowledge and skills in a relatively safe environment.

Training is central to the effective 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 any 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.
- 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.
- Who to contact with any issues.

Training Opportunities

Various circumstances require the provision of training:

- **New worker** – induction training takes place when workers join an organisation. This allows the worker to learn 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, such as emergency procedures, 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.
- Personal protective equipment 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 1990s 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 create a need to train workers on the implications of the new legislation, perhaps because working practices have to change or simply to ensure 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

3. What are the main benefits and limitations of both written and verbal forms of communication?
4. Giving an example, state why graphic symbols (such as pictograms) are used to communicate safety information.
5. How can workers be involved in the improvement of workplace health and safety?
6. What should be the first priority in induction training?
7. Apart from at induction, when should training be provided?

(Suggested Answers are at the end.)

Human Factors which Influence Safety-Related Behaviour

IN THIS SECTION...

- Individual worker behaviour is of critical importance to effective health and safety management. One worker may behave in an ideal manner, but another may not, and their unsafe behaviour may endanger themselves and others.
- Three significant factors influence an individual worker's safety-related behaviour:
  - **Organisational factors** – the characteristics of the organisation that they are working for.
  - **Job factors** – the task that they are carrying out.
  - **Individual factors** – their personal characteristics.
- Taken together these three groups of characteristics work together to influence a worker's personal behaviour. They nudge a worker to behave safely or unsafely depending on exactly how the factors are interacting at a particular time.

Organisational, Job and Individual Factors

An 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:

Factors which influence behaviour

- 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.

Consider these questions:

- Why is it that a worker might behave poorly when working for one organisation, but then behave in an entirely different manner when they leave and start to work for another company?
- 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.

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:

- **The health and 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 provision of adequate time, money, equipment and personnel to manage and carry out work safely.
- **Work patterns** such as shift systems, working at night or working extended hours. This can adversely affect workers' health and cause fatigue, that in turn can lead to poor performance 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 engaged and 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 the worker's specific job or task that influence their safety-related behaviour, such as:

- **The task** – the characteristics of the work itself, in particular the *ergonomic* requirements (see definition below). 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 interaction between the worker and their work task, work equipment and work environment so as to achieve the best match.

One of the principles of good ergonomic design is to adapt the task, equipment and environment to suit the needs of the individual worker.

In the context of health and safety management ergonomics is concerned with reducing the stress and strain put on the worker during work, so as to avoid injuries and ill health (e.g. upper limb disorders caused by repetitive handling activities) and minimise the potential for human error.

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. Competence, skills, personality, attitude 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 while 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 underpin a person's character, such as risk-taking or risk aversion, introversion or extroversion, etc. Attitude to health and safety can be influenced, skills can be increased and competence developed, but a person's personality remains largely fixed – it's who they 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 usually 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.

Risk Perception

Different people perceive risk in different ways. Some people are very good at correctly recognising the real risk associated with work. Others are very poor at this and either perceive risks that are not real or are trivial (making them unnecessarily risk averse) or they do not recognise the real risks present (which means that they may expose themselves or others to those real risks).

Various factors that can distort a person's perception of hazard and risk, such as:

- They are suffering from an illness (e.g. 'flu) and so they are not processing information very well.
- They are under stress and so other issues may be dominating their thinking.
- They may be fatigued and so not alert or capable of responding quickly to circumstances.
- They may be under the influence of drugs or alcohol.
- They have past personal experiences that is skewing their thinking.
- They may not have received good quality training and education on the hazards and risk of the job.
- They may be required to wear PPE that is interfering with their ability to detect the hazards creating the risk.
- Workplace conditions, such as high levels of noise, may be interfering with their ability to correctly identify the hazard that creates the risk.

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

and in the guidance HSG48: *Reducing error and influencing behaviour* available from the HSE website:

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

STUDY QUESTIONS

8. Identify the three factors that impact on a worker's health and safety-related behaviour.
9. Outline four key job factors that can impact on safety-related behaviour.
10. Why might workers not correctly perceive risk at work?

(Suggested Answers are at the end.)

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 profiling is the process used, at a strategic level, to recognise the range of risks that threaten an organisation along with the likelihood and probably impacts of those risks. Risk profiling takes into consideration the risk management controls that are already in place so that their effectiveness can be assessed and further risk management controls identified and prioritised.
- Risk assessment is the formalised process of identifying hazards (associated with work activities and locations), 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 numerically 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 to either eliminate hazards or reduce risk to an acceptable level. The risk that remains after control measures have been introduced is called residual risk.
- Risk controls can be selected on the basis of the **general hierarchy of control**:
    - elimination;
    - substitution;
    - engineering controls;
    - administrative controls; and
    - personal protective equipment.
- Administrative controls include safe systems of work, permits to work and the provision of information, instruction, training and supervision.
- Safety signs are used to convey information and are categorised into five main types, all with a standard shape, colour and meaning. Pictograms should be used, not text alone.
- The employer must supply suitable personal protective equipment when necessary and must ensure that it is used.

- 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.

Introduction to Key Words and Phrases

Hazard

This part of the course is about risk management. Before looking at the processes and ideas involved it is important to be clear about the meaning of some of the words and phrases used.

DEFINITION

HAZARD

Something with the potential to cause harm.

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).
- **Chemical** – things which cause harm because of their chemical characteristics (e.g. lead, mercury, sulphuric acid, silica, cement dust).
- **Biological** – living micro-organisms that cause disease and ill health (e.g. hepatitis B virus (HBV), *Legionella* bacteria (responsible for Legionnaires' disease), rabies virus).
- **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)).

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 Profiling

DEFINITION

RISK PROFILING

The process used, at a strategic level, to recognise the range of risks that threaten an organisation along with the likelihood and probably impacts of those risks. Risk profiling takes into consideration the risk management controls that are already in place so that their effectiveness can be assessed and further risk management controls identified and prioritised.

The outcome of risk profiling will be that the right risks have been identified and prioritised for action, the right control measures have been identified and implemented and minor risks have not been given a disproportionate priority.

Risk Assessment

DEFINITION

RISK ASSESSMENT

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. People who are not very good at this process tend to have accidents.

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.

Risk Profiling

The risk profile of an organisation refer to the range of risks that threaten the organisation along with some recognition of the likelihood and probably impacts should those risks occur. The risk profile takes into consideration the risk management controls that are in place so that their effectiveness can be assessed and further risk management controls identified and prioritised.

Different types of work carry different types of risk

Each organisation will have its own risk profile. For example, a small metalworking company may undertake various types of welding work and therefore the risk associated with welding (such as fire and welding fume exposure) will be relevant. A healthcare provider is unlikely to undertake welding so these risks will not be relevant. Instead there may be significant risks associated with home visits and lone working (such as work-related violence).

The risk profile of an organisation informs all aspects of its approach to leading and managing health and safety. It is the starting point for determining the significant health and safety issues for the organisation.

A risk profile examines the:

- Nature and level of the threats faced by the organisation.
- Likelihood of those adverse effects occurring.
- Level of disruption and costs associated with each type of risk.
- Effectiveness of controls in place to manage those risks.

The outcome of risk profiling will be that the right risks have been identified and prioritised for action, the right control measures have been identified and implemented and minor risks have not been given a disproportionate priority.

Because the risk profile of an organisation informs every aspect of its approach to health and safety management it is important that it is carried out at a strategic level within the organisation, for example, at board level. It should, therefore, involve input from directors and senior managers as well as competent health and safety practitioners (who might need to be brought in as external advisers).

The Risk Profiling Process

At heart, the process of risk profiling is quite straightforward. It involves identifying health and safety threats to the organisation and then prioritising those threats on the basis of their likely impacts and their probability of occurrence. This process will be briefly described here.

- **Identify the health and safety threats faced by the organisation**

  A range of health and safety risks threaten all organisations. These risks are created by the nature of the work that the organisation does. They will include things such as work at height, vehicle movements, lifting operations, manual handling, noise, ionising radiation and work-related violence. Many of these threats are discussed in more detail in Elements 5 to 11 of this course. Some organisations will have just a few of these. Others will have all of the main health and safety risk covered and will have a range of special risks that are particular to their type of work (such as animal handling or genetically modified organisms).

- **Identify the health and safety impacts and the business impacts that might result**

  Each threat identified will have a likely health and safety impact should it occur. For example, if an unprotected worker falls from height it is likely to result in a fatality. If workers are engaged in significant manual handling they might be injured but this will most likely result in lost time that might be reportable as an over-seven-day injury. These two impacts are clearly of a different scale.

  Each threat will also have a likely business impact. This looks beyond the physical and health effect to look at the impact on the organisation as a whole. For example, a work-related fatality will involve an investigation by the authorities, massive business disrupting as a direct consequence, the potential for very damaging publicity and a catastrophic drop in worker morale. These impacts can go on for weeks, months and sometimes years resulting in enormous direct and indirect financial damage to the organisations revenues.

- **Identify how well each threat is currently controlled**

  The reality is that many organisations will already have a lot of control measures in place to minimise the likelihood of these threats and reduce their impacts should they occur. These control measures must be considered during the risk profiling process to ensure that well controlled threats are not given disproportionate attention.

- **Identify the likelihood of each threat occurring**

  One way to identify the likelihood of each threat occurring is to think about the timescale over which that threat might happen, given the control measures in place. For example, in an organisation that does a lot of work at height, but where the control measures are very well implemented, the likely timescale over which a fall from height might happen could be between one and five years. In another organisation that does a lot of manual handling, that is not well controlled, the likely timescale for a manual handling injury might be within days or weeks.

- **Identify the priority of each threat**

  The last step of the process is to prioritise the identified threats. This involves ordering them in terms of importance based on all of the information that has been described above. The intention is to recognise the threats that will have the most significant impacts, but that are not currently well controlled, so that they receive the time and attention that they deserve. While ensuring that threats that will have little impact, or that are already well controlled, do not receive disproportionate attention.

In the context of health and safety management, risk profiling is concerned with health and safety risks (such as death or serious injury from machinery operation). However, in the context of *business* risk management, risk profiling will be concerned with all of the risks that threaten the assets and revenues of an organisation. Some of these business risks will be health and safety related (such as personal injury and fire) but many will not be (such as product recall, contraction of national economy and competition in the marketplace).

The Purpose of Risk Assessment

Risk assessment if often a legal requirement. For example, in Britain and the EU, there is a statutory duty on employers to carry out and record general risk assessments for all work activities.

Specific health and safety law often requires that some sort of specific risk assessment is carried out. These specific risk assessments focus solely on one type or category of hazard covered by the legislation. For example, in Britain the **Control of Substances Hazardous to Health (COSHH) Regulations** require an assessment of the risk to health of exposure to hazardous substances.

