

# OHSAS Standards and Guidance Collection

## Occupational Health and Safety Systems



**This collection includes the following standards and books:**

BS OHSAS 18001:2007, Occupational health and safety management systems – Requirements

BS OHSAS 18002:2008, Occupational health and safety management systems — Guidelines for the implementation of OHSAS 18001:2007

BS 18004:2008, Guide to achieving effective occupational health and safety performance

BIP 2050, Managing Safety the Systems Way



## Occupational Health and Safety Assessment Series

First published in the UK in 2013

By  
BSI  
389 Chiswick High Road  
London W4 4AL

© The British Standards Institution 2013

All rights reserved. Except as permitted under the *Copyright, Designs and Patents Act 1988*, no part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means – electronic, photocopying, recording or otherwise – without prior permission in writing from the publisher.

Whilst every care has been taken in developing and compiling this publication, BSI accepts no liability for any loss or damage caused, arising directly or indirectly in connection with reliance on its contents except to the extent that such liability may not be excluded in law.

While every effort has been made to trace all copyright holders, anyone claiming copyright should get in touch with the BSI at the above address.

BSI has no responsibility for the persistence or accuracy of URLs for external or third-party internet websites referred to in this book, and does not guarantee that any content on such websites is, or will remain, accurate or appropriate.

Printed in Great Britain by Bertforts Group. [www.bertforts.com](http://www.bertforts.com)

*British Library Cataloguing in Publication Data*

A catalogue record for this book is available from the British Library

ISBN 978-0-580-75043-4



# Overview

## Context

In a world of many competing demands, occupational health and safety (OH&S) may not be high on the agenda for all organizations. However, it is a key risk area, regardless of size or sector, which needs to be effectively managed for any business to thrive.

The effective management of OH&S serves two main, high level purposes:

1. most importantly, it safeguards the welfare of workers by reducing the risk of ill-health or accidents; and
2. it enables the demonstration of an organization's OH&S commitment to customers, employees, regulators and other stakeholders.

So, the purpose of OH&S is hard to argue with or dismiss. But what about the day-to-day return on investment for implementing a management system for OH&S, particularly if you consider your organization's activities to be low risk? An effective system can bring about a wide range of commercial benefits, with the following list bringing together just a handful of examples:

- improved business performance through reduced costs, including:
  - better worker productivity through less disruption caused by incidents
  - reduced operating costs;
  - improved staff commitment; and
  - avoidance of loss of key skills through injury
- reduced cost of preparing bids for contracts;
- reduced risk of damage to business reputation and loss of customer confidence;
- reduced insurance premiums.

There are two international standards of particular relevance to those interested in developing a management system for OH&S. They are OHSAS 18001 and OHSAS 18002. There is also a British Standard that can be used in conjunction with them. A summary of each of their particular purposes and roles is set out below, along with some suggestions for how they can be used together to achieve the greatest benefits.

## Purpose

**OHSAS 18001** is an international standard that specifies the requirements that must be met to demonstrate that an effective health and safety management system is in place. It has a simple clause structure and is written in a language that non-professionals will understand. Its structure is such that an internal audit team can easily assess whether it is working effectively and determine how to improve the OH&S arrangements, and it will also allow for easy integration with other management systems, such as ISO 9001 for quality management and ISO 14001 for environmental management. There is the option of external verification via accredited certification schemes to the standard should this be seen as a suitable means of demonstrating commitment and assuring worker and stakeholder confidence.

**OHSAS 18002** is an international standard that gives extensive guidance on each of the requirements specified in OHSAS 18001. It provides a detailed view on what is expected to be in place for delivering an effective OH&S system and includes examples and issues to consider when implementing the various clauses or conducting an internal audit of the system.

OHSAS 18002 is essentially an aid to the implementation of OHSAS 18001 and the two should be used side by side.

**BS 18004** is a British standard that those wishing to maximise benefits and implement the good practices found in the best UK organizations will find particularly useful. It is a UK document which recognises that OHSAS 18001 offers an international structure addressing the basic prerequisites of

---

OH&S around the world without necessarily achieving the performance levels expected in the UK. BS 18004 deals with OH&S in a similar structure to OHSAS 18001 and OHSAS 18002, but provides more explanatory text and detailed guidance in 12 annexes on important topics that go above and beyond OHSAS 18001, including:

- Integration
- Guidance on implementation and operation
- Promoting an effective OH&S management system
- Occupational Health
- Worker involvement
- Emergency preparedness and response
- Measuring performance
- Incident investigation
- Internal audit

BS 18004 also provides some guidance on initial status review for those who have very little in place and wish to implement an effective OH&S management system.

## Approaches

One approach to implementing a management system for OH&S is set out in **Managing Safety the Systems Way**. This practical book, now in its third edition, provides step by step practical guidance on the implementation of OHSAS 18001 to achieve good OH&S management practice. It helps an organization get started when there is even very little in place and provides fictional company case studies with which readers can identify and compare to their own organization. There are numerous useful checklists enabling those implementing systems to assess progress and check if they have completed the implementation of a system which meets the basic criteria of OHSAS 18001 through to good practice. **Managing Safety the Systems Way** also gives practical advice on how OHSAS 18001 requirements can be integrated with other management system standards within an organization's overall management system. This framework can help reduce duplication and bureaucracy and the internal conflicts that can arise when processes are not effectively aligned or integrated.

This package provides the framework and guidance to enable an organization to put in place a standards-based system for OH&S management that is effective but not burdensome.

### ***Find***

Select **Edit > Find** from the menu bar to use the **Find** function. Type in the text you want to find and click through occurrences in the document in sequence.

### ***Search***

For a more advanced search function select **Edit > Search** from the menu bar. This enables you to specify additional criteria for your search and presents the results in a list, allowing you to click through to any occurrence.

OCCUPATIONAL HEALTH AND SAFETY ASSESSMENT SERIES

# Occupational health and safety management systems – Requirements

---

## National foreword

### Publishing information

This British Standard was published by BSI. It is the official UK implementation of OHSAS 18001:2007, which supersedes OHSAS 18001:1999.

BS OHSAS 18001 will be maintained in line with any changes to OHSAS 18001, subject to the approval of BSI Technical Committee HS/1, *Occupational health and safety management*, which collated the UK comments on the second Working Draft of OHSAS 18001 and put forward its preferred position.

A list of organizations represented on this committee can be obtained on request to its secretary.

### Contractual and legal considerations

In the UK, and Europe generally, there are various legal requirements for occupational health and safety that apply to the potentially harmful effects of work activities and which extend beyond the workplace to those affected by workplace activities (see Note to 3.12 on the definition of occupational health and safety). It is essential for the organization to take the matters addressed by these legal requirements into account in establishing, implementing and maintaining its OH&S management system – and in particular when identifying hazards, assessing risks and determining controls (see 4.3.1 and 4.3.2). This standard ought therefore to be read in conjunction with BS 8800 and HSG 65,<sup>1)</sup> which give good practice guidance on complying with such legal requirements in the UK.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

**Compliance with a British Standard cannot confer immunity from legal obligations.**

### Publishing and copyright information

The BSI copyright notice displayed in this document indicates when the document was last issued.

© BSI 2007

ISBN 978 0 580 59404 5

### Publication history

First published July 2007

### Amendments issued since publication

Amd. no.	Date	Text affected
----------	------	---------------

---

---

<sup>1)</sup> BS 8800, *Occupational health and safety management systems – Guide*, and HSG 65, *Successful health and safety management*.

---

# Contents

Acknowledgement *ii*

Foreword *iii*

Introduction *v*

**1** Scope *1*

**2** Reference publications *1*

**3** Terms and definitions *2*

**4** OH&S management system requirements *5*

## **Annexes**

Annex A (informative) Correspondence between OHSAS 18001:2007, ISO 14001:2004 and ISO 9001:2000 *15*

Annex B (informative) Correspondence between OHSAS 18001, OHSAS 18002, and the ILO-OSH:2001 *Guidelines on occupational safety and health management systems* *18*

Bibliography *22*

## **List of figures**

Figure 1 – OH&S management system model for this OHSAS Standard *vi*

## **List of tables**

Table A.1 – Correspondence between OHSAS 18001:2007, ISO 14001:2004 and ISO 9001:2000 *15*

Table B.1 – Correspondence between the clauses of the OHSAS documents and the clauses of the ILO-OSH Guidelines *20*

## **Summary of pages**

This document comprises a front cover, an inside front cover, pages i to viii, pages 1 to 22, an inside back cover and a back cover.

