

NEBOSH National General Certificate

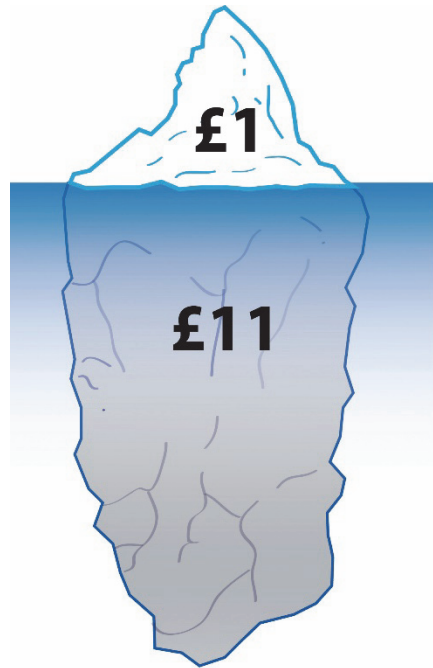
NGC1 - Management of Health and Safety

SAMPLE MATERIAL

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INSURED COSTS

- Employer’s liability
- Public/third party liability
- Contractors - all risks
- Plant and building damage
- Tools and equipment

UNINSURED COSTS

- Product and materials damage
- Emergency supplies
- Production delays
- Overtime and temporary labour
- Investigation time
- Supervisors’ time diverted

Figure 1-1-1: Costs incurred by the main contractor (1:11) during the building of a supermarket. Source: RMS/HSG96.

Direct costs

- Insurance.
- Court costs.
- Fines.
- Lost time of injured employee and continued payments to employee.
- Damage to the equipment, tools, property and plant or to materials.
- Cost of any clean-up operation.

Indirect costs

- Lost time by other employees who stop work or reduce performance.
 - Out of curiosity; sympathy.
 - Weakened morale.
- Lost time by supervisor or other managers.
 - Assisting injured employee.
 - Investigating the cause of the accident.
 - Arranging for the injured employee’s production to be continued by some other employee.
 - Selecting or training a new employee to replace an injured employee.
 - Preparing accident reports, attending hearings, inquests courts.
- Interference with production leading to failure to fill orders on time, loss of bonuses, penalty payments and similar losses. Replacement costs of materials or equipment.

The HSE have published a series of four case studies to illustrate just how much accidents at work could cost a company. The industries chosen were from a wide range of activities. The following table illustrates the losses identified.

| | | <i>Total loss</i> | <i>Annualised loss</i> | <i>Representing</i> |
|---|-------------------|-------------------|------------------------|---|
| 1 | Construction site | £245,075 | £700,000 | 8.5% tender price |
| 2 | Creamery | £243,834 | £975,336 | 1.4% operating costs |
| 3 | Transport company | £48,928 | £195,712 | 1.8% of operating costs 37% of profits |
| 4 | Oil platform | £940,921 | £3,763,684 | 14.2% of potential output |

Figure 1-1-2: Sample costs of accidents.

Source: *The costs of accidents at work*, HSG96, HSE Books.

EMPLOYERS’ LIABILITY INSURANCE

Employers’ liability compulsory insurance (ELCI) enables businesses to meet the costs of compensation and legal fees for employees who are injured or made ill at work through the fault of their employer. Under the Employers’ Liability (Compulsory Insurance) Act (ELCI) 1969, an employer must have ELCI and be insured for