Other GB examples include:

- fire risk assessment required under the **Regulatory Reform (Fire Safety) Order 2005**;
- noise assessments required by the **Control of Noise at Work Regulations 2005**; and
- Display Screen Equipment (DSE) workstation assessment required by the **Health and Safety (DSE) Regulations 1992**.

In each case, a topic-specific risk assessment is required because of the technical nature of the hazards and the need to focus exclusively on that one hazard type in order to ensure that the risks are adequately managed.

In contrast, the risk assessment method outlined here is not hazard- or topic-specific and so can be referred to as a general 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 financial arguments we discussed in Element 1.

The main objective of risk assessment is the prevention of accidents

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.

TOPIC FOCUS

A **suitable and sufficient** risk assessment should:

- Identify the significant risks arising out of work, i.e. those that are most likely to occur and result in harm being caused, with any remaining risks being at an acceptable 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 any current controls.
- 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 remain valid for a reasonable period of time. In other words, the assessment should be proportionate to the risks in the workplace.

To expand on this last point; 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 5-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 – Identify the Hazards

The first step in the risk assessment process is to identify all the significant hazards associated with the work.

As discussed earlier, 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, and the **health hazards** that might cause disease or ill health.

- **Safety Hazards**

  There are many hazards that are capable of causing immediate physical injury:

  - Work at height.
  - Stacked materials.
  - Moving vehicles.

- Manual handling operations.
- Moving parts of machinery.
- Electricity.
- Toxic or corrosive chemicals.
- Deep water.
- A naked flame, e.g. lit propane torch.
- Animals such as dogs.
- Violent people.

- **Health Hazards**

  Some hazards can cause occupational disease or ill-health conditions. This can follow a single event (such as a needlestick injury infecting a worker with the hepatitis virus), but more often occurs as a result of prolonged exposure to the hazard over a period of weeks, months or years. These health hazards can be categorised into five groups:

  - Physical, e.g. radiation, vibration, noise, extremes of temperature, etc.
  - Chemical, e.g. lead, mercury, sulphuric acid, silica, cement dust, etc.
  - Biological, e.g. HBV, *Legionella* bacteria (responsible for Legionnaires' disease), rabies virus, etc.
  - Ergonomic, e.g. very repetitive movement, stooping, twisting, manual handling, etc.
  - Psychological, e.g. stress and trauma.

Exposure to excessively loud noise can have a range of effects

Information Sources

Health and safety can be surprisingly complex. There is a wealth of information available which may need to be consulted during the risk assessment process. This information comes from two principal sources: those internal and those external to the organisation.

Internal Information Sources

Internal information sources give an insight into the nature of a health and safety issue at a local, organisational level. Internal sources include:

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

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

External Information Sources

External information sources are useful not only because they give an insight into standards, but also because of the 'bigger picture' that can be gained. External sources include:

- National legislation (e.g. regulations).
- Approved codes of practice and guidance notes published by the HSE and other authorities (such as fire authorities).
- Standards published by the British Standards Institution (BSI) or European and international authorities such as the International Organization for Standardization (ISO).
- Manufacturers' information such as operating instructions for plant and machinery, and material safety data sheets from chemical suppliers.
- Trade associations, such as the Chemical Industries Association (CIA).
- Safety journals and magazines.
- International bodies and agencies, such as the European Union (EU) and International Labour Organization (ILO) which set international law.
- Trade unions for a particular industry or sector (e.g. fire brigade union).
- Charities or not-for-profit organisations that have an interest in a particular type of workplace or work activity (e.g. Suzy Lamplugh Trust) and lone working.

For example, a small organisation may not fully appreciate the hazards and risks inherent in a work activity, such as work at height, because that activity has been carried out by the organisation without incident over many years. However, reference to the national statistics relating to work at height may change the perspective of the organisation by revealing the full extent of the frequency and severity of injury on a national scale.

Hazard Identification Methods

There are various methods that can be used in hazard identification, such as task analysis, reference to legal guidance, manufacturers' information and incident data.

- **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.

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There is a useful abbreviation 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 safety data sheet, 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.

Remember that a risk assessment is a tool for identifying *all of 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. So, 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, use of DSE, fire and poor housekeeping – 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. The first assessment takes the electrical hazard into account, the second ignores it and therefore fails.

Step 2 – Identify 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 worker 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 – Evaluate the Risk and Decide 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.

Likelihood, Severity and Risk Rating

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

While some hazards create risk to safety, i.e. immediate physical injury, many hazards create risks to health. For example, many chemicals create health risks. These health risks may be **acute** or **chronic** in nature.

- **Acute** health effects are short-term effects often experienced immediately after exposure to the hazard. For example, exposure to high levels of carbon monoxide gas will cause immediate unconsciousness followed by death within a few minutes.
- **Chronic** health effects are long-term effects. These often occur as a result of routine exposure to the hazard. For example, noise-induced hearing loss can occur as a result of frequent exposure to excessively loud noise over months or years.

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 number score to each word it is possible to calculate a numerical risk rating for a particular hazard. For example:

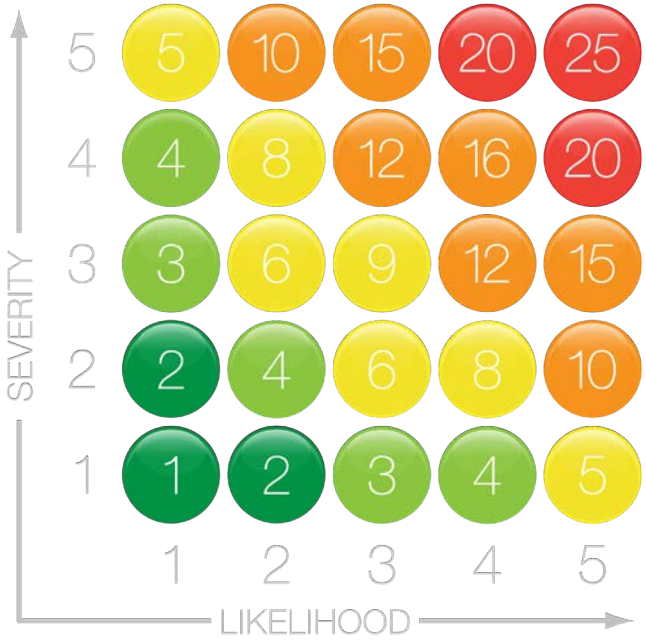
Likelihood	Severity
1 = extremely unlikely	1 = very minor injury
2 = unlikely	2 = first-aid injury
3 = possible	3 = lost-time injury
4 = likely	4 = hospital treatment
5 = very probable	5 = disabling injury

Using this scoring system, the numerical risk rating generated by a trailing electrical cord positioned across a busy corridor might be calculated as 5 × 4 = 20 (very probable × 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 × 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 a care home for the elderly 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 calculate the risk. 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 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 numerical risk rating system such as the example shown 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 risk control (based on ISO 45001 and ILO-OSH 2001):

1. Elimination.
2. Substitution.
3. Engineering controls.
4. Administrative controls.
5. PPE.

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.

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.

Each step of the hierarchy is outlined in the following section.

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 pre-fabricated 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 that 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, or guards around moving machinery to prevent contact).
- **Separation or segregation** – simply placing the hazard in an inaccessible location. An example would be overhead cables 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 system of work** – this is a formal procedure which defines a method of working that eliminates hazards or minimises the risks associated with them. Safe systems of work are necessary whenever hazards cannot be physically eliminated and some element of risk remains. This applies to any task involving significant risk. So, there is 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 (described later) as a part of the safe system of work.
- **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 lower 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:
  - The concentration, intensity or magnitude of the hazard present.
  - The 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 of the cases where harm is dose-related, limiting the time of exposure is an important control measure that can be practically used in the workplace.
- **Information, instruction, training and supervision** – 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 preventive measures.

  One way that an employer might provide basic health and safety information is through the use of safety signs (see below).
- **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

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-Fighting 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 not) and therefore safety signs must be included in induction or job-specific training.

Personal Protective Equipment (PPE)

DEFINITION

PERSONAL PROTECTIVE EQUIPMENT

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 substances hazardous by inhalation (breathing in).
- Eye protection against splashes of chemicals and molten metals, mists, sprays and dusts, projectiles and radiation including laser lights.

TOPIC FOCUS

Under GB'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 benefits and limitations of PPE are summarised in the table below:

Benefits	Limitations
• It can be used as an interim control while 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

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.

Why a Hierarchy?

The controls options explained above are set out as a **hierarchy**: eliminating the hazard is the most preferred option and PPE the least preferred. 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.

Use of Guidance and Legal Standards

The numerical risk rating system (Risk = Likelihood × Severity) 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 is called 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 is easy to do* 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 – Record Significant Findings and Implement

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 – Review and Update

A risk assessment must be reviewed and amended as necessary if there is reason to suspect that it is no longer valid or if there has been a significant change.

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.

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 new mothers (while breastfeeding, or for the first six months after giving birth) 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. Consequently, new and expectant mothers are often picked out by local law which requires that they be given special consideration through the risk assessment process.

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

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

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.

The precautions that might be adopted to safeguard lone workers are covered in more detail in Element 5.

STUDY QUESTIONS

11. Why is the distinction between hazards and risks so important to health and safety management?
12. What is the purpose of risk assessment?
13. What techniques are used for identifying hazards?
14. Identify two internal and two external sources of information about health and safety.
15. What are the five categories of health hazard?
16. What are the five steps involved in risk assessment?
17. Apart from office workers, what particular people or groups might require special consideration during a risk assessment in an office environment?
18. What two factors are used to estimate risk?
19. What is residual risk?
20. What is the general hierarchy of control?
21. What conditions might trigger a risk assessment review?
22. What type of sign is represented by the following pictograms?

(a)  (b)  (c)  (d) 

23. When should PPE be used?

(Suggested Answers are at the end.)

The Management of Change

IN THIS SECTION...

- Various changes can have an impact on health and safety at work. This includes temporary works such as short-term building projects and changes to work process, equipment and procedures.
- The control measures for the management of change include risk assessment; effective communication and co-operation between those undertaking the work and those who might be affected; appointment of competent people to manage and undertake the work; effective segregation of work areas; amendment to emergency procedures where necessary and appropriate welfare provision for the workers.

The Impact of Change

Workplaces experience change routinely. Changes may be due to construction work (often referred to as temporary works), change of process, change of equipment or change of working practices.

Temporary works include short-term building projects, building maintenance, renovation, demolition and excavation works. Temporary works can be very minor, short-duration work, such as painting and decorating a small office, repair of damage to coping stones on top of a brick wall or excavation of a shallow trench to give access to buried telephone wires. They can also include major construction projects, such as the construction of a large extension to a distribution depot, demolition of a derelict building on factory premises or major refurbishment works to both the exterior and interior of a 100-year-old civic building.