# Acknowledgement

This edition of OHSAS 18001 has been developed with the assistance of the following cooperating organizations:

American Industrial Hygiene Association (AIHA)  
Asociación Española de Normalización y Certificación (AENOR)  
Association of British Certification Bodies (ABCB)  
British Standards Institution (BSI)  
Bureau Veritas  
Comisión Federal de Electricidad (CFE), (Gerencia de la seguridad industrial)  
Czech Accreditation Institute (CAI)  
Det Norske Veritas (DNV)  
DS Certification A/S  
EEF the manufacturers' organisation  
ENLAR Compliance Services, Inc.  
Health and Safety Executive<sup>1)</sup>  
Hong Kong Quality Assurance Agency (HKQAA)  
Inspecta Certification  
Institution of Occupational Safety and Health (IOSH)  
Instituto Argentino de Normalización y Certificación (IRAM)  
Instituto Colombiano de Normas Técnicas y Certificación (ICONTEC)  
Instituto de Normas Técnicas de Costa Rica (INTECO)  
Instituto Mexicano de Normalización y Certificación (IMNC)  
Instituto Uruguayo de Normas Técnicas (UNIT)  
ITS Consultants  
Japan Industrial Safety and Health Association (JISHA)  
Japanese Standards Association (JSA)  
Korea Gas Safety Corporation (ISO Certificate Division)  
Lloyds Register Quality Assurance (LRQA)  
Management Systems Certification Limited  
National Standards Authority of Ireland (NSAI)  
National University of Singapore (NUS)  
Nederlands Normalisatie-instituut (NEN)  
NPKF ELECTON  
NQA  
Quality Management Institute (QMI)  
SABS Commercial (Pty) Ltd.  
Service de Normalisation Industrielle Marocaine (SNIMA)  
SGS United Kingdom Ltd  
SIRIM QAS International  
SPRING Singapore  
Standards Institution of Israel (SII)  
Standards New Zealand (SNZ)  
Sucofindo International Certification Services (SICS)  
Swedish Industry Association (Sinf)  
TÜV Rheinland Cert GmbH – TÜV Rheinland Group  
Standards Association of Zimbabwe (SAZ)

We would also like to recognize the invaluable contribution made by those many organizations who took the time to review the working drafts of OHSAS 18001, and who submitted comments for consideration. This helped us greatly in improving the standard, and is much appreciated.

---

<sup>1)</sup> As the regulatory authority responsible for health and safety in Great Britain, the Health and Safety Executive would wish to make it clear that reliance on the OHSAS Standard by organizations will not absolve them from compliance with any of their legal health and safety obligations under the laws of England & Wales, and Scotland.

# Foreword

This Occupational Health and Safety Assessment Series (OHSAS) Standard and the accompanying OHSAS 18002, *Guidelines for the implementation of OHSAS 18001*, have been developed in response to customer demand for a recognizable occupational health and safety management system standard against which their management systems can be assessed and certified.

OHSAS 18001 has been developed to be compatible with the ISO 9001:2000 (Quality) and ISO 14001:2004 (Environmental) management systems standards, in order to facilitate the integration of quality, environmental and occupational health and safety management systems by organizations, should they wish to do so.

This OHSAS Standard will be reviewed or amended when considered appropriate. Reviews will be conducted when new editions of either ISO 9001 or ISO 14001 are published, to ensure continuing compatibility.

This OHSAS Standard will be withdrawn on publication of its contents in, or as, an International Standard.

This OHSAS Standard has been drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

This second edition cancels and replaces the first edition (OHSAS 18001:1999), which has been technically revised.

The principal changes with respect to the previous edition are as follows.

- The importance of “health” has now been given greater emphasis.
- OHSAS 18001 now refers to itself as a standard, not a specification, or document, as in the earlier edition. This reflects the increasing adoption of OHSAS 18001 as the basis for national standards on occupational health and safety management systems.
- The “Plan-Do-Check-Act” model diagram is only given in the Introduction, in its entirety, and not also as sectional diagrams at the start of each major clause.
- Reference publications in Clause 2 have been limited to purely international documents.
- New definitions have been added, and existing definitions revised.
- Significant improvement in alignment with ISO 14001:2004 throughout the standard, and improved compatibility with ISO 9001:2000.
- The term “tolerable risk” has been replaced by the term “acceptable risk” (see 3.1).
- The term “accident” is now included in the term “incident” (see 3.9).
- The definition of the term “hazard” no longer refers to “damage to property or damage to the workplace environment” (see 3.6).



It is now considered that such “damage” is not directly related to occupational health and safety management, which is the purpose of this OHSAS Standard, and that it is included in the field of asset management. Instead, the risk of such “damage” having an effect on occupational health and safety should be identified through the organization’s risk assessment process, and be controlled through the application of appropriate risk controls.

- Sub-clauses **4.3.3** and **4.3.4** have been merged, in line with ISO 14001:2004.
- A new requirement has been introduced for the consideration of the hierarchy of controls as part of OH&S planning (see **4.3.1**).
- Management of change is now more explicitly addressed (see **4.3.1** and **4.4.6**).
- A new clause on the “Evaluation of compliance” (see **4.5.2**) has been introduced.
- New requirements have been introduced for participation and consultation (see **4.4.3.2**).
- New requirements have been introduced for the investigation of incidents (see **4.5.3.1**).

This publication does not purport to include all necessary provisions of a contract. Users are responsible for its correct application.

**Compliance with this Occupational Health and Safety Assessment Series (OHSAS) Standard cannot confer immunity from legal obligations.**

# Introduction

Organizations of all kinds are increasingly concerned with achieving and demonstrating sound occupational health and safety (OH&S) performance by controlling their OH&S risks, consistent with their OH&S policy and objectives. They do so in the context of increasingly stringent legislation, the development of economic policies and other measures that foster good OH&S practices, and increased concern expressed by interested parties about OH&S issues.

Many organizations have undertaken OH&S “reviews” or “audits” to assess their OH&S performance. On their own, however, these “reviews” and “audits” may not be sufficient to provide an organization with the assurance that its performance not only meets, but will continue to meet, its legal and policy requirements. To be effective, they need to be conducted within a structured management system that is integrated within the organization.

The OHSAS Standards covering OH&S management are intended to provide organizations with the elements of an effective OH&S management system that can be integrated with other management requirements and help organizations achieve OH&S and economic objectives. These standards, like other International Standards, are not intended to be used to create non-tariff trade barriers or to increase or change an organization’s legal obligations.

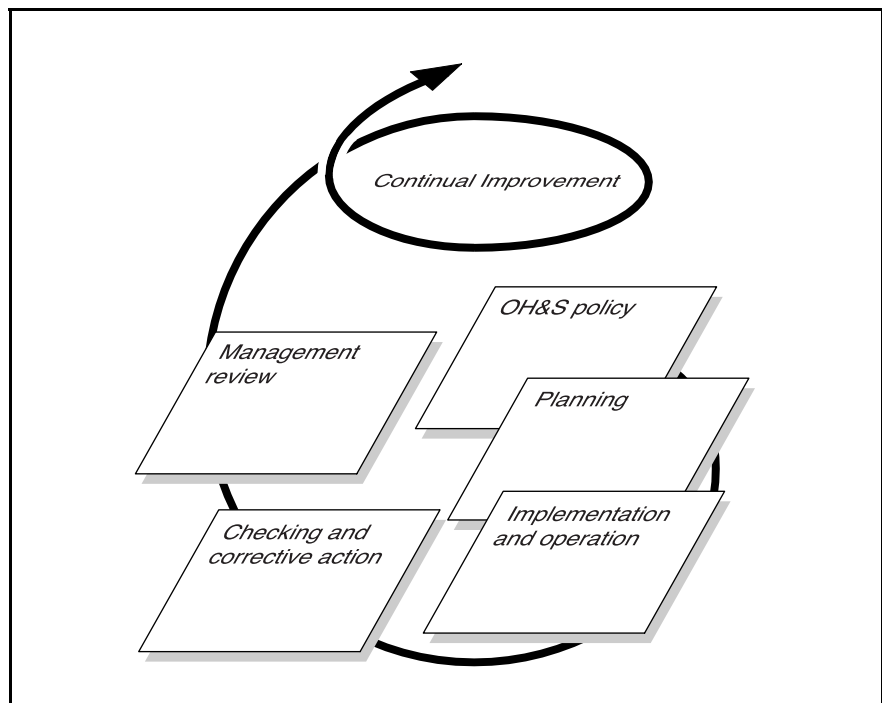
This OHSAS Standard specifies requirements for an OH&S management system to enable an organization to develop and implement a policy and objectives which take into account legal requirements and information about OH&S risks. It is intended to apply to all types and sizes of organizations and to accommodate diverse geographical, cultural and social conditions. The basis of the approach is shown in Figure 1. The success of the system depends on commitment from all levels and functions of the organization, and especially from top management. A system of this kind enables an organization to develop an OH&S policy, establish objectives and processes to achieve the policy commitments, take action as needed to improve its performance and demonstrate the conformity of the system to the requirements of this OHSAS Standard. The overall aim of this OHSAS Standard is to support and promote good OH&S practices, in balance with socio-economic needs. It should be noted that many of the requirements can be addressed concurrently or revisited at any time.