| Accident/incident | Consequences | Human contribution |
|--|---|--|
| Space Shuttle 'Challenger', Aerospace, USA, 1986. | Explosion killed all 7 astronauts on board. | There was an inadequate response to internal warnings about the faulty design of a seal. A decision was taken to go ahead with the launch in very cold temperatures despite the faulty seal. The decision made was a result of conflicting scheduling/safety goals, the mindset of individuals and the effects of fatigue. |
| Chernobyl, Nuclear industry, USSR, 1986. | A 1,000 MW nuclear reactor exploded releasing radioactivity over much of Europe. High environmental and human cost. | Causes were much debated, but the Soviet investigative team admitted 'deliberate, systematic and numerous violations' of health and safety procedures by operators. |
| Herald of Free Enterprise, Transport industry, UK, 1987. | Ferry sank killing 189 passengers and crew. | There was no system for checking that bow doors were shut. An inquiry reported that the company was 'infected with the disease of sloppiness'. The priority was to turn the ship around in record time. |
| Kings Cross fire, Transport industry, UK, 1987. | Major fire killed 31 people. | Organisational changes had led to poor escalator cleaning. The fire took hold because of inadequate firefighting equipment and poor staff training. There was a culture that viewed fires as inevitable. |
| Piper Alpha, Petrochemical industry, UK, 1988. | Major explosion on North Sea oil platform killed 167 workers. | The maintenance error that eventually led to the leak was the result of inexperience, poor procedures and poor learning. There was a breakdown in communications and the permit-to-work system at shift changeover and health and safety procedures were not properly practised. |

Figure 1-3-12: Human failure in accidents/incidents.

Source: UK, HSE, HSG48.

As can be seen from the examples in **figure 1-3-12** the prevention of human failure should be recognised as an important part of an accident/incident and ill-health prevention programme. There are two different types of human failure that need to be assessed and managed effectively - errors and violations. A **human error** is an action or decision that was not intended, which involved a deviation from an accepted standard, and which led to an undesirable outcome. A **violation** is a deliberate deviation from a rule or procedure.

HUMAN ERRORS

Human error is an important part of human factors and a particularly significant part of the health and safety related human failures that take place in the workplace. They are not the deliberate human failures, but are the unintended actions or decisions of individuals, often when trying to do their job well. Human errors fall into two categories, skill-based errors and mistakes, **see figure 1-3-13**. Skill based errors are then divided into two types, slips of action and lapses of memory. Mistakes are also divided into two types, rule-based mistakes and knowledge-based mistakes. Violations are also divided into two types, routine and exceptional.

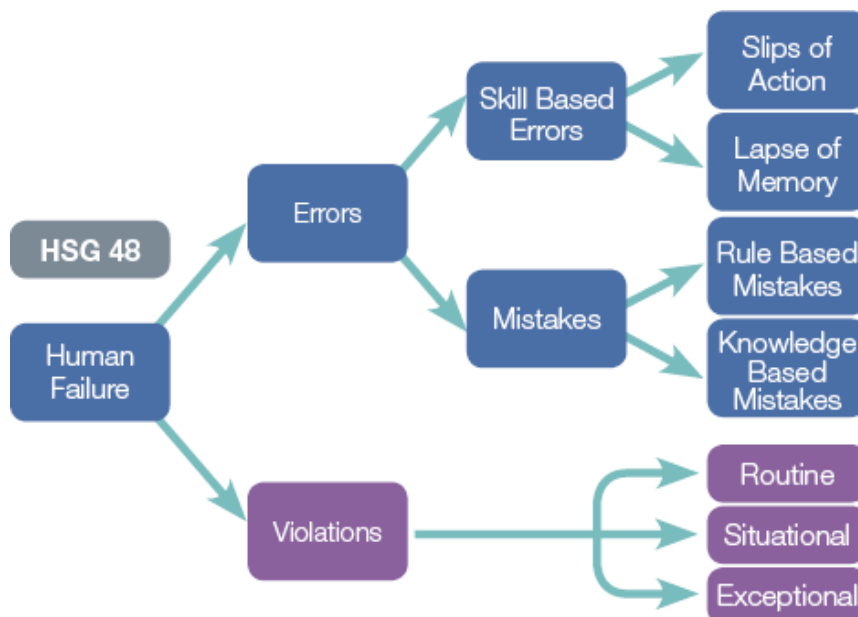


Figure 1-3-13: Human failures flow chart.

Source: UK HSE, HSG48.