The hazards of temporary works can present a risk to the workers and others affected by the temporary works. These workers may be contractors working for an external employer engaged to undertake the work (such as a building company engaged by a client to undertake construction work). They may be in-house employees (such as the employer's own in-house building maintenance team). The workers may be a mixture of in-house employees working alongside external contractors.

Even minor temporary work presents risk

Very importantly, the hazards of temporary works can also present risk to others who are working in the workplace when the work is underway and those who might be visiting or passing through or by the work area.

For example, external lamp cleaning and maintenance work undertaken by external contractors at a leisure centre run by a local council could potentially present risk to:

- The workers themselves.
- Leisure centre staff.
- Leisure centre customers (including children, the elderly and the disabled).
- Members of the public passing by outside the site.

The establishment of a temporary work site within an existing workplace can disrupt the 'usual' control measures that will already exist within that workplace. Again, the disruption caused will depend very much on the nature of the existing workplace and the nature of the temporary works. Examples would include:

- Disruption to the one-way system of an on-site vehicle traffic route caused by emergency drain repair works to part of the traffic route.

- Isolation of part of an automatic fire detection system because of hot works in one part of a multi-storey building.
- Closure of a fire escape route because of refurbishment works to the corridor and stairway that forms a part of the escape route.

Managing the Impact of Change

Risk Assessment

The temporary works or other change and its impact on the existing workplace must be fully risk assessed. This assessment must include consideration of the hazards associated with the work and those created by the impact of the work on the existing workplace. Proper consideration must be given to all of the people who might be affected by the hazards with special consideration given to vulnerable groups such as children, the elderly, the disabled, etc.

It is the employer's duty to carry out a suitable and sufficient risk assessment for the work activity. This duty would therefore fall to any contractor engaged in the work activity but would also fall to any employer occupying a workplace where the work was taking place. The risk assessment requirement is, in effect, a shared duty.

Communication and Co-operation

Effective communication and co-operation between the various parties undertaking the work and all those affected by the work is essential. This must be achieved by proper planning of the temporary works or change. Information on the hazards and risks present in the existing workplace and created by the temporary works must be exchanged. In this way, the employer in control of the existing workplace can anticipate foreseeable risks to their employees created by the works.

This communication and co-operation is best achieved by pre-work planning meetings of all of the parties involved. Such meetings are best conducted at the works site in order to anticipate site-specific issues.

Appointment of Competent People

All of the people involved in temporary works or change must be competent. This includes not only the workers involved in the work itself, but also those involved in the management of the work. 'Competent' means sufficient training, skills, experience and knowledge (and perhaps other abilities such as attitude and physical ability) to be able to carry out their work safely.

Segregation

The area where the temporary works or change is to take place must be effectively segregated from the existing workplace. This should be accomplished by use of physical barriers and signage. Access points to the work site must be controlled to prevent unauthorised access. Signage may need to be used at these access points to indicate additional rules that may apply within the work area (such as use of PPE).

Segregation is necessary to prevent unauthorised people getting into the areas where the temporary works are taking place. This might include employees of the workplace where the work is taking place, customers and members of the public who want to pass through the work area. Segregation is also necessary to protect the worker engaging in the work from other routine work activities taking place in their vicinity, such as workplace vehicle movements.

Emergency Procedures

Consideration must be given to the emergency procedures that may have to be established because of the nature of the temporary works or change. For example, work involving the use of cherry pickers (mobile elevating work platform) may require the development of an emergency procedure in case a worker should become stranded in the cradle of the machine. Inevitably, some emergency procedures will involve the existing workplace where the work is taking place. For example, procedures for dealing with a chemical release might have to be adopted if a hazardous chemical were used as a part of the work.

Consideration must also be given to existing emergency procedures that have to be modified as a consequence of the impact of the temporary works. For example:

- Alternative fire detection and alarm procedures that are put in place because of the temporary isolation of part of an automatic fire detection and alarm system during hot works.
- Alternative emergency escape routes that have to be designated because of the closure of an existing escape route. This may require the use of temporary signage and emergency lighting.

Welfare Provision

Adequate welfare provision must be made for the workers engaged in the temporary works or change. This will include issues such as access to:

- Drinking water.
- Changing rooms.
- Storage for clothing.
- Sanitary conveniences.
- Washing facilities.
- Rest and eating facilities.

Review

It is important that as the planned changes are introduced and implemented, there is a regular review process to ensure that health and safety risks are controlled. This review should involve all of the relevant stakeholders and forms an inherent part of the communication and co-operation process outlined above. It will also involve review and perhaps update of the relevant risk assessments.

A review should also take place on completion of the changes. This can be useful for two main reasons:

- to address problems and opportunities presented by the change that has been made, and
- to highlight learning opportunities for the change management process so that future changes can be carried out in a more effective way.

STUDY QUESTION

24. Identify five management controls that should be considered for the control of risks created by temporary works.

(Suggested Answer is at the end.)

Safe Systems of Work

IN THIS SECTION...

- 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.
- It is the responsibility of the employer to develop SSWs with the involvement of both competent persons and employees who will be carrying out the work. These safe systems must be documented.
- SSWs 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.

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 SSW:

- 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 necessary precautions 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 **people**, **equipment**, **materials** and the **environment** 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 environmental issues increase risk or need to be controlled?

It is the responsibility of the employer to ensure that SSWs 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.

SSWs 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 SSWs. 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 health and safety culture.

Written Procedures

Documenting SSWs 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.

Checklists can be a useful part of a SSW

SSWs 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 SSWs 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 SSW will involve all the elements of control that we identified earlier in the general hierarchy of controls:

- **Technical 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).

As we noted earlier in the section on risk assessment, technical controls are preferable to procedural ones, which, in turn, are preferable to behavioural ones. This is because behavioural controls have a very heavy reliance on personal behaviour whereas technical controls do not require people to do the right thing in the right circumstances all of the time.

Developing a Safe System of Work

As a part of the planning process, SSWs 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 abbreviation **SREDIM** represents? We explained it earlier on when we discussed hazard identification and task analysis.

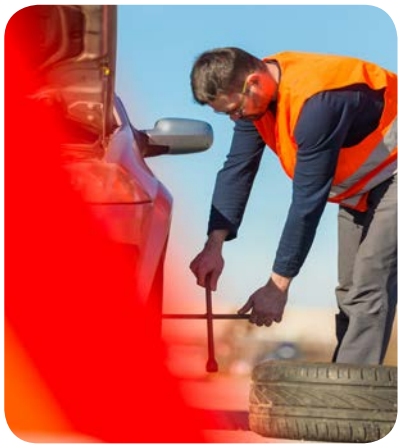
- **S**elect the task to be analysed.
- **R**ecord the steps or stages of the task.
- **E**valuate the risks associated with each step.
- **D**evelop the safe working method.
- **I**mplement the safe working method.
- **M**onitor to ensure it is effective.

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. Essentially this is the risk assessment process applied during the planning stage of a job.



There may be many risks involved with each step of a task

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 new 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 SSW:

- 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?

STUDY QUESTIONS

25. Define the phrase 'safe system of work'.
26. How does involving workers in the development of SSWs contribute to strengthening the health and safety culture?
27. What is the difference between technical, procedural and behavioural controls?
28. 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

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.

Work at height

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 PTW system is a management system that is supported by, and makes use of, permits, which are paper documents (or electronic documents).

PTWs 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.

(Continued)

TOPIC FOCUS

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 often triplicate-copy documents with a unique identification number for cross-reference purposes.

The operation of a permit often follows a sequence as indicated by the sections of a PTW 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 Uses of Permit Systems

Hot Work

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

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.

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

- 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.

Fire safety is covered as a topic later in the course in Element 10.

Work on Electrical Systems

Work on non-live electrical systems is often subject to permit-to-work control in order to ensure that the electrical system has been correctly de-energised and securely isolated. The high risk associated with working on, or near, live electrical systems means that this type of work is also usually subject to permit control. In particular, permits are usually required for any form of work (live or non-live) on, or near, high-voltage systems (e.g. >1000 V AC).

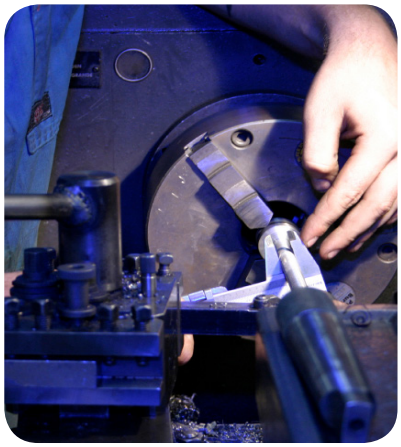
A permit system is used to ensure that:

- 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.

Electrical safety is covered as a topic later in the course in Element 11.

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.

Working with machinery is covered as a topic later in the course in Element 9.

Confined Spaces

Entry into confined spaces can be extremely hazardous, so should almost 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 SSW, which identifies all the necessary precautions for entry and the emergency arrangements that must be put in place.

Confined space entry is covered as a topic later in the course in Element 8.

Work at Height

Some work at height may be controlled under a permit to work. This could detail the area where work is permitted, the method of access (ladder, stairs, etc.), safe access routes and fall prevention and fall arrest precautions to be taken.

Work at height is covered as a topic later in the course in Element 8.

STUDY QUESTIONS

29. What is a permit to work?

30. What are the four key sections of a typical permit?

(Suggested Answers are at the end.)

Emergency Procedures and First Aid

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.
- 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.

The Need for 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 emergency response that makes things worse, rather than better.

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:


Clean up after oil spill

- **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. landline 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.

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 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).

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 essential 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.

HSE guidance also states that the employer may decide to make provision for mental ill health by training some workers to allow them to identify and provide support to someone suffering mental ill health (sometimes referred to as 'mental health first aid').

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 gentle 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

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

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

STUDY QUESTIONS

31. What is the main objective of an emergency procedure?
32. Name three typical emergencies that may require the development of emergency procedures.
33. What factors might need to be considered when determining the first-aid facilities for a workplace?

(Suggested Answers are 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:

- Defined health and safety culture (as the shared attitudes, values, beliefs and behaviours relating to health and safety) and made a link between health and safety culture and health and safety performance.
- Outlined how health and safety culture might be assessed by looking at indicators such as accidents, ill health, compliance and complaints.
- Looked in detail at some of the issues that must be dealt with in order to improve health and 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).
- Discussed the three human factors that influence a worker's behaviour: individual, job and organisational factors.
- 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.
- Noted several of the internal and external sources of health and safety information that are available.
- Explained the general hierarchy of preventive and protective measures, which rely on the correct selection of technical, procedural and behavioural controls.
- 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.