The second edition of this OHSAS Standard is focused on clarification of the first edition, and has taken due consideration of the provisions of ISO 9001, ISO 14001, ILO-OSH, and other OH&S management system standards or publications to enhance the compatibility of these standards for the benefit of the user community.

There is an important distinction between this OHSAS Standard, which describes the requirements for an organization's OH&S management system and can be used for certification/registration and/or self-declaration of an organization's OH&S management system, and a non-certifiable guideline intended to provide generic assistance to an organization for establishing, implementing or improving an OH&S management system. OH&S management encompasses a full range of issues, including those with strategic and competitive implications. Demonstration of successful implementation of this OHSAS Standard can be used by an organization to assure interested parties that an appropriate OH&S management system is in place.

Those organizations requiring more general guidance on a broad range of OH&S management system issues are referred to OHSAS 18002. Any reference to other International Standards is for information only.

Figure 1 **OH&S management system model for this OHSAS Standard**



*NOTE* This OHSAS Standard is based on the methodology known as Plan-Do-Check-Act (PDCA). PDCA can be briefly described as follows.

- **Plan:** establish the objectives and processes necessary to deliver results in accordance with the organization's OH&S policy.
- **Do:** implement the processes.
- **Check:** monitor and measure processes against OH&S policy, objectives, legal and other requirements, and report the results.
- **Act:** take actions to continually improve OH&S performance.

Many organizations manage their operations via the application of a system of processes and their interactions, which can be referred to as the "process approach". ISO 9001 promotes the use of the process approach. Since PDCA can be applied to all processes, the two methodologies are considered to be compatible.

This OHSAS Standard contains requirements that can be objectively audited; however it does not establish absolute requirements for OH&S performance beyond the commitments, in the OH&S policy, to comply with applicable legal requirements and with other requirements to which the organization subscribes, to the prevention of injury and ill health and to continual improvement. Thus, two organizations carrying out similar operations but having different OH&S performance can both conform to its requirements.

This OH&S Standard does not include requirements specific to other management systems, such as those for quality, environmental, security, or financial management, though its elements can be aligned or integrated with those of other management systems. It is possible for an organization to adapt its existing management system(s) in order to establish an OH&S management system that conforms to the requirements of this OHSAS Standard. It is pointed out, however, that the application of various elements of the management system might differ depending on the intended purpose and the interested parties involved.

The level of detail and complexity of the OH&S management system, the extent of documentation and the resources devoted to it depend on a number of factors, such as the scope of the system, the size of an organization and the nature of its activities, products and services, and the organizational culture. This may be the case in particular for small and medium-sized enterprises.



# Occupational health and safety management systems – Requirements

## 1 Scope

This Occupational Health and Safety Assessment Series (OHSAS) Standard specifies requirements for an occupational health and safety (OH&S) management system, to enable an organization to control its OH&S risks and improve its OH&S performance. It does not state specific OH&S performance criteria, nor does it give detailed specifications for the design of a management system.

This OHSAS Standard is applicable to any organization that wishes to:

- a) establish an OH&S management system to eliminate or minimize risks to personnel and other interested parties who could be exposed to OH&S hazards associated with its activities;
- b) implement, maintain and continually improve an OH&S management system;
- c) assure itself of its conformity with its stated OH&S policy;
- d) demonstrate conformity with this OHSAS Standard by:
  - 1) making a self-determination and self-declaration, or
  - 2) seeking confirmation of its conformance by parties having an interest in the organization, such as customers, or
  - 3) seeking confirmation of its self-declaration by a party external to the organization, or
  - 4) seeking certification/registration of its OH&S management system by an external organization.

All the requirements in this OHSAS Standard are intended to be incorporated into any OH&S management system. The extent of the application will depend on such factors as the OH&S policy of the organization, the nature of its activities and the risks and complexity of its operations.

This OHSAS Standard is intended to address occupational health and safety, and is not intended to address other health and safety areas such as employee wellbeing/wellness programmes, product safety, property damage or environmental impacts.

## 2 Reference publications

Other publications that provide information or guidance are listed in the bibliography. It is advisable that the latest editions of such publications be consulted. Specifically, reference should be made to:

OHSAS 18002, *Occupational health and safety management systems – Guidelines for the implementation of OHSAS 18001*

International Labour Organization:2001, *Guidelines on Occupational Health and Safety Management Systems (OSH-MS)*

## 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

### 3.1 acceptable risk

risk that has been reduced to a level that can be tolerated by the organization having regard to its legal obligations and its own **OH&S policy (3.16)**

### 3.2 audit

systematic, independent and documented process for obtaining “audit evidence” and evaluating it objectively to determine the extent to which “audit criteria” are fulfilled

[ISO 9000:2005, **3.9.1**]

*NOTE 1 Independent does not necessarily mean external to the organization. In many cases, particularly in smaller organizations, independence can be demonstrated by the freedom from responsibility for the activity being audited.*

*NOTE 2 For further guidance on “audit evidence” and “audit criteria”, see ISO 19011.*

### 3.3 continual improvement

recurring process of enhancing the **OH&S management system (3.13)** in order to achieve improvements in overall **OH&S performance (3.15)** consistent with the **organization’s (3.17) OH&S policy (3.16)**

*NOTE 1 The process need not take place in all areas of activity simultaneously.*

*NOTE 2 Adapted from ISO 14001:2004, 3.2.*

### 3.4 corrective action

action to eliminate the cause of a detected **nonconformity (3.11)** or other undesirable situation

*NOTE 1 There can be more than one cause for a nonconformity.*

*NOTE 2 Corrective action is taken to prevent recurrence whereas **preventive action (3.18)** is taken to prevent occurrence.*

[ISO 9000:2005, **3.6.5**]

### 3.5 document

information and its supporting medium

*NOTE The medium can be paper, magnetic, electronic or optical computer disc, photograph or master sample, or a combination thereof.*

[ISO 14001:2004, **3.4**]

### 3.6 hazard

source, situation, or act with a potential for harm in terms of human injury or **ill health (3.8)**, or a combination of these

### 3.7 hazard identification

process of recognizing that a **hazard (3.6)** exists and defining its characteristics

**3.8 ill health**

identifiable, adverse physical or mental condition arising from and/or made worse by a work activity and/or work-related situation

**3.9 incident**

work-related event(s) in which an injury or **ill health (3.8)** (regardless of severity) or fatality occurred, or could have occurred

*NOTE 1 An accident is an incident which has given rise to injury, ill health or fatality.*

*NOTE 2 An incident where no injury, ill health, or fatality occurs may also be referred to as a “near-miss”, “near-hit”, “close call” or “dangerous occurrence”.*

*NOTE 3 An emergency situation (see 4.4.7) is a particular type of incident.*

**3.10 interested party**

person or group, inside or outside the **workplace (3.23)**, concerned with or affected by the **OH&S performance (3.15)** of an **organization (3.17)**

**3.11 nonconformity**

non-fulfilment of a requirement

[ISO 9000:2005, 3.6.2; ISO 14001, 3.15]

*NOTE A nonconformity can be any deviation from:*

- *relevant work standards, practices, procedures, legal requirements, etc.*
- *OH&S management system (3.13) requirements.*

**3.12 occupational health and safety (OH&S)**

conditions and factors that affect, or could affect, the health and safety of employees or other workers (including temporary workers and contractor personnel), visitors, or any other person in the **workplace (3.23)**