DAMAGE ONLY

The term 'damage only' is used in the Health and Safety Executive (HSE) guidance document HSG245 - 'Investigating Accidents and Incidents - A Workbook for Employers, Unions, Safety Representatives and Safety Professionals'. 'Damage only' describes damage to property, equipment and the environment or production losses. HSG245 though, focuses on events that have the potential to cause harm to people.

Distinction between different types of incident

ILL-HEALTH

The health and well-being of individuals may be affected by a number of work-related factors. Ill-health may develop over a long period of time; these are commonly called chronic diseases. Typical examples of work-related ill-health are asbestosis, pneumoconiosis and silicosis, where the ill-health effects may take several years to develop. More recently, ill-health effects have been related to work load and stress.

INJURY ACCIDENT

Some injury effects will be acute in nature and recognised immediately, such as strains or sprains of muscles or ligaments caused by inappropriate lifting of heavy items. Other common injuries include cuts, burns, and bruises.

DANGEROUS OCCURRENCE

The schedule to the Reporting of Injuries, Disease and Dangerous Occurrences (RIDDOR) 2013 lists incidents that must be formally reported to the relevant enforcement agency.

They are significant events, such as the collapse of, the overturning of, or the failure of any load-bearing part of any lifting equipment or hoist; the failure of any closed vessel or any associated pipework; the collapse of a scaffold of more than five metres high.

NEAR-MISS

A near-miss is an incident with the potential to cause harm, but where no ill-health, injury or damage results. It is important to analyse near-miss incidents to assess the potential of the incident, had circumstances been different. This will enable hazards and risks to be identified that might not have been observed easily or predicted from a risk assessor's personal experience.

DAMAGE-ONLY

Substantial damage occurs to property and materials at work annually. Often the most significant losses are associated with workplace fires, when the workplace may be destroyed. The study of the incidence of damage-only losses may be a useful predictive tool to identify situations that might result in injury to people. For example, a series of collisions into a scaffold, requiring minor repair by replacement of a scaffold tube, may be predictive of a later collision involving total scaffold collapse, leading to major personal injury. Such considerations enable the employer to take corrective action before any human loss occurs.