Summary

- 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

Scenario

You have been appointed as the competent person to assist managers in undertaking their duties under health and safety legislation. A newly appointed manager has advised you that the risk assessments in the Sales Department are poor and some are several years old. You schedule a meeting with the manager to review the risk assessments and discuss the manager's concerns.

Task: Assessing Risk

You plan to review your training course notes on risk assessments and prepare some notes for your meeting. You think it's worthwhile having notes on what risk is, the key stages to a risk assessment and reasons why a risk assessment should be reviewed.

Prepare the notes you will take into the meeting. **(10 marks)**

Approaching Question 1

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

- **Step 1** – the first step is to read the scenario carefully. Note that this is a newly appointed manager and you are preparing notes for the meeting. The discussion you have with the new manager should be easy to understand – examples help with the process of understanding. Even though they have not been mentioned in either the task or the scenario, your analytical approach guides you to use examples.
- **Step 2** – now look at the task – prepare notes (and examples) on:
  - What risk is, with an example.
  - The key stages in a risk assessment (link these to the scenario where you can).
  - Reasons why a risk assessment should be reviewed.
- **Step 3** – next, consider the marks available. In this task, there are 10 marks so it is expected that around 11 or 12 different pieces of information should be provided. The task does not split the available marks – you will need to consider how the marks will be applied. If you give 8 reasons for reviewing a risk assessment, they are unlikely to gain 8 marks – that would only leave 2 marks for the rest of the information and there are at least 5 key stages to the risk assessment you will want to cover.
- **Step 4** – read the scenario and task again to make sure you understand them and have a clear understanding of risk, risk assessment and the review process. (Re-read your study text if you need to.)
- **Step 5** – the next stage is to develop a plan – there are various ways to do this. Remind yourself, first of all, that you need to be thinking about 'risk'. It might help you to think of a risk assessment you have seen or done, and the stages you or someone else went through. Remember you are creating notes, not a bullet-pointed list; however, the answer plan can be a bullet-pointed list that you use to develop into notes for your meeting.

Suggested Answer Outline

Risk:

- Severity × Likelihood = Risk.
- Driving a car/van as an example.

Risk assessment:

- Identify hazards.
- Who might be harmed and how.
- Evaluate the risk.
- Record.
- Review.

Reasons for review:

- Significant changes relating to process, substances, equipment, workplace environment, personnel.
- Suspect the assessment is not valid due to accidents, ill health, change in legislation.

Now have a go at the question yourself.

Example of How the Question Could be Answered

Risk is the likelihood that an unwanted event will occur, together with the severity of its consequences in terms of injury or damage. When driving a delivery van, there is a likelihood that you may be involved in a road-traffic accident with other vehicles. The risk associated with driving is therefore a combination of the likelihood of injury and the potential consequences.

The key stages in a workplace risk assessment are to:

1. Identify the hazards; these are the things with the potential to cause harm. They can be classified as physical, chemical, biological, ergonomic and psychological.
2. Identify who may be harmed and how; consider vulnerable workers, those with medical conditions that make some hazards particularly harmful. An example would be someone who experiences breathing difficulties being exposed to fumes in the warehouse despatch area.
3. Evaluate the risk and decide on precautions. Risk is a combination of likelihood and severity. When considering precautions the principles of prevention should be used and applied through a hierarchy of control measures to reduce the likelihood or severity of harm..
4. Record the significant findings and implement them. It's important for managers to make sure identified controls are implemented in a timely manner.
5. Review and revise as necessary. The risk assessment must be reviewed if there's a reason to think it's no longer valid. Risk assessments that are several years old should cause concern. It's highly likely that something has changed in an extended time period. The manager is right to be concerned.

Reasons for reviewing a risk assessment:

If there has been a significant change in the way orders are packed and despatched or the vehicles the sales team drive then risk assessments should be reviewed. With a new manager in the area a review is also recommended. If there have been any accidents, these may indicate that a hazard has been missed or that a control measure is ineffective – this would trigger a review.

Reasons for Poor Marks Achieved by Exam Candidates

- Getting confused over the key stages in a risk assessment process.
- Not mentioning severity or consequences when defining risk, leading to quite a protracted definition.
- Defining hazard rather than risk – you must fit your notes (answer) to the task set.
- Not considering the scenario – in this case a new manager – so overly complex explanations or highly detailed examples may not attract marks.
- Exceeding the overall word count for the whole exam by more than 10%. The examiner may not read excessively long explanations.

Question 2

Scenario

Following your meeting with the Sales Department Manager and concerns about 'out-of-date' risk assessments, you decide to check if some of the control measures identified in those risk assessments have been put into practice. One of the control measures identified was 'emergency procedures are practised regularly'. This action was assigned to the Facilities Manager. However, there is no evidence to suggest emergency situations have been practised. None of the workers you have spoken to can remember the last time they did a 'fire drill'. You decide to send an e-mail to the Facilities Manager giving reasons why workplace emergency procedures should be practised. The Facilities Manager is often accused of being argumentative and difficult to motivate into taking action.

Task: Emergency Procedures

What reasons would you use to encourage emergency procedures to be practised? **(10 marks)**

Approaching Question 2

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

- **Step 1** – the first step is to read the scenario carefully. There is evidence that risk assessments are not suitable and assigned actions for control measures have not been completed. You are going to send an e-mail to the Facilities Manager that needs to be convincing enough to encourage action to be taken. You have been advised that convincing the Facilities Manager to take action may be difficult.
- **Step 2** – now look at the task. You need to provide reasons why emergency procedures should be practised.
- **Step 3** – next, consider the marks available. In this task , there are 10 marks available so it is expected that around 10 or 11 different reasons for practising emergency procedures need to be provided.
- **Step 4** – read the scenario and task again to make sure you understand them and have a clear understanding of why we should practise emergency procedures. (Re-read your study text if you need to.)
- **Step 5** – the next stage is to develop a plan – there are various ways to do this. Remind yourself, first of all, that you need to be thinking about 'reasons to practise emergency procedures'. So, the answer plan will take the form of a bullet-pointed list that you need to develop into your answer.

Suggested Answer Outline

Reasons:

- Legal requirement.
- Internal policy requirement.
- Insurance company requirement.
- Vulnerable persons.
- Reduce likelihood of panic.
- Test communications.
- Identify weaknesses.
- Establish the alarm can be heard.
- Those designated to assist can practise skills.
- Familiarise employees with emergency procedures.
- Management commitment.

Now have a go at the question yourself.

Example of How the Question Could be Answered

Reasons why we must practise emergency procedures include:

1. It is a requirement of Convention C155 to practise certain procedures (e.g. fire drills).
2. An organisation's own policy and procedures may stipulate that emergency procedures must be practised.
3. It's quite likely, because of the nature of business for our organisation, that our insurance company will require emergency procedures to be practised.
4. Practising emergency procedures allows for a speedy and correct response where vulnerable persons are involved. We have a clear duty of care for vulnerable workers, e.g. expectant mothers or lone workers. It would be inexcusable if, through our inaction, harm was caused.
5. It will reduce the likelihood of panic if a real emergency situation arises. It's difficult to predict how people will behave in an emergency. But if workers panic, the likelihood of someone being harmed will increase.
6. Practice may reveal shortfalls in communication, either radio communication or verbal communication. We could simulate one exit being unavailable due to the emergency. We could then observe people's behaviour and change any shortfalls in our procedures.
7. It allows those with special duties to also practise their duties. The organisation has appointed Fire Marshals to assist in the event of an emergency due to fire.
8. It may highlight problems and weaknesses in the emergency response that can then be addressed. We can establish, under safe conditions, that the emergency assembly point is well identified and everyone knows where it is.
9. Practising emergency procedures demonstrates management's commitment. Workers' morale can be improved if they believe the organisation cares for them as people – not just workers.
10. Sounding the alarm in a premises will ascertain that the alarm can be heard in all parts of the premises. It certainly sounds loud enough when you are underneath one of the sounders, but we need to establish it's loud enough when all the equipment is operating also.

Reasons for Poor Marks Achieved by Exam Candidates

- Providing a short answer that only addresses one or two points, probably due to not researching the answer or not paying attention to the amount of marks being awarded. This approach will only achieve low marks.
- Wasting time by giving two reasons (usually legal and familiarising employees), then going on to discuss the duties fire marshals may have. This is far too narrow a view and cannot attract many marks.

Element 4

Health and Safety Monitoring and Measuring

Learning Objectives

Once you've studied this element, you should be able to:

1. Discuss common methods and indicators used to monitor the effectiveness of management systems.
2. Explain why and how incidents should be investigated, recorded and reported.
3. Explain what an audit is and why and how they are used to evaluate a management system.
4. Explain why and how regular reviews of health and safety performance are needed.

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 and tours are three active monitoring methods that can be used to check conformance to standards and that play an important role in ensuring that safety standards are acceptable in the workplace.
- Active monitoring methods are often called leading indicators because they give an indication of the direction of future health and safety performance.
- Various factors must be considered when setting up an active monitoring system, such as:
  - Type of inspection, tour or sampling exercise.
  - Frequency of active monitoring.
  - Responsibilities for carrying it out.
  - Competence and objectivity of the person doing the monitoring.
  - Use of checklists.
  - Action planning for problems found.
- Reactive monitoring is about measuring safety performance by reference to accidents, incidents, ill health and other untoward events that have already occurred.
- Reactive monitoring usually makes use of statistics such as accident rates. These are often called lagging indicators because they give an indication of the direction of past health and safety performance.

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.

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 (some of which we will outline in the following sections). The various active monitoring methods are often called **leading indicators**.

Leading indicators are indicators that show the direction of travel before unwanted events (such as an accident) occur. If leading indicators are moving in a positive direction, then the chance of having accidents is reduced. Conversely, if leading indicators are moving in a negative direction, then the chance of having accidents is increased.

For example, if safety inspections are being correctly carried out and very few issues are being spotted during those inspections (because the workplace is being well managed), then this is a leading indicator that is positive. It indicates that health and safety standards are being met and so there should be a low chance of accidents happening. However, if there is a decline in the number of inspections being carried out, or the inspections being done are not being done properly, or there is an increase in the number of defects found, this is a leading indicator moving in a negative direction. It indicates that health and safety standards are not being met and so there is an increasing chance of accidents happening.

In many workplaces, active monitoring plays a crucial role in checking that the standards that should be met are, in fact, met. It allows management to resolve problems before those problems become critical. It also allows workers to see that checks are being carried out and perhaps get involved in the checking process. Worker and senior management involvement in this helps to reinforce a positive health and safety culture.