*NOTE Organizations can be subject to legal requirements for the health and safety of persons beyond the immediate workplace, or who are exposed to the workplace activities.*

**3.13 OH&S management system**

part of an **organization's (3.17)** management system used to develop and implement its **OH&S policy (3.16)** and manage its **OH&S risks (3.21)**

*NOTE 1 A management system is a set of interrelated elements used to establish policy and objectives and to achieve those objectives.*

*NOTE 2 A management system includes organizational structure, planning activities (including, for example, risk assessment and the setting of objectives), responsibilities, practices, **procedures (3.19)**, processes and resources.*

*NOTE 3 Adapted from ISO 14001:2004, 3.8.*



**3.14 OH&S objective**

OH&S goal, in terms of **OH&S performance (3.15)**, that an **organization (3.17)** sets itself to achieve

*NOTE 1 Objectives should be quantified wherever practicable.*

*NOTE 2 4.3.3 requires that OH&S objectives are consistent with the OH&S policy (3.16).*

**3.15 OH&S performance**

measurable results of an **organization's (3.17)** management of its **OH&S risks (3.21)**

*NOTE 1 OH&S performance measurement includes measuring the effectiveness of the organization's controls.*

*NOTE 2 In the context of OH&S management systems (3.13), results can also be measured against the organization's (3.17) OH&S policy (3.16), OH&S objectives (3.14), and other OH&S performance requirements.*

**3.16 OH&S policy**

overall intentions and direction of an **organization (3.17)** related to its **OH&S performance (3.15)** as formally expressed by top management

*NOTE 1 The OH&S policy provides a framework for action and for the setting of OH&S objectives (3.14)*

*NOTE 2 Adapted from ISO 14001:2004, 3.11.*

**3.17 organization**

company, corporation, firm, enterprise, authority or institution, or part or combination thereof, whether incorporated or not, public or private, that has its own functions and administration

*NOTE For organizations with more than one operating unit, a single operating unit may be defined as an organization.*

[ISO 14001:2004, 3.16]

**3.18 preventive action**

action to eliminate the cause of a potential **nonconformity (3.11)** or other undesirable potential situation

*NOTE 1 There can be more than one cause for a potential nonconformity.*

*NOTE 2 Preventive action is taken to prevent occurrence whereas corrective action (3.4) is taken to prevent recurrence.*

[ISO 9000:2005, 3.6.4]

**3.19 procedure**

specified way to carry out an activity or a process

*NOTE Procedures can be documented or not.*

[ISO 9000:2005, 3.4.5]

**3.20 record**

**document (3.5)** stating results achieved or providing evidence of activities performed

[ISO 14001:2004, 3.20]

**3.21 risk**

combination of the likelihood of an occurrence of a hazardous event or exposure(s) and the severity of injury or **ill health (3.8)** that can be caused by the event or exposure(s)

**3.22 risk assessment**

process of evaluating the **risk(s)** (3.21) arising from a hazard(s), taking into account the adequacy of any existing controls, and deciding whether or not the risk(s) is acceptable

**3.23 workplace**

any physical location in which work related activities are performed under the control of the organization

*NOTE* When giving consideration to what constitutes a workplace, the **organization** (3.17) should take into account the OH&S effects on personnel who are, for example, travelling or in transit (e.g. driving, flying, on boats or trains), working at the premises of a client or customer, or working at home.

## **4 OH&S management system requirements**

### **4.1 General requirements**

The organization shall establish, document, implement, maintain and continually improve an OH&S management system in accordance with the requirements of this OHSAS Standard and determine how it will fulfil these requirements.

The organization shall define and document the scope of its OH&S management system.

### **4.2 OH&S policy**

Top management shall define and authorize the organization's OH&S policy and ensure that within the defined scope of its OH&S management system it:

- a) is appropriate to the nature and scale of the organization's OH&S risks;
- b) includes a commitment to prevention of injury and ill health and continual improvement in OH&S management and OH&S performance;
- c) includes a commitment to at least comply with applicable legal requirements and with other requirements to which the organization subscribes that relate to its OH&S hazards;
- d) provides the framework for setting and reviewing OH&S objectives;
- e) is documented, implemented and maintained;
- f) is communicated to all persons working under the control of the organization with the intent that they are made aware of their individual OH&S obligations;
- g) is available to interested parties; and
- h) is reviewed periodically to ensure that it remains relevant and appropriate to the organization.

## 4.3 Planning

### 4.3.1 Hazard identification, risk assessment and determining controls

The organization shall establish, implement and maintain a procedure(s) for the ongoing hazard identification, risk assessment, and determination of necessary controls.

The procedure(s) for hazard identification and risk assessment shall take into account:

- a) routine and non-routine activities;
- b) activities of all persons having access to the workplace (including contractors and visitors);
- c) human behaviour, capabilities and other human factors;
- d) identified hazards originating outside the workplace capable of adversely affecting the health and safety of persons under the control of the organization within the workplace;
- e) hazards created in the vicinity of the workplace by work-related activities under the control of the organization;

*NOTE 1 It may be more appropriate for such hazards to be assessed as an environmental aspect.*

- f) infrastructure, equipment and materials at the workplace, whether provided by the organization or others;
- g) changes or proposed changes in the organization, its activities, or materials;
- h) modifications to the OH&S management system, including temporary changes, and their impacts on operations, processes, and activities;
- i) any applicable legal obligations relating to risk assessment and implementation of necessary controls (see also the NOTE to **3.12**);
- j) the design of work areas, processes, installations, machinery/equipment, operating procedures and work organization, including their adaptation to human capabilities.

The organization's methodology for hazard identification and risk assessment shall:

- a) be defined with respect to its scope, nature and timing to ensure it is proactive rather than reactive; and
- b) provide for the identification, prioritization and documentation of risks, and the application of controls, as appropriate.

For the management of change, the organization shall identify the OH&S hazards and OH&S risks associated with changes in the organization, the OH&S management system, or its activities, prior to the introduction of such changes.

The organization shall ensure that the results of these assessments are considered when determining controls.

When determining controls, or considering changes to existing controls, consideration shall be given to reducing the risks according to the following hierarchy:

- a) elimination;
- b) substitution;
- c) engineering controls;
- d) signage/warnings and/or administrative controls;
- e) personal protective equipment.

The organization shall document and keep the results of identification of hazards, risk assessments and determined controls up-to-date.

The organization shall ensure that the OH&S risks and determined controls are taken into account when establishing, implementing and maintaining its OH&S management system.

*NOTE 2 For further guidance on hazard identification, risk assessment and determining controls, see OHSAS 18002.*

### **4.3.2 Legal and other requirements**

The organization shall establish, implement and maintain a procedure(s) for identifying and accessing the legal and other OH&S requirements that are applicable to it.

The organization shall ensure that these applicable legal requirements and other requirements to which the organization subscribes are taken into account in establishing, implementing and maintaining its OH&S management system.

The organization shall keep this information up-to-date.

The organization shall communicate relevant information on legal and other requirements to persons working under the control of the organization, and other relevant interested parties.

### **4.3.3 Objectives and programme(s)**

The organization shall establish, implement and maintain documented OH&S objectives, at relevant functions and levels within the organization.

The objectives shall be measurable, where practicable, and consistent with the OH&S policy, including the commitments to the prevention of injury and ill health, to compliance with applicable legal requirements and with other requirements to which the organization subscribes, and to continual improvement.

When establishing and reviewing its objectives, an organization shall take into account the legal requirements and other requirements to which the organization subscribes, and its OH&S risks. It shall also consider its technological options, its financial, operational and business requirements, and the views of relevant interested parties.

The organization shall establish, implement and maintain a programme(s) for achieving its objectives. Programme(s) shall include as a minimum:

- a) designation of responsibility and authority for achieving objectives at relevant functions and levels of the organization; and
- b) the means and time-frame by which the objectives are to be achieved.

The programme(s) shall be reviewed at regular and planned intervals, and adjusted as necessary, to ensure that the objectives are achieved.

## **4.4 Implementation and operation**

### **4.4.1 Resources, roles, responsibility, accountability and authority**

Top management shall take ultimate responsibility for OH&S and the OH&S management system.

Top management shall demonstrate its commitment by:

- a) ensuring the availability of resources essential to establish, implement, maintain and improve the OH&S management system;

*NOTE 1 Resources include human resources and specialized skills, organizational infrastructure, technology and financial resources.*

- b) defining roles, allocating responsibilities and accountabilities, and delegating authorities, to facilitate effective OH&S management; roles, responsibilities, accountabilities, and authorities shall be documented and communicated.