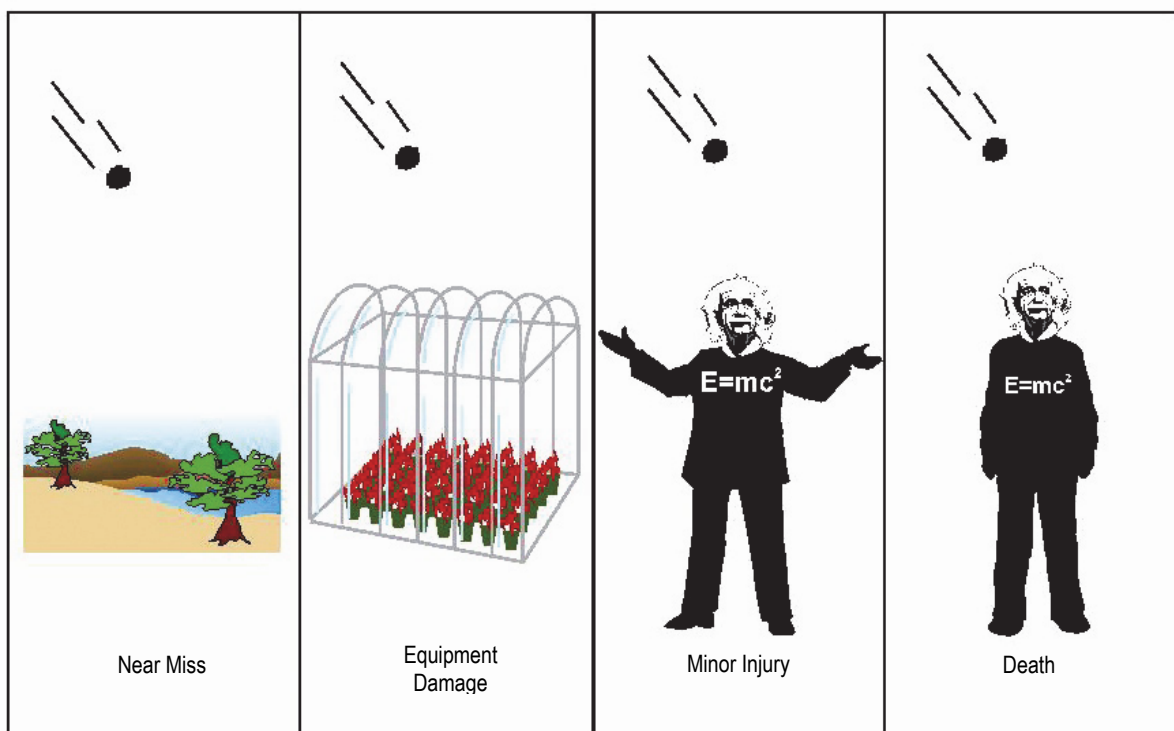


Figure 1-4-3: Results of an incident.

Source: RMS.

5.1 - Health and safety auditing

Meaning of the term audit

An audit is an exercise which determines the level of compliance of something to a set of agreed standards. In the field of health and safety, minimum standards may be derived from relevant legislation. Therefore, an audit may determine the extent to which an organisation is compliant with legislation.

A health and safety management system audit is that part of the management system that subjects the other components to a rigorous, systematic examination.

An audit is a systematic, critical examination of an organisation's systems to determine the extent of compliance with a set of agreed standards.

Figure 1-5-1: Definition of term audit.

Source: RMS.

Systematic, independent and documented process for obtaining 'audit evidence' and evaluating it objectively to determine the extent to which 'audit criteria' are fulfilled.

Figure 1-5-2: Definition of term audit.

Source: ISO 9000:2005.

Scope and purpose of auditing

The main purpose of an audit is to assess how well health and safety is being managed compared with expectations (standards). The audit process will identify strengths, weaknesses and areas of vulnerability. The outcome from the audit is a report to management and an action plan which will allow health and safety to be managed successfully.

The entire scope of the health and safety management system of an organisation should be subjected to a comprehensive audit from time to time. Individual aspects of the health and safety system and procedures can, of course, be subjected to individual audits, for example:

- Reporting and management of incident data.
- Occupational stress.
- Work at height.
- Fire prevention and control.
- Review of health and safety as part of the management system.

Distinction between audits and inspections

Health and safety audits assess the health and safety system, or parts of it, to determine if the system is ensuring health and safety. One of the parts of the system that may be examined by an audit is active monitoring methods like inspections. In this way the audit would identify if the right people were conducting them, using the right methods, at the right frequency and how effective they were.

Inspections usually involve the examination of the workplace, work equipment or work activities; with the purpose of identification of hazards, or conditions that can lead to hazards, and to put in controls to mitigate the hazards. It can therefore be said that inspections are concerned with hazard identification in the workplace, whereas auditing relates to the systems that manage the prevention and control of hazards.

Pre-audit preparations

INFORMATION GATHERING

The audit must be structured and coordinated in its assessment of the systems. This is best achieved by utilising audit checklists developed or obtained before the audit.

5/02 Chains Ropes and Lifting Tackle

Does the organisation ensure that statutory inspections are carried out?

Notes:

Consider:

- Examined by a competent person.
- Examined every period of six months.
- Register of examination.
- Certificate of test and examination.
- Distinguishing number or mark.
- Safe working load (SWL) - displayed.
- Fault procedure.
- Monitoring.

Figure 1-5-3: Extract from Audit 123 Level 2 Vol 1 of 2 Auditor's Guidance [ISBN 978-1-900420-96-9].

Source: RMS.

The audit involves interviewing people, observations in the workplace and assessment of documents such as:

- Health and safety policy.
- Health surveillance records.
- Records of statutory inspections such as lifting equipment and portable appliances.
- Procedures for method statements/permits to work.
- Maintenance procedures.
- Risk assessments.
- Insurance documents.
- Training records, etc.
- Accident/incident reports.