Performance Standards

Active monitoring of health and safety requires identification of exactly what to monitor and what level of performance is acceptable, i.e. the performance standard.

Performance standards can be concerned with the physical control of workplace hazards and conditions. For example, there are standards that a scaffold structure should meet (i.e. conform to) with regards the work platform, toe boards and guardrails in order for it to be considered safe (more on this topic later in the course in Element 8). This can then be actively monitored (checked) by carrying out a routine inspection of the scaffold in order to ensure that it meets the standard.

In this way active monitoring is concerned with checking the *physical condition* of the workplace and the way that hazards are being controlled.

But you can also could actively monitor health and safety *management activities* to give a measure of conformance to performance standards. For example:

- 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 of these health and safety 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 sometimes even 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 conformance. The quality of each risk assessment can be judged. In this way, a full picture of conformance can be built up.

HINTS AND TIPS

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

Safety Inspections, Sampling and Tours

There are three slightly different methods of active monitoring that we will cover in the course, 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' implies an examination of the workplace and working conditions so that comparisons can be made to expected performance standards (whether in-house or a statutory standard). Examples include:

- The **routine** general workplace inspection 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 Preventive Maintenance (PPM) 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.

General Workplace Inspections

To focus on the first of these active monitoring methods, one popular way to actively monitor health and safety performance is to carry out general workplace inspections. These inspections often focus on 'the four Ps':

- **Plant** – machinery, equipment and vehicles.
- **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 general workplace inspection regimes usually exist in many different forms within different workplaces.

For example, in a distribution warehouse (depot) 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** inspection of each forklift truck by a competent mechanic to ensure the safety of the vehicle as a part of the PPM – **plant**.
- An **annual formal** inspection of 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 safety management system.

Safety Sampling

This is the technique of monitoring conformance 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 legal 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 to make sure it has the competent engineer's signature on it.
- 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 any of them. It is also far less time-consuming and onerous than checking all 1,200 extinguishers directly.

Safety sampling as an active monitoring method does not guarantee 100% conformance to standard. Instead it provides an assurance that the standard is being met, or gives an indication of where there are problems with conformance.

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 the manager of the area being inspected and possibly a worker or worker representative, a health and safety specialist, an occupational health specialist and perhaps an engineer. Ideally the group would also include a senior manager (such as a senior operations manager or director).

Unlike a safety inspection, which will often be conducted by one person and have a very narrow and specific focus, a safety tour usually looks at any health and safety issue that come to light during the walk around. It is often unconstrained and does not simply look at a narrow, predetermined topic or issue.

One of the key features 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 with workers and show their interest in, and commitment to, health and safety to the workforce. This can have a very significant impact on raising the profile of specific health and safety problems found. Equally importantly it can have a powerful effect on improving the health and safety culture as it provides an opportunity for managers to not only identify and discuss problems and issues, but also recognise and praise good performance.

Arrangements for Active Monitoring

Certain factors must be considered before an active monitoring system is introduced, including:

- The **type of active monitoring** – active monitoring is carried out for a number of different reasons and different methods examine different aspects of safety in the workplace. Is this:
  - A general inspection of a workplace to ensure legal conformance with a company standard?
  - A sampling exercise to look at a specific type of item or equipment (such a lifting accessories)?
  - A high-profile safety tour of an entire department?
- The **frequency of monitoring** – 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 will also be affected by the practicalities of doing the monitoring and the availability of people. Safety tours involving senior managers are often conducted monthly for this reason.
- **Allocation of responsibilities** – those responsible for ensuring that the active monitoring take place should be identified, as should the people who will be tasked with carrying it out.
- The **competence and objectivity of the inspector** – essential characteristics of whoever is conducting the active monitoring; 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 active monitoring process. Checklists ensure that:
  - All points are covered by the check.
  - There is a consistency of approach to the process.
  - There is a form of written record of the monitoring 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 active monitoring 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 active monitoring 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 general workplace 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.
- **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.

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 can be a negative aspect to focus on.

Despite these weaknesses, reactive monitoring is a valid tool for an organisation to use, as long as various 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. While 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.

Reactive monitoring methods are often called **lagging indicators**, that is, indicators that show the direction of travel after unwanted events (such as an accident) occur. If lagging indicators are moving in a positive direction then the chance of accidents has reduced. Conversely, if lagging indicators are moving in a negative direction that is an indication that the chance of accidents has increased.

For example, if the accident rate at a workplace reduces month-on-month over a period of time (because of various safety improvements introduced in the workplace) then this is a lagging indicator that is moving in a positive direction. It shows that the chance of accidents has reduced over recent time. However, if there was an increase in the accident rate, this is a lagging indicator moving in a negative direction. It shows that performance is deteriorating and there has been a loss of control.

Lagging indicators tell you information about what your performance was *in the past*. In contrast, leading indicators (as outlined in the Active Monitoring section) tell you what your performance is likely to be *in the future*.

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 commonly used accident rate used to measure an organisation's safety performance is the **Lost-time Accident Frequency Rate**:

$$= \frac{\text{Number of lost-time accidents during a specific time period}}{\text{Number of hours worked over the same period}} \times 100{,}000$$

(The answer is in units of 'lost-time accidents per 100,000 hours worked'.)

The reason why a rate might be used rather than the actual numbers is because it allows for a more meaningful comparison of accident statistics from one year to the next, even though the numbers of workers in the workplace may have changed or there may be more work to do (and hence more hours worked).

STUDY QUESTIONS

1. Define reactive and active monitoring.
2. What do we mean by systematic active monitoring?
3. What types of information that might be used in reactive monitoring?
4. What is 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?

(Suggested Answers are at the end.)

Investigating, Recording and Reporting 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.
- The level of investigation used should be determined by considering the foreseeable consequences of the incident should it happen again, and not simply by looking at the actual outcome that occurred on this occasion.
- 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.
- 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.
- Certain types of incident – such as fatalities, major injuries, occupational diseases and some dangerous occurrences – have to be reported to external agencies.

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.

There are many reasons for conducting investigations, but one of the most important is that having happened once, an incident 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 incident 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.
- **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 their 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).

Dermatitis

- 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.

Level of Investigation

The amount of time, money and effort put into an incident investigation should be proportionate to the risk associated with the incident should it happen again. This risk estimation must be made based on the foreseeable and possible severity of harm or loss associated with the incident. It must not be based solely on the actual severity of harm or loss associated with the incident this time.

So, for example, the effort put into investigating an accident that resulted in a worker breaking their arm should not be determined simply by looking at the fact that the outcome was a broken arm (which is, of course, a serious injury). The foreseeable and possible severity of harm associated with a repeat event must be taken into account. If a fatal injury is a very likely outcome from this event (and the worker was lucky to escape with just a broken arm on this occasion) then more time, money and effort must be dedicated to the investigation process.

Similarly, the effort put into investigating a near miss must be determined by the foreseeable possible harm or loss if the event happens again. Not simply on the basis that the near miss did not cause any harm or loss. So a near miss that might foreseeably result in a lost-time injury should be investigated with a proportionate level of investigation.

When determining what level of investigation to apply the risk associated with each incident can be estimated in order to allocate appropriate resources. As we know from Element 3, risk can be estimated by considering the likelihood of occurrence and foreseeable severity of harm or loss.

This can be used to determine whether an investigation should be:

- **Minimal** – immediate line manager and not excessive time or effort.
- **Low** – line manager perhaps with some support and more time and effort involved.
- **Medium** – middle manager with support and significant time and effort.
- **High** – senior management oversight with team based approach and significant time and effort.

MORE...

For more information on types of incident, refer to HSG245 at:

hse.gov.uk/pubns/hsg245.pdf

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 has to be made about the type or level of investigation as outlined above.

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

Accident investigator taking measurements

- 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.

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 their back as they fall backwards and hit 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?

There may be more than one cause for an accident

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: Identifying 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.

Control measures mean accidents are less likely to recur

Perhaps the most important questions to ask when identifying control measures are:

- If this action is taken, will it prevent the 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: Planning the Remedial Actions

An incident 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.

Hearing protection could be a short-term control measure

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.

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 reporting to 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 (where a worker feels that they may be treated detrimentally or disciplined for reporting any accident or near miss that they were associated with).
- 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.

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 advisers). 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 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.

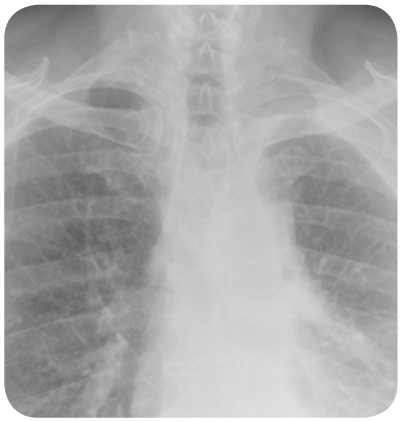
Reporting of Events to External Agencies

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.

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.



Lung cancer can be caused by working with asbestos

The International Labour Organization (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

STUDY QUESTIONS

8. What is the main purpose of an accident investigation?
9. What are the four steps of the investigation process?
10. Identify the categories of staff who might be considered useful members of an internal accident investigation team.
11. What types of record might be consulted during an accident investigation?
12. What are the two categories of immediate cause of accidents/incidents?
13. An employee has been hit by a reversing vehicle in a loading bay. What are the possible immediate causes and root causes?
14. Who is usually initially responsible for reporting accidents and safety-related incidents?
15. What actions should be taken following a serious injury at work?

(Suggested Answers are at the end.)

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.

Introduction to Auditing

The UK's Health and Safety Executive publication *Managing for health and safety* defines health and safety auditing 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 is:

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.

Audit – structured process of collecting information

On the positive side, auditing is a very effective way of enhancing organisational learning. It is an opportunity to improve:

- The management system.
- The safety policy.
- The arrangements made for specific issues.
- Health and safety performance.

Auditing is, in effect, another form of active monitoring. A positive audit report (or a verification audit that results in certification) provides an **assurance** that health and safety management system is robust and effective.

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.

It is important that the term 'audit' is used correctly; an audit is the thorough examination of the management system, from the documents through to what is happening in practice in the workplace.

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 Stages of an Audit

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?'

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).
- Accident investigation reports and data, including near-miss information.
- Emergency arrangements.
- Inspection reports from insurance companies.
- Output from regulator visits (e.g. visit reports, enforcement actions).
- 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.

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.

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 and 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

16. Define the term 'health and safety auditing'.
17. What are 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.
- 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:

Management teams should carry out regular performance reviews.

- 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.

Records of routine performance review should be kept to demonstrate that these reviews are taking place. These records can themselves be used as a performance indicator and form a data source for the review process.