The organization shall appoint a member(s) of top management with specific responsibility for OH&S, irrespective of other responsibilities, and with defined roles and authority for:

- a) ensuring that the OH&S management system is established, implemented and maintained in accordance with this OHSAS Standard;
- b) ensuring that reports on the performance of the OH&S management system are presented to top management for review and used as a basis for improvement of the OH&S management system.

*NOTE 2 The top management appointee (e.g. in a large organization, a Board or executive committee member) may delegate some of their duties to a subordinate management representative(s) while still retaining accountability.*

The identity of the top management appointee shall be made available to all persons working under the control of the organization.

All those with management responsibility shall demonstrate their commitment to the continual improvement of OH&S performance.

The organization shall ensure that persons in the workplace take responsibility for aspects of OH&S over which they have control, including adherence to the organization's applicable OH&S requirements.

## **4.4.2 Competence, training and awareness**

The organization shall ensure that any person(s) under its control performing tasks that can impact on OH&S is (are) competent on the basis of appropriate education, training or experience, and shall retain associated records.

The organization shall identify training needs associated with its OH&S risks and its OH&S management system. It shall provide training or take other action to meet these needs, evaluate the effectiveness of the training or action taken, and retain associated records.

The organization shall establish, implement and maintain a procedure(s) to make persons working under its control aware of:

- a) the OH&S consequences, actual or potential, of their work activities, their behaviour, and the OH&S benefits of improved personal performance;
- b) their roles and responsibilities and importance in achieving conformity to the OH&S policy and procedures and to the requirements of the OH&S management system, including emergency preparedness and response requirements (see **4.4.7**);
- c) the potential consequences of departure from specified procedures.

Training procedures shall take into account differing levels of:

- a) responsibility, ability, language skills and literacy; and
- b) risk.

## **4.4.3 Communication, participation and consultation**

### **4.4.3.1 Communication**

With regard to its OH&S hazards and OH&S management system, the organization shall establish, implement and maintain a procedure(s) for:

- a) internal communication among the various levels and functions of the organization;
- b) communication with contractors and other visitors to the workplace;
- c) receiving, documenting and responding to relevant communications from external interested parties.

### **4.4.3.2 Participation and consultation**

The organization shall establish, implement and maintain a procedure(s) for:

- a) the participation of workers by their:
  - appropriate involvement in hazard identification, risk assessments and determination of controls;
  - appropriate involvement in incident investigation;
  - involvement in the development and review of OH&S policies and objectives;



- consultation where there are any changes that affect their OH&S;
- representation on OH&S matters.

Workers shall be informed about their participation arrangements, including who is their representative(s) on OH&S matters.

- b) consultation with contractors where there are changes that affect their OH&S.

The organization shall ensure that, when appropriate, relevant external interested parties are consulted about pertinent OH&S matters.

#### **4.4.4 Documentation**

The OH&S management system documentation shall include:

- a) the OH&S policy and objectives;
- b) description of the scope of the OH&S management system;
- c) description of the main elements of the OH&S management system and their interaction, and reference to related documents;
- d) documents, including records, required by this OHSAS Standard; and
- e) documents, including records, determined by the organization to be necessary to ensure the effective planning, operation and control of processes that relate to the management of its OH&S risks.

*NOTE It is important that documentation is proportional to the level of complexity, hazards and risks concerned and is kept to the minimum required for effectiveness and efficiency.*

#### **4.4.5 Control of documents**

Documents required by the OH&S management system and by this OHSAS Standard shall be controlled. Records are a special type of document and shall be controlled in accordance with the requirements given in **4.5.4**.

The organization shall establish, implement and maintain a procedure(s) to:

- a) approve documents for adequacy prior to issue;
- b) review and update as necessary and re-approve documents;
- c) ensure that changes and the current revision status of documents are identified;
- d) ensure that relevant versions of applicable documents are available at points of use;
- e) ensure that documents remain legible and readily identifiable;
- f) ensure that documents of external origin determined by the organization to be necessary for the planning and operation of the OH&S management system are identified and their distribution controlled; and
- g) prevent the unintended use of obsolete documents and apply suitable identification to them if they are retained for any purpose.

#### **4.4.6 Operational control**

The organization shall determine those operations and activities that are associated with the identified hazard(s) where the implementation of controls is necessary to manage the OH&S risk(s). This shall include the management of change (see 4.3.1).

For those operations and activities, the organization shall implement and maintain:

- a) operational controls, as applicable to the organization and its activities; the organization shall integrate those operational controls into its overall OH&S management system;
- b) controls related to purchased goods, equipment and services;
- c) controls related to contractors and other visitors to the workplace;
- d) documented procedures, to cover situations where their absence could lead to deviations from the OH&S policy and the objectives;
- e) stipulated operating criteria where their absence could lead to deviations from the OH&S policy and objectives.

#### **4.4.7 Emergency preparedness and response**

The organization shall establish, implement and maintain a procedure(s):

- a) to identify the potential for emergency situations;
- b) to respond to such emergency situations.

The organization shall respond to actual emergency situations and prevent or mitigate associated adverse OH&S consequences.

In planning its emergency response the organization shall take account of the needs of relevant interested parties, e.g. emergency services and neighbours.

The organization shall also periodically test its procedure(s) to respond to emergency situations, where practicable, involving relevant interested parties as appropriate.

The organization shall periodically review and, where necessary, revise its emergency preparedness and response procedure(s), in particular, after periodical testing and after the occurrence of emergency situations (see 4.5.3).

### **4.5 Checking**

#### **4.5.1 Performance measurement and monitoring**

The organization shall establish, implement and maintain a procedure(s) to monitor and measure OH&S performance on a regular basis. This procedure(s) shall provide for:

- a) both qualitative and quantitative measures, appropriate to the needs of the organization;
- b) monitoring of the extent to which the organization's OH&S objectives are met;
- c) monitoring the effectiveness of controls (for health as well as for safety);



- d) proactive measures of performance that monitor conformance with the OH&S programme(s), controls and operational criteria;
- e) reactive measures of performance that monitor ill health, incidents (including accidents, near-misses, etc.), and other historical evidence of deficient OH&S performance;
- f) recording of data and results of monitoring and measurement sufficient to facilitate subsequent corrective action and preventive action analysis.

If equipment is required to monitor or measure performance, the organization shall establish and maintain procedures for the calibration and maintenance of such equipment, as appropriate. Records of calibration and maintenance activities and results shall be retained.

## **4.5.2 Evaluation of compliance**

**4.5.2.1** Consistent with its commitment to compliance [see **4.2c**], the organization shall establish, implement and maintain a procedure(s) for periodically evaluating compliance with applicable legal requirements (see **4.3.2**).

The organization shall keep records of the results of the periodic evaluations.

*NOTE The frequency of periodic evaluation may vary for differing legal requirements.*

**4.5.2.2** The organization shall evaluate compliance with other requirements to which it subscribes (see **4.3.2**). The organization may wish to combine this evaluation with the evaluation of legal compliance referred to in **4.5.2.1** or to establish a separate procedure(s).

The organization shall keep records of the results of the periodic evaluations.

*NOTE The frequency of periodic evaluation may vary for differing other requirements to which the organization subscribes.*

## **4.5.3 Incident investigation, nonconformity, corrective action and preventive action**

### **4.5.3.1 Incident investigation**

The organization shall establish, implement and maintain a procedure(s) to record, investigate and analyse incidents in order to:

- a) determine underlying OH&S deficiencies and other factors that might be causing or contributing to the occurrence of incidents;
- b) identify the need for corrective action;
- c) identify opportunities for preventive action;
- d) identify opportunities for continual improvement;
- e) communicate the results of such investigations.

The investigations shall be performed in a timely manner.

Any identified need for corrective action or opportunities for preventive action shall be dealt with in accordance with the relevant parts of **4.5.3.2**.

The results of incident investigations shall be documented and maintained.

#### **4.5.3.2 Nonconformity, corrective action and preventive action**

The organization shall establish, implement and maintain a procedure(s) for dealing with actual and potential nonconformity(ies) and for taking corrective action and preventive action. The procedure(s) shall define requirements for:

- a) identifying and correcting nonconformity(ies) and taking action(s) to mitigate their OH&S consequences;
- b) investigating nonconformity(ies), determining their cause(s) and taking actions in order to avoid their recurrence;
- c) evaluating the need for action(s) to prevent nonconformity(ies) and implementing appropriate actions designed to avoid their occurrence;
- d) recording and communicating the results of corrective action(s) and preventive action(s) taken; and
- e) reviewing the effectiveness of corrective action(s) and preventive action(s) taken.