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 are 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 tours, 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 Britain, 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 sets targets to bring their area in line with the strategic targets.
- **Junior management** review performance and sets 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.

STUDY QUESTIONS

18. Performance review is concerned with ensuring that incident investigations are properly concluded. True or false?
19. What is the purpose of reviewing health and safety performance?
20. Who should take part in reviews of the occupational health and safety management system?
21. How often should reviews of the occupational health and safety management system take place?
22. 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 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 data on accidents, incidents and ill health that have already occurred).
- Outlined some active monitoring methods (inspections, sampling and tours) and explained the factors that must be considered when setting up an active monitoring system.
- 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.
- Defined the types of incident that have to be reported to external agencies, such as fatalities, major injuries, occupational diseases and dangerous occurrences.
- 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 continual 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 1

Scenario

The number of incidents in the organisation has been rising. You, as the organisation's competent source of advice for health and safety, are concerned that health and safety standards are slipping. You have decided to look at some key performance indicators, accidents and safety inspections, to see how they can be used to improve safety performance within the organisation.

Task: Health and Safety Performance

Prepare notes on how you will use accident data and safety inspections data to improve the organisation's safety performance. **(10 marks)**

Approaching Question 1

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

- **Step 1** – the first step is to read the scenario carefully. Note in this scenario that the number of incidents has been rising and you are concerned about health and safety performance. The notes are for yourself, but applying your analytical skills will cause you to reflect on where/when the notes will be used. Who will be the recipients of the information they provide?
- **Step 2** – now look at the task. You will be making notes on how accident data and safety inspections data can be used to improve safety performance. So you need to give the most important features of accident data and safety inspections.
- **Step 3** – next, consider the marks available. In this task, there are 10 marks, so it is expected that around 10 or 11 different pieces of information should be provided. There is no signpost as to how the marks are distributed. Your notes may treat each data set as equally important or one data set as of higher importance. The first data set will consider how accident data may be used to improve safety performance. The second data set is on safety inspections.
- **Step 4** – read the scenario and task again to make sure you understand them and have a clear understanding of how you can improve safety performance using accident data and safety inspections. (Re-read your study text if you need to.)
- **Step 5** – the next stage is to develop a plan – there are various ways to do this. Remind yourself, first of all, that you need to be thinking about 'improvements to safety performance'; firstly how accident statistics can improve performance, and secondly how safety inspections can improve performance. So, the answer plan will take the form of a bullet-pointed list that you need to develop into a full answer.

Suggested Answer Outline

Accident data:

- Identify trends and problem areas.
- Allocation of resources.
- Benchmarking.
- Show the cost of accidents.
- Focus minds and discussion.

Safety inspections:

- Demonstrate management commitment.
- Involve employees and safety representatives.
- Prompt actions to safety concerns improve morale.
- Check conformance to standards.
- Identify problems before an accident happens.

Now have a go at the question yourself.

Example of How the Question Could be Answered

Accident data may be used to improve an organisation's safety performance by identifying accident trends (e.g. slips and trips) in specific areas (e.g. kitchens) and to enable management to focus resources on these specific aspects to reduce the recurrence rate. The organisation may use accident data to compare itself with a similar organisation (benchmarking) to establish whether it should be doing more to improve safety, or to establish whether the cost of not managing safety is reducing the organisation's market competitiveness. Accident data can be used to calculate the cost of not managing safety to ensure business cases for safety initiatives can succeed on a cost/benefit basis. Accident data can be discussed at safety committees or provided as information to employees to stimulate discussion at team briefings or meetings and to engage employees in safety improvements.

Safety inspections carried out by management can be used to improve safety performance by demonstrating top-level commitment. Safety inspections can also be used positively to involve the employees by inviting them to take part in the inspection (to see failings at first hand) or by holding meetings to discuss the findings from safety inspections, increasing worker ownership in safety. Safety inspections will identify conformance to standards, giving management an opportunity to rectify non-conformance before an accident happens.

Reasons for Poor Marks Achieved by Exam Candidates

- Wasting time by concentrating on reasons for collecting accident data and not saying how it can be used to improve business performance.
- Describing how a safety inspection should be conducted, who should take part and frequency – this is not the question set and will gain no marks.

Question 2

Scenario

The Managing Director (MD) of the organisation has been given information you have prepared on the organisation's health and safety policy. The MD was particularly impressed with the information, and sufficiently concerned to believe more needs to be done to manage health and safety. An audit is being considered by an external body as a way forward. This is, however, an expensive option, so you have been asked to attend a meeting to give the leadership team a briefing on audits. This will enable a decision on whether to proceed with the audit.

You are keen that the organisation does proceed down this route of an external health and safety audit. You decide that your briefing will cover three areas:

(a) the meaning of the term 'health and safety audit';

(b) the key areas that may be covered in an audit; and

(c) how the audit findings can be used to improve health and safety performance.

Task: Health and Safety Auditing

Prepare your notes for this meeting with the leadership team:

(a) The meaning of the term 'health and safety audit'. **(2 marks)**

(b) The key areas that may be covered within a health and safety audit. **(8 marks)**

(c) How the findings of a health and safety audit can be used to improve health and safety performance.(**5 marks)**

(Total: 15 marks)

Approaching Question 2

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

- **Step 1** – the first step is to read the scenario carefully. Note in this scenario that you will be meeting the leadership team. This is a good opportunity to improve health and safety at the organisation, so you want to be convincing when you meet everyone.
- **Step 2** – now look at the task. Note that for part (a) of the task 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 you to pick 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 3** – next, consider the marks available. This task has 15 marks available. In part (a) of the task, you are asked to give the meaning of the term, which is worth 2 marks. So you should be able to provide this meaning in one sentence. Part (b) is worth 8 marks so you need to explain at least 10 factors to gain all the marks available. Part (c) is worth 5 marks. This is an important section for you – convincing managers to take action. To improve the chances of successfully convincing managers, this section should be presented in the form of sentences; you will need between four and six sentences.
- **Step 4** – read the scenario and task again to make sure you understand them and have a clear understanding of audits. (Re-read your study text if you need to, and HSG65 *Managing for health and safety* if you can.)

- **Step 5** – the next stage is to develop a plan – there are various ways to do this. First, remind yourself that this task 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), again 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 leadership team (and the examiner) that you understand the requirements. 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 detail to give you the depth that is needed to convince the leadership team to take action. So, the answer plan will take the form of bullet-pointed lists that you need to develop into a full answer.

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 records.
- Recommendations.

Part (c):

- Compliance v. 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. 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 task.

When you have finished your answer, read the suggested answer below and compare it to your answer.

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 the 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 external reporting to the authorities. Auditors should review the arrangements for consultation within the organisation and establish that consultation does take place. Auditors can cover maintenance records of machinery to establish that guarding to machines is maintained, as well as 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 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 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 Exam Candidates

- 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 the question.
- 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 study text.

Unit IG1

Final Reminders

Now that you have worked your way through the course material, this section contains some reminders to help you prepare for your NEBOSH open-book exam. It summarises the advice on how to approach your revision and the exam itself and has some hints and tips.

Preparing for the Exam

Open-book exams require advance planning. As you work through your studies, it's important to familiarise yourself with the study materials so that, at the time of the exam, you can find what you need quickly. RRC's course materials cover all the syllabus topics but to ensure that you do well in the exam, we recommend doing some additional reading. The study text provides some useful links to external sources - look out for the '**More...**' boxes within the materials, these contain useful links to relevant topics.

MORE...

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

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

'More...' boxes provide relevant links to further reading material (taken from RRC's IG1 Study Text)

At the time of the exam, you should not be reading information from your course materials for the first time or even re-reading the study text, you will simply run out of time. Being familiar with the materials will give you more time to concentrate on the scenario and less on frantic searching!

Don't forget that the normal requirements of an invigilated exam don't apply, so you can highlight and annotate your materials to help you locate topics easily and use your notes on the day. The UK Open University webpage has some great tips on highlighting and annotating materials for revision purposes, and can be accessed at: **https://help.open.ac.uk/highlighting-and-annotating**.

Keep your notes organised in advance; by doing so, you will be able to easily identify the relevant parts to compose your answers. This will ensure you optimise your time during the exam.

Revising for the Exam

One of the most common misconceptions about open-book exams is that there's no need to revise for them. In fact, you should study for them just as you would for any other exam! You won't be asked to recall information in the same way as for a closed-book exam but you still need the knowledge in order to apply it effectively and you need to be able to demonstrate that you have met the learning outcomes. Remember, the exam presents you with a problem in the form of a scenario to which you will need to give a solution, so you will need to use your knowledge and apply it to solve the problem.

Revision Tips

There is some useful information in your Unit 1 Study Text on how to tackle revision so here is a reminder of the main points, together with some additional advice.

Using the RRC Course Material

Read through all of the topics multiple times. This might be done by skimming over all of the content of Unit 1 to get a feel for structure and topics, followed by a more thorough read-through that jumps over the most complex topic areas, then a detailed read where you attempt to crack the complex topics.

Remember that understanding the information, and being able to remember and recall it, are two different skills. 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.

Check your basic knowledge of the content of each element by reading the element 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

Download a copy of the NEBOSH Guide to the course, which contains the syllabus, from the NEBOSH website.

Map your level of knowledge and recall against Elements 1-4 in the syllabus guide. Look at the content listed for each element in the 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 Unit 1 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 can 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 Unit 1 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.

Setting Up for the Exam Day

Unlike the former invigilated Unit 1 exam paper, there is no need to complete a mock test for this assessment but to increase your chances of success and improve your confidence, we strongly advise that you complete a mock exam and get feedback from your tutor to prepare you for the real exam.

It is also recommended that you study in the same room and environment where you will carry out the exam, to ensure you are comfortable and set for the exam.

There are some things you can do to ensure you have the best possible set-up for the day:

- Make sure you can sit comfortably so that you are not distracted by uncomfortable posture. Ensure good lighting and a comfortable temperature.
- Know where your study materials are so that you spend less time looking for them at the time of the exam. Have your study materials within easy reach.
- If you live with anyone, make sure they are aware of when you are taking an exam to avoid unnecessary interruptions and distractions. Placing a friendly sign on your door may be a useful reminder for them!
- Switch off your phone, television and any other devices that may distract you.
- Have water and snacks handy.

- Ensure you can keep your computer charged up.
    - If you can't take the exam at home, book a quiet room with good lighting, charging point and Internet connection.

What to Do on the Day

On the day of the exam, you will be able to access the exam from 9.00 am BST by logging in to the NEBOSH platform and downloading the file. You will have 24 hours to do the exam, starting from when the exam paper becomes available. This does not mean it should take you 24 hours to do the exam, nor does it mean that you have to be working for all that time; the 24-hour window is designed to allow time for you to read and analyse the exam questions, access your course materials, plan your answers, complete and submit the assessment, as well as take necessary breaks and fulfill your other everyday commitments. The paper should take around 4 to 5 hours to complete so make sure you are aware of the time.

So, how do you best utilise this time?

This is when your planning, studying and hard work will pay off. You will have your materials ready so you will be set up for a strong start.

You are not expected to write more than the current 3,000 words in total. You are allowed a 10% margin - you will not gain marks for going beyond this, so your answers should be relevant, concise and focused.

RRC would strongly advise that you **do not write more than 3,300 words** in case examiners choose not to read beyond 3,300 words and you therefore miss out on marks.

Use your time wisely: work at your own pace but don't leave everything until the last minute. Review your materials, draft up your answers and allow time to make amendments. Take time to read the exam questions carefully. Refer to your prepared materials and notes with the following in mind:

- Your work should be your own, in other words do not copy content without referencing the source or this counts as plagiarism (more on plagiarism later).
- Do not communicate with anyone about the assessment.
- Do not ask or allow anyone to proof-read or help you with your work.

Another common mistake when doing an open-book exam is to refer to as many materials as possible; don't fall into this trap, you must be selective! Use only the materials that you need - again, this is why preparing them in advance is so important!

Don't become over-reliant on materials either, you must apply your own knowledge and argument. You want the materials to support your answer, not take over!

For details on how to download and submit your exam, please read NEBOSH's *Technical Learner Guide* on the NEBOSH website.

Approaching the Exam Questions

The open-book exam will test you on your ability to, "demonstrate analytical, evaluation and creative skills as well as critical thinking" and how you apply your learning to your answers. In other words, you will need to show what you can do with your knowledge to solve the problems presented to you – and this may take practice.

The following example scenario and suggested answer illustrate how to approach the question, so make sure you read this section carefully.

Example Scenario

You are a newly appointed health and safety officer for a district council. The council has a fleet of six refuse collection vehicles with 50 team members in the refuse collection team (called Street Scene). One of the employees, a driver of one of the vehicles, has reported a minor incident. A reversing vehicle has struck another vehicle in the car park causing very minor damage.

The worker has reported the incident to the Street Scene Manager. The manager's minimal investigation found that the operator was to blame because insufficient attention was paid when the vehicle was reversing.

The worker was advised to be more careful in the future or disciplinary action would be taken.

At the next health and safety committee for the Street Scene Team you are discussing incident statistics and incident investigations that have taken place. Some of the committee members (worker representatives mostly) discredit the investigation into the reversing vehicle incident.

Task

How would you convince the other committee members to reopen the investigation? (10)

How to Answer the Question

Familiarise yourself with the study text materials/notes/flashcards/mind maps and your notes on incident investigation. Your notes will guide you to other information on incident investigation such as HSG245 *Investigating Accidents and Incidents*. This may be a PDF document on your desktop, or a downloaded version with highlighted sections from where you have looked at this document before. Try to visualise the scenario. You can use your web browser to research any terms that you are unfamiliar with.

Read the information provided in the scenario carefully. Consider that the information provided is all relevant and there are key indicators given to direct your answer. A key piece of information is that the investigation was "minimal". Your research will have indicated that a minimal investigation should be used for unlikely or rare occurrences with the potential for only minor injury. However, the worst possible event involving a reversing vehicle (especially one as large as a refuse vehicle) would be a fatality. You are advised that worker representatives "discredit the investigation" and from a minimal investigation it's likely that the manager only looked for immediate causes. This is consistent with the worker being blamed and no other causes being followed up. You are asked how you would convince the "other" committee members to reopen the investigation. The 'other' members are likely to be management or employer representatives because the worker representatives want the investigation reopened. From your studies you will know that persuasive justification for managing safety can be covered under moral, legal, and financial reasons.

You could now consider an 'answer plan'.

- Incident investigation:
  - Purpose of investigation.
  - Immediate causes.
  - Underlying causes.
  - Root causes.
- Examples of immediate/underlying and root causes.
- How to take the investigation further - '5 whys'.
- Persuasive reasons to reopen the investigation:
  - Moral.
  - Legal.

  - Financial.
- Examples of moral, legal and financial reasons.

Suggested Answer

Remember to relate this to the scenario!

The committee members may have little or no experience on investigating accidents. I would advise them that the immediate cause of an incident would be the unsafe acts or unsafe conditions that led to the reversing vehicle striking the other vehicle. A medium- or high-level investigation should establish why this happened.

The committee could be given examples of unsafe acts and conditions that a medium- or high-level investigation may have revealed, e.g. damage to the vehicle's mirrors, faulty reversing camera or lack of a reversing assistant. Unsafe conditions may include poor levels of lighting or reversing too quickly.

A '5 whys' analysis could be used to further establish that the underlying causes themselves were caused by management system failings such as inadequate training of the worker. These are known as 'root causes' and without establishing the root causes, the incident may be repeated with another vehicle and another worker - but this time it may be pedestrians are involved and Street Scene would be investigating a fatality. This is morally and legally unacceptable.

I would advise that root causes may be organisational failures, job-related matters or personal factors. We may even find that we have not complied with legislation due to poor maintenance of the vehicle or lack of management systems of work. I would also advise committee members that monitoring safe systems of work was a legal duty that required a more complete incident investigation to take place.

Without a clear identification of the causes of the incident corrective action to prevent a recurrence would not be taken. I could go further and explain that the purpose of investigation is not to find someone to blame but to prevent a recurrence. This cannot be achieved without the full commitment of everyone in Street Scene.

This answer has 295 words which is within 10% of the target set of our assumed maximum of 300 words for a 10-mark question - so we can keep within the required word count. As you complete your answer, refer to the documents and materials you have assembled to remind yourself of incident investigation, and be careful not to copy anything from the materials you have used without referencing it. Keep an eye on the word count to make sure you don't go over the allocated amount of words.

Example of an Insufficient Answer

Investigating accidents and incidents explains why you need to carry out investigations and takes you through 4 steps of the process:

- *Gathering information.*
- *Analysing the information.*
- *Identifying risk control measures.*
- *The action plan and its implementation.*

Gathering information is about the where and who of the event. Photographs and interviews are ways to gather information. Analysis of the information is what happened and why it happened. Human error should be considered at this stage. Then you need to identify control measures to prevent a recurrence. When you have identified control measures, create an action plan using the SMART planning technique

Immediate cause: the most obvious reason why an adverse event happens, e.g. the guard is missing, the employee slips, etc. There may be several immediate causes identified in any one adverse event. Immediate causes include:

- *Inadequate safety devices.*

- *Poor housekeeping.*
- *Operator error.*
- *Wearing unsuitable footwear.*

The root causes are also known as management, planning or organisational failings.

There are three types of safety cultures: blame, no blame, and a just culture. It's clear this organisation has a blame culture and attempting to apportion blame is counterproductive, people become defensive and unco-operative. Only after a full investigation, not a minimal investigation, should individuals be blamed.

This answer has not used the scenario supplied and is far too general in its approach to attract many marks. It also lacks substance and detail. The explanation given would not encourage the reopening of the investigations because it has no moral or legal persuasion to convince the safety committee. Bullet-pointed lists do not provide sufficient evidence of your knowledge. The examiner will only have the words you have used to allocate marks against. What does 'poor housekeeping' mean related to the scenario? The examiner cannot guess what you mean and award marks against what it's thought you mean. You must be clear in your explanation, so your knowledge is demonstrated. This answer also uses acronyms, e.g. 'SMART'. Using an acronym seldom demonstrates knowledge, it is a far better response to write the words out fully before using the acronym. It would also be clear that significant sections of the answer are plagiarised from documents produced by the HSE. If the examiner investigated some of the phrases used, and found they reproduce someone else's work, further assessment would take place and a malpractice investigation would be conducted.

Note: The same scenario would be used to ask questions related to safety culture, reporting requirements, active/reactive monitoring, etc.

NEBOSH Sample Paper

Now have a go yourself, you can access the IG1 sample paper at:

https://www.nebosh.org.uk/documents/obe-sample-paper-Ig1/.

Plagiarism and Malpractice

You should follow the instructions and adhere to the guidance on the open-book exam. The answers that you submit must be your own. Any cases of suspected plagiarism will be investigated and any breaches will be dealt with in line with NEBOSH's malpractice policy which you can find on the NEBOSH website.

You must ensure that what you submit is your own work and if you quote or paraphrase anyone else's work, this must be referenced or it would constitute plagiarism.

The following counts as plagiarism:

- Inserting another author's sentences, paragraphs and ideas without referencing them, whether these are published or unpublished.
- Paraphrasing another author's work without referencing them.
- Collaborating with someone else (e.g. another learner) and submitting work that is either identical or very similar to theirs while claiming it was your own work.
- Paying someone to complete the work for you and submitting it as your own.
- Impersonation - when you ask someone else to complete the work for you and you pass it off as your own.

Your open-book exam will be marked by a NEBOSH examiner and will be scrutinised for plagiarism.

When taking a non-invigilated open-book exam you will need to declare that your submission is your own work and that you have not received help from anyone else. You will need to confirm you have read, understood and abided by NEBOSH's rules, by signing a Declaration.

Please note that NEBOSH reserves the right to submit your assessment to a plagiarism detection software package.