Where the corrective action and preventive action identifies new or changed hazards or the need for new or changed controls, the procedure shall require that the proposed actions shall be taken through a risk assessment prior to implementation.

Any corrective action or preventive action taken to eliminate the causes of actual and potential nonconformity(ies) shall be appropriate to the magnitude of problems and commensurate with the OH&S risk(s) encountered.

The organization shall ensure that any necessary changes arising from corrective action and preventive action are made to the OH&S management system documentation.

#### **4.5.4 Control of records**

The organization shall establish and maintain records as necessary to demonstrate conformity to the requirements of its OH&S management system and of this OHSAS Standard, and the results achieved.

The organization shall establish, implement and maintain a procedure(s) for the identification, storage, protection, retrieval, retention and disposal of records.

Records shall be and remain legible, identifiable and traceable.

#### **4.5.5 Internal audit**

The organization shall ensure that internal audits of the OH&S management system are conducted at planned intervals to:

- a) determine whether the OH&S management system:
  - 1) conforms to planned arrangements for OH&S management, including the requirements of this OHSAS Standard; and
  - 2) has been properly implemented and is maintained; and
  - 3) is effective in meeting the organization's policy and objectives;

- b) provide information on the results of audits to management.

Audit programme(s) shall be planned, established, implemented and maintained by the organization, based on the results of risk assessments of the organization's activities, and the results of previous audits.

Audit procedure(s) shall be established, implemented and maintained that address:

- a) the responsibilities, competencies, and requirements for planning and conducting audits, reporting results and retaining associated records; and
- b) the determination of audit criteria, scope, frequency and methods.

Selection of auditors and conduct of audits shall ensure objectivity and the impartiality of the audit process.

#### **4.6 Management review**

Top management shall review the organization's OH&S management system, at planned intervals, to ensure its continuing suitability, adequacy and effectiveness. Reviews shall include assessing opportunities for improvement and the need for changes to the OH&S management system, including the OH&S policy and OH&S objectives. Records of the management reviews shall be retained.

Input to management reviews shall include:

- a) results of internal audits and evaluations of compliance with applicable legal requirements and with other requirements to which the organization subscribes;
- b) the results of participation and consultation (see **4.4.3**);
- c) relevant communication(s) from external interested parties, including complaints;
- d) the OH&S performance of the organization;
- e) the extent to which objectives have been met;
- f) status of incident investigations, corrective actions and preventive actions;
- g) follow-up actions from previous management reviews;
- h) changing circumstances, including developments in legal and other requirements related to OH&S; and
- i) recommendations for improvement.

The outputs from management reviews shall be consistent with the organization's commitment to continual improvement and shall include any decisions and actions related to possible changes to:

- a) OH&S performance;
- b) OH&S policy and objectives;
- c) resources; and
- d) other elements of the OH&S management system.

Relevant outputs from management review shall be made available for communication and consultation (see **4.4.3**).

**Annex A (informative) Correspondence between  
OHSAS 18001:2007, ISO 14001:2004  
and ISO 9001:2000**

Table A.1 Correspondence between OHSAS 18001:2007, ISO 14001:2004 and ISO 9001:2000

OHSAS 18001:2007		ISO 14001:2004		ISO 9001:2000	
—	Introduction	—	Introduction	<b>0</b> <b>0.1</b> <b>0.2</b> <b>0.3</b> <b>0.4</b>	Introduction General Process approach Relationship with ISO 9004 Compatibility with other management systems
<b>1</b>	Scope	<b>1</b>	Scope	<b>1</b> <b>1.1</b> <b>1.2</b>	Scope General Application
<b>2</b>	Normative references	<b>2</b>	Normative references	<b>2</b>	Normative reference
<b>3</b>	Terms and definitions	<b>3</b>	Terms and definitions	<b>3</b>	Terms and definitions
<b>4</b>	OH&S management system elements (title only)	<b>4</b>	Environmental management system requirements (title only)	<b>4</b>	Quality management system (title only)
<b>4.1</b>	General requirements	<b>4.1</b>	General requirements	<b>4.1</b> <b>5.5</b> <b>5.5.1</b>	General requirements Responsibility, authority and communication Responsibility and authority
<b>4.2</b>	OH&S policy	<b>4.2</b>	Environmental policy	<b>5.1</b> <b>5.3</b> <b>8.5.1</b>	Management commitment Quality policy Continual improvement
<b>4.3</b>	Planning (title only)	<b>4.3</b>	Planning (title only)	<b>5.4</b>	Planning (title only)
<b>4.3.1</b>	Hazard identification, risk assessment and determining controls	<b>4.3.1</b>	Environmental aspects	<b>5.2</b> <b>7.2.1</b> <b>7.2.2</b>	Customer focus Determination of requirements related to the product Review of requirements related to the product
<b>4.3.2</b>	Legal and other requirements	<b>4.3.2</b>	Legal and other requirements	<b>5.2</b> <b>7.2.1</b>	Customer focus Determination of requirements related to the product
<b>4.3.3</b>	Objectives and programme(s)	<b>4.3.3</b>	Objectives, targets and programme(s)	<b>5.4.1</b> <b>5.4.2</b> <b>8.5.1</b>	Quality objectives Quality management system planning Continual improvement
<b>4.4</b>	Implementation and operation (title only)	<b>4.4</b>	Implementation and operation (title only)	<b>7</b>	Product realization (title only)

Table A.1 Correspondence between OHSAS 18001:2007, ISO 14001:2004 and ISO 9001:2000 (continued)

OHSAS 18001:2007		ISO 14001:2004		ISO 9001:2000	
4.4.1	Resources, roles, responsibility, accountability and authority	4.4.1	Resources, roles, responsibility and authority	5.1 5.5.1 5.5.2 6.1 6.3	Management commitment Responsibility and authority Management representative Provision of resources Infrastructure
4.4.2	Competence, training and awareness	4.4.2	Competence, training and awareness	6.2.1 6.2.2	(Human resources) General Competence, awareness and training
4.4.3	Communication, participation and consultation	4.4.3	Communication	5.5.3 7.2.3	Internal communication Customer communication
4.4.4	Documentation	4.4.4	Documentation	4.2.1	(Documentation requirements) General
4.4.5	Control of documents	4.4.5	Control of documents	4.2.3	Control of documents
4.4.6	Operational control	4.4.6	Operational control	7.1 7.2 7.2.1 7.2.2 7.3.1 7.3.2 7.3.3 7.3.4 7.3.5 7.3.6 7.3.7 7.4.1 7.4.2 7.4.3 7.5 7.5.1 7.5.2 7.5.5	Planning of product realization Customer-related processes Determination of requirements related to the product Review of requirements related to the product Design and development planning Design and development inputs Design and development outputs Design and development review Design and development verification Design and development validation Control of design and development changes Purchasing process Purchasing information Verification of purchased product Production and service provision Control of production and service provision Validation of processes for production and service provision Preservation of product

Table A.1 Correspondence between OHSAS 18001:2007, ISO 14001:2004 and ISO 9001:2000 (continued)

OHSAS 18001:2007		ISO 14001:2004		ISO 9001:2000	
4.4.7	Emergency preparedness and response	4.4.7	Emergency preparedness and response	8.3	Control of nonconforming product
4.5	Checking (title only)	4.5	Checking (title only)	8	Measurement, analysis and improvement (title only)
4.5.1	Performance measurement and monitoring	4.5.1	Monitoring and measurement	7.6 8.1 8.2.3 8.2.4 8.4	Control of monitoring and measuring devices (Measurement, analysis and improvement) General Monitoring and measurement of processes Monitoring and measurement of product Analysis of data
4.5.2	Evaluation of compliance	4.5.2	Evaluation of compliance	8.2.3 8.2.4	Monitoring and measurement of processes Monitoring and measurement of product
4.5.3	Incident investigation, nonconformity, corrective action and preventive action (title only)	—	—	—	—
4.5.3.1	Incident investigation	—	—	—	—
4.5.3.2	Nonconformity, corrective and preventive action	4.5.3	Nonconformity, corrective action and preventive action	8.3 8.4 8.5.2 8.5.3	Control of nonconforming product Analysis of data Corrective action Preventive action
4.5.4	Control of records	4.5.4	Control of records	4.2.4	Control of records
4.5.5	Internal audit	4.5.5	Internal audit	8.2.2	Internal audit
4.6	Management review	4.6	Management review	5.1 5.6 5.6.1 5.6.2 5.6.3 8.5.1	Management commitment Management review (title only) General Review input Review output Continual improvement

Annex B (informative)

## **Correspondence between OHSAS 18001, OHSAS 18002, and the ILO-OSH:2001 *Guidelines on occupational safety and health management systems***

### **B.1 Introduction**

This annex identifies the key differences between the International Labour Organization's ILO-OSH Guidelines and the OHSAS documents, and provides a comparative assessment of their differing requirements.

It should be noted that *no areas of significant difference have been identified*.

Consequently, those organizations that have implemented an OH&S management system that is compliant with OHSAS 18001 may be reassured that their OH&S management system will also be compatible with the recommendations of the ILO-OSH Guidelines.

A correspondence table between the individual clauses of the OHSAS documents and those of the ILO-OSH Guidelines is given in **B.4**.

### **B.2 Overview**

The two prime objectives of the ILO-OSH Guidelines are:

- a) to assist countries in the establishment of a national framework for occupational health and safety management systems; and
- b) to provide guidance to individual organizations regarding the integration of OH&S elements into their overall policy and management arrangements.

OHSAS 18001 specifies requirements for OH&S management systems, to enable organizations to control risks and to improve their OH&S performance. OHSAS 18002 gives guidance on the implementation of OHSAS 18001. The OHSAS documents are therefore comparable with Section 3 of the ILO-OSH Guidelines "*The occupational safety and health management system in the organization*".

### **B.3 Detailed analysis of Section 3 of the ILO-OSH Guidelines against the OHSAS documents**

#### **B.3.1 Scope**

The focus of the ILO-OSH Guidelines is on workers. The focus of the OHSAS Standards, towards persons under the control of the organization and other interested parties, is broader.

#### **B.3.2 OH&S management system models**

The models picturing the main elements of an OH&S management system are directly equivalent between the ILO-OSH Guidelines and the OHSAS documents.



**B.3.3 ILO-OSH Section 3.2, Worker participation**

In the ILO-OSH *Guidelines*, subsection **3.2.4** recommends that: *“The employer should ensure as appropriate, the establishment and efficient functioning of a health and safety committee and the recognition of workers health and safety representatives in accordance with national laws and practice”*.

OHSAS 18001, **4.4.3**, requires the organization to establish a procedure for communication, participation and consultation, and to involve a wider spectrum of interested parties (due to the broader scope of application of the document).

**B.3.4 ILO-OSH Section 3.3, Responsibility and accountability**

The ILO-OSH *Guidelines* recommend in **3.3.1(h)** the establishment of prevention and health promotion programmes. There is no requirement in the OHSAS Standards for this.

**B.3.5 ILO-OSH Section 3.4, Competence and training**

The recommendation of the ILO-OSH *Guidelines* subsection **3.4.4**: *“Training should be provided to all participants at no cost and should take place during working hours if possible”*, is not a requirement of the OHSAS documents.

**B.3.6 ILO-OSH Section 3.10.4, Procurement**

The ILO-OSH *Guidelines* emphasize that safety and health requirements of the organization should be incorporated into purchasing and leasing specifications.

The OHSAS Standards address procurement by their requirements for risk assessment, identification of legal requirements and the establishment of operational controls.

**B.3.7 ILO-OSH Section 3.10.5, Contracting**

The ILO-OSH *Guidelines* define the steps to be taken to ensure that the organization’s safety and health requirements are applied to contractors (they also provide a summary of the actions needed to ensure that they are). This is implicit in OHSAS.

**B.3.8 ILO-OSH Section 3.12, Investigation of work related injuries, ill health, diseases and incidents, and their impact on safety and health performance**

The ILO-OSH *Guidelines* do not require corrective actions or preventive actions to be reviewed through the risk assessment process prior to implementation, as they are in OHSAS 18001, **4.5.3.2**.

**B.3.9 ILO-OSH Section 3.13, Audit**

The ILO-OSH *Guidelines* recommend consultation on the selection of auditors. In contrast, the OHSAS documents require audit personnel to be impartial and objective.



**B.3.10 ILO-OSH Section 3.16, Continual improvement**

This is a separate subclause in the ILO-OSH Guidelines. It details arrangements that should be taken into account for the achievement of continual improvement. Similar arrangements are detailed throughout the OHSAS documents, which consequently do not have a corresponding clause.

**B.4 Correspondence between the clauses of the OHSAS documents and the clauses of the ILO-OSH Guidelines**

Table B.1 Correspondence between the clauses of the OHSAS documents and the clauses of the ILO-OSH Guidelines

Clause	OHSAS	Clause	ILO-OSH Guidelines
	Introduction	— <b>3.0</b>	Introduction The occupational safety and health management system in the organization
	Foreword	—	The International Labour Organization
<b>1</b>	Scope	<b>1.0</b>	Objectives
<b>2</b>	Reference publications	—	Bibliography
<b>3</b>	Terms and definitions	—	Glossary
<b>4</b>	OH&S management system elements (title only)	—	—
<b>4.1</b>	General requirements	<b>3.0</b>	The occupational safety and health management system in the organization
<b>4.2</b>	OH&S policy	<b>3.1</b> <b>3.16</b>	Occupational safety and health policy Continual improvement
<b>4.3</b>	Planning (title only)	—	Planning and implementation (title only)
<b>4.3.1</b>	Hazard identification, risk assessment and determining controls	<b>3.7</b> <b>3.8</b> <b>3.10</b> <b>3.10.1</b> <b>3.10.2</b> <b>3.10.5</b>	Initial review System planning, development and implementation Hazard prevention Prevention and control measures Management of change Contracting
<b>4.3.2</b>	Legal and other requirements	<b>3.7.2</b> <b>3.10.1.2</b>	(Initial review) (Prevention and control measures)
<b>4.3.3</b>	Objectives and programme(s)	<b>3.8</b> <b>3.9</b> <b>3.16</b>	System planning, development and implementation Occupational safety and health objectives Continual improvement
<b>4.4</b>	Implementation and operation (title only)	—	—
<b>4.4.1</b>	Resources, roles, responsibility, accountability and authority	<b>3.3</b> <b>3.8</b> <b>3.16</b>	Responsibility and accountability System planning, development and implementation Continual improvement

Table B.1 Correspondence between the clauses of the OHSAS documents and the clauses of the ILO-OSH Guidelines (*continued*)

Clause	OHSAS	Clause	ILO-OSH Guidelines
4.4.2	Competence, training and awareness	3.4	Competence and training
4.4.3	Communication, participation and consultation	3.2 3.6	Worker participation Communication
4.4.4	Documentation	3.5	Occupational safety and health management system documentation
4.4.5	Control of documents	3.5	Occupational safety and health management system documentation
4.4.6	Operational control	3.10.2 3.10.4 3.10.5	Management of change Procurement Contracting
4.4.7	Emergency preparedness and response	3.10.3	Emergency prevention, preparedness and response
4.5	Checking (title only)	—	Evaluation (title only)
4.5.1	Performance measurement and monitoring	3.11	Performance monitoring and measurement
4.5.2	Evaluation of compliance	—	—
4.5.3	Incident investigation, nonconformity, corrective action and preventive action (title only)	—	—
4.5.3.1	Incident investigation	3.12 3.16	Investigation of work related injuries, ill health, diseases and incidents and their impact on safety and health performance Continual improvement
4.5.3.2	Nonconformity, corrective and preventive action	3.15	Preventive and corrective action
4.5.4	Control of records	3.5	Occupational safety and health management system documentation
4.5.5	Internal audit	3.13	Audit
4.6	Management review	3.14 3.16	Management review Continual improvement

## **Bibliography**

- [1] ISO 9000:2005, *Quality management systems – Fundamentals and vocabulary*
- [2] ISO 9001:2000, *Quality management systems – Requirements*
- [3] ISO 14001:2004, *Environmental management systems – Requirements with guidance for use*
- [4] ISO 19011:2002, *Guidelines for quality and/or environmental management systems auditing*



# BSI British Standards

Part of the BSI Group, BSI British Standards develops and produces standards and information products that promote and share best practice. In its role as the UK's National Standards Body it represents the UK view on standards and standardization in Europe and at the international level. BSI British Standards is also a leading provider of standardization and consortia services to the public and private sectors, serving the interests of a wide range of industry sectors as well as governments, consumers, employees and society overall, to make sure that British, European and international standards are useful, relevant and authoritative.