References

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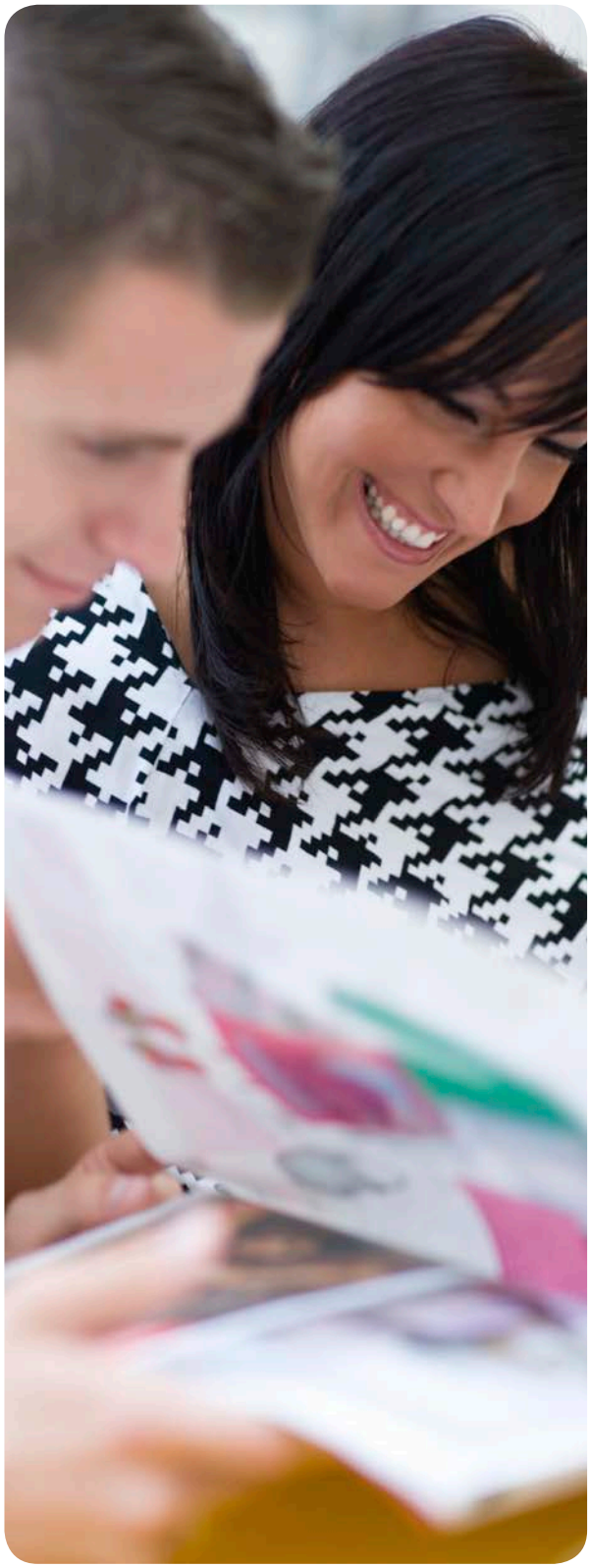
https://www.nebosh.org.uk/documents/malpractice-policy-v14-sep19/

Good luck!

Unit IG1

Suggested Answers to Study Questions



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 what you got right (and where you went wrong) to improve your understanding.

Element 1: Why We Should Manage Workplace Health and Safety

Question 1

(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 2

The three reasons why an organisation should manage health and safety are moral, financial and legal reasons.

Question 3

Insured costs (any three from the following): damage to plant, buildings and equipment; compensation paid to workers; medical costs; legal costs arising from a claim for compensation.

Uninsured costs (any three from the following): production delays or downtime; loss of raw materials; accident investigation time; criminal fines; sick pay for injured workers; overtime to make up for lost production; hiring and training new employees; loss of customers, clients and contracts as a result of damage to business reputation.

Question 4

Any three from:

- To provide workplaces and work equipment, and use work methods, which are safe and pose 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 activities causing extreme physical and mental fatigue.
- To stay up to date with knowledge in order to comply with the above.

Question 5

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 6

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 (enforcement agency). These criminal actions are normally brought by the state.
- Compensation claims from any injured/ill people, perhaps resulting in action through the civil courts. Civil action is normally started by the injured person themselves.

Question 7

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 work.

Question 8

The criteria to assess the suitability of a contractor may include:

- Their health and safety policy.
- Example risk assessments and method statements.
- The qualifications and training records of staff.
- Membership of professional organisations.
- Test and maintenance records for plant and equipment.
- References from other past/current clients.
- Accident history, such as **RIDDOR**-reportable accident rates.
- Enforcement action history.
- Proof of adequate resources.
- Insurance.

Question 9

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.

Element 2: Health and Safety Management Systems and Policy

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 OHSMS 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. It may also be the case that senior managers have very different visions for the health and safety performance of their organisations.

Question 4

The three key parts of a health and safety policy are the General Statement of Intent (or Statement of General Policy), the Organisation section (or Organisational Roles and Responsibilities), and the Arrangements section.

Question 5

The person at the very top of the organisation, such as the managing director or 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 within the organisation and the lines of accountability between them. It should show the position of health and safety practitioners and other competent people who advise the organisation. It should also show any committees or staff forums with a health and safety remit.

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: Managing Risk – Understanding People and Processes

Question 1

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 2

A worker's peers exert influence over their behaviour through *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 3

	Benefits	Limitations
Written communication	• 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 communication	• Personal and direct. • Immediate feedback. • Allows exchange of views.	• Language barriers. • May not be heard. • Information may be missed. • No written record.

Question 4

Graphic symbols (such as the pictogram showing a person moving through a fire escape door and an arrow to show the direction of travel found on an emergency escape route sign) are used to communicate simple but essential health and safety information to people. They are used because they do not require the person to read text and they therefore avoid literacy or language barriers.

Question 5

Workers 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 6

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 7

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 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 (any four from):

- The task being done and how well or badly it has been designed.
- Workload such as number of tasks and deadlines.
- The environment in which work takes place and how comfortable or uncomfortable this is.
- The design and functionality of displays and controls that a worker has to use in order to do the job.
- The suitability of any procedures that the worker has been provided with.

Question 10

Workers might not perceive risk at work because of: the influence of illness; personal inexperience; poor quality education and training; drugs and alcohol; fatigue; stress; interference from PPE that has to be worn; or interference form the workplace environment (such as high noise levels).

Question 11

The distinction is important because 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 12

The purpose of risk assessment is to eliminate hazards, or reduce risk to an acceptable level so as to prevent personal injury and ill health, to achieve legal compliance, and to reduce the costs associated with losses.

Question 13

The techniques used for identifying hazards include task analysis, examination of legislative requirements and associated guidance, examination of manufacturers' information and analysis of incident data.

Question 14

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 15

The five categories of health hazard are: physical, chemical, biological, ergonomic and psychological.

Question 16

The five steps involved in risk assessment are:

1. Identify the hazards.
2. Decide who might be harmed and how.
3. Evaluate the risks and decide on precautions.
4. Record the findings and implement them.
5. Review the assessment and update, if necessary.

Question 17

Apart from office workers, people or groups who might require special consideration during a risk assessment in an office environment include maintenance staff, cleaners, contractors, visitors, young workers, lone workers, new and expectant mothers, and disabled staff.

Question 18

The two factors used to estimate risk level are the likelihood of harm occurring and the severity of the likely harm.

Question 19

Residual risk is the level of risk remaining after the application of safety precautions.

Question 20

The general hierarchy of control is:

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

Question 21

Things 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 22

The type of sign represented by each pictogram:

(a) Mandatory action – must put litter in bins.

(b) Prohibition – not drinking water.

(c) Safe condition – drinking water.

(d) Warning – radiation hazard.

Question 23

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 24

Five management controls that should be considered for the control of risks created by temporary works are:

- Risk assessment.
- Communication and co-operation.
- Appointment of competent persons.
- Emergency arrangements.
- Welfare provision.

Question 25

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 26

Involving workers 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. It is an example of worker engagement which is a fundamental building block of a positive health and safety culture.

Question 27

Technical 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 28

Instruction, training and supervision form a part of safe systems because only people who have been given appropriate training and instruction will understand the SSW and consequently should be allowed to undertake the work. Supervision is necessary to ensure that staff follow their instructions and training and correctly apply the SSW.

Question 29

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 be in the possession of the person in charge of the work before that work can begin.

Question 30

The four key sections of a typical permit are:

- Issue.
- Receipt.
- Clearance/return to service.
- Cancellation.

Question 31

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 32

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 33

The factors that might need to be considered when determining the first-aid facilities for a workplace are:

- The physical size of the organisation.
- Number of employees.
- Distribution of the workforce (e.g. number of buildings on a site, number of floors, etc.).
- The type of business and what hazards are inherent in it (an office is different from a foundry).
- Remoteness of the site from emergency medical services.
- Provision for non-employees, e.g. shoppers, schoolchildren.
- Needs of specific groups of employees (e.g. trainees, young workers, disabled persons).
- Cover for first aiders during annual leave.
- Shift patterns.
- Peripatetic employees.

Element 4: Health and Safety Monitoring and Measuring

Question 1

Reactive monitoring is where accidents, near misses and other unwanted events are used to identify trends and patterns in accident history. Active monitoring is where existing conditions are checked to identify and correct sub-standard matters before any sort of incident occurs.

Question 2

Systematic active monitoring involves the planned, regular examination of conditions in the workplace as a matter of routine.

Question 3

Lots of types of information can be used for reactive monitoring such as numbers of:

- Accidents.
- Dangerous occurrences.
- Near misses.
- Cases of ill health.
- Complaints from the workforce.
- Formal enforcement actions taken against the organisation.
- Civil claims for compensation against the organisation.
- Cost of accidents, e.g. damage repairs.

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 walk-abouts carried out by a team of people, including senior managers, with the intention of interacting with workers and discussing their health and safety concerns and issues.

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 safety tours 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 main purpose of an accident investigation is to find the cause, with the intention of preventing a recurrence.

Question 9

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 10

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 11

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 12

The two categories of immediate cause of accidents/incidents are unsafe acts and unsafe conditions.

Question 13

An employee has been hit by a reversing vehicle in a loading bay:

Immediate Causes	Root Causes
• Mechanical failure (faulty brakes). • Driver failed to see pedestrian. • Pedestrian not wearing high-visibility jacket. • Driver's vision restricted by goods. • Human error on part of driver or pedestrian.	• Inadequate maintenance procedures. • Inadequate lighting or driving in poor weather conditions. • No rule about high-visibility jackets, or not enforced. • Lack of housekeeping arrangements. • Lack of banksman/signaller. • Lack of training and awareness.

Question 14

The person usually initially responsible for reporting accidents and safety-related incidents is the worker involved 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 15

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.

Question 16

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 17

Differences Between Audits and Workplace Inspections	
Audit	**Workplace Inspection**
• Has the aim of assessing the health and safety management system of an organisation. • A long process involving the examination of the entire management system. • Based primarily on review of documentary evidence, backed up by some observations and interviews of personnel at all levels. • Long, comprehensive report that records areas of concern and weaknesses in the management system. • Detailed planning required; requires considerable resources. • Typically done annually. • Aims to improve systems at a high level, with the ultimate effect of improvements cascading down to operating level. Is a strategic tool, addressing long-term progress.	• Has the aim of assessing the use and effectiveness of control measures. • A relatively short process looking at practices in part of the workplace. • Primarily based on observations, perhaps involving very limited scrutiny of paperwork and interview of operators. • Short report identifying key corrective actions required. • Only limited planning, and main resource required is the inspectors' time. • Usually done on a daily, weekly, monthly, or quarterly frequency. • Focuses on activities and equipment at operational level, though remedial actions may address system faults.

Question 18

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 19

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 20

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 21

The frequency at which reviews should take place will depend on various factors such as the level of risk inherent in the workplace and the rate of change taking place there. Typical review frequencies for a medium risk, slowly changing workplace might be:

- 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 22

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.