## Revisions

British Standards as well as EN and ISO British Standard implementations are updated by amendment or revision. Users of British Standards should make sure that they possess the latest amendment or editions. You can check this by searching the BSI website [www.bsi-global.com](http://www.bsi-global.com).

BSI British Standards offer members an individual updating service called PLUS which ensures that subscribers automatically receive the latest editions of standards. For further information about PLUS please go to [www.bsi-global.com/PLUS](http://www.bsi-global.com/PLUS).

It is the constant aim of BSI British Standards to improve the quality of our products and services. We would be grateful if anyone finding an inaccuracy or ambiguity while using this British Standard would inform the Secretary of the technical committee responsible, the identity of which can be found on the inside front cover.

## Buying standards

Order for all British Standards, international and foreign standards and publications should be addressed to BSI Customer Services.

**Tel: +44 (0)20 8996 9001 Fax: +44 (0)20 8996 7001**  
**Email: [orders@bsi-global.com](mailto:orders@bsi-global.com)**

British Standards and other BSI publications are also available from the BSI website at [www.bsi-global.com/shop](http://www.bsi-global.com/shop).

In response to order for international standards, it is BSI policy to supply the BSI implementation of those that have been published as British Standards, unless otherwise requested.

## Information on standards

BSI British Standards provides a wide range of information on national, European and international standards. You may search the full catalogue that can be found on the website [www.bsi-global.com/shop](http://www.bsi-global.com/shop) for all British Standards and EN, IEC and ISO implementations (i.e. BS EN, BS ISO, BS IEC etc).

You may now order your copies of British Standards in hard copy or download the PDF version (if available) by visiting [www.bsi-global.com/shop](http://www.bsi-global.com/shop).

For information on withdrawn standards and other national standards bodies' products in Europe and internationally, please contact the BSI Resource Centre.

**Tel: +44 (0)20 8996 7111 Fax: +44 (0)20 8996 7048**  
**Email: [library@bsi-global.com](mailto:library@bsi-global.com)**

## BSI Membership

BSI Subscribing Members are kept up-to-date with standards developments and receive substantial discounts on the purchase price of British Standards through their Membership. For details of these and other benefits contact the BSI Membership department.

**Tel: +44 (0)20 8996 7002 Fax: +44 (0)20 8996 7001**  
**Email: [membership@bsi-global.com](mailto:membership@bsi-global.com)**

Information regarding online access to British Standards via British Standards Online can be found at [www.bsi-global.com/BSOL](http://www.bsi-global.com/BSOL).

Further information about BSI is available on the BSI website at [www.bsi-global.com](http://www.bsi-global.com).

## Copyright

Copyright subsists in all BSI publications. BSI holds the copyright, in the UK, of the publications of the international standardization bodies. Except as permitted under the Copyright, Designs, and Patents Act 1988 no extract may be reproduced, stored in a retrieval system or transmitted in any form or by any means – electronic, photocopying, recording or otherwise – without the prior written permission from BSI. This does not preclude the free use, in the course of implementing the standards, of necessary details such as symbols, and size, type or grade designations. If these details are to be used for any other purpose than implementation then the prior written permission of BSI must be obtained. Details and advice can be obtained from the Copyright and Licensing Manager.

**Tel: +44 (0)20 8996 7070 Email: [copyright@bsi-global.com](mailto:copyright@bsi-global.com)**

ICS 03.100.01; 13.100

### BSI Group headquarters

389 Chiswick High Road, London W4 4AL, UK  
**Tel +44 (0)20 8996 9000 Fax +44 (0)20 8996 7400 [www.bsi-global.com](http://www.bsi-global.com)**



BS OHSAS 18002:2008



# BSI British Standards

## Occupational health and safety management systems — Guidelines for the implementation of OHSAS 18001:2007

NO COPYING WITHOUT BSI PERMISSION EXCEPT AS PERMITTED BY COPYRIGHT LAW

*raising standards worldwide™*

**BSI**  
British Standards

## National foreword

### Publishing information

This British Standard was published by BSI and comes into effect on DATE. It is the official UK implementation of OHSAS 18002:2008, which supersedes OHSAS 18002:2000.

BS OHSAS 18002 will be maintained in line with any changes to OHSAS 18002, subject to the approval of BSI Technical Committee HS/1, Occupational health and safety management, which collated the UK comments on the second Working Draft of OHSAS 18002 and put forward its preferred position.

A list of organizations represented on this committee can be obtained on request to its secretary.

### Relationship with other documents

BS OHSAS 18002 is one of three related documents on occupational health and safety management systems published by the BSI since June 2007. The first was BS OHSAS 18001:2007, which specifies what an organization needs to have in place to meet the criteria for occupational health and safety management.

BS OHSAS 18002:2008 is a guidance standard that identifies what an organization should consider when implementing and operating a system that meets the requirements of BS OHSAS 18001. It is a supportive guidance document to BS OHSAS 18001:2007 and does not impose any additional requirements.

BS 18004:2008, *Guide to achieving effective occupational health and safety performance*, gives good practice guidance on successful health and safety management and builds on the guidance given in HSG 65<sup>1)</sup>. Structured around the OHSAS 18001 framework, it provides guidance in line with developments in OHS management within the UK and provides extensive annexes intended to support those organizations that wish to deliver good health and safety performance.

### Contractual and legal considerations

In the UK, and Europe generally, there are various legal requirements for occupational health and safety that apply to the potentially harmful effects of work activities and which extend beyond the workplace to those who might be affected by workplace activities (see Note to 3.12 on the definition of occupational health and safety). It is essential for the organization to take the matters addressed by these legal requirements into account in establishing, implementing and maintaining its OH&S management system – and in particular when identifying hazards, assessing risks and determining controls (see 4.3.1 and 4.3.2). This standard ought therefore to be read in conjunction with BS 18004 and HSG 65, which give good practice guidance on complying with such legal requirements in the UK.

This publication does not purport to include all the necessary provisions of a contract. User are responsible for its correct application.

**Compliance with a British Standard cannot confer immunity from legal obligation.**

---

<sup>1)</sup> HSG 65, *Successful health and safety management*.



### **Publishing and copyright information**

The BSI copyright notice displayed in this document indicates when the document was last issued.

© BSI 2008

ISBN 978 0 580 62686 9

ICS 13.100

### **Publication history**

First published November 2008

### **Amendments issued since publication**

<b>Amd. No.</b>	<b>Date</b>	<b>Text affected</b>
-----------------	-------------	----------------------

---



## Contents

Acknowledgement *ii*

Foreword *iv*

Introduction *1*

1 Scope *4*

2 Reference publications *5*

3 Terms and definitions *5*

4 OH&S management system requirements *9*

### Annexes

Annex A (informative) Correspondence between OHSAS 18001:2007, ISO 14001:2004 and ISO 9001:2008 *68*

Annex B (informative) Correspondence between OHSAS 18001, OHSAS 18002 and the ILO-OSH:2001 Guidelines on occupational safety and health management systems *71*

Annex C (informative) Examples of items for inclusion in a hazard identification checklist *75*

Annex D (informative) Comparisons of some examples of risk assessment tools and methodologies *77*

Bibliography *78*

### List of figures

Figure 1 – OH&S management system model for this OHSAS Standard *2*

Figure 2 – Overview of the hazard identification and risk assessment process *15*

### List of tables

Table A.1 – Correspondence between OHSAS 18001:2007, ISO 14001:2004 and ISO 9001:2008 *68*

Table B.1 – Correspondence between the clauses of the OHSAS documents and the clauses of the ILO-OSH Guidelines *73*

### Summary of pages

This document comprises a front cover, an inside front cover, pages i to vi, pages 1 to 78, an inside back cover and a back cover.

The copyright notice displayed in this document indicates when the document was last issued.

## Acknowledgement

The following organizations are included in this listing either to recognize their assistance in the development of this edition of OHSAS 18002, or to recognize their general support of the OHSAS standards.

AFAQ EAQA

American Industrial Hygiene Association (AIHA)

American Society of Safety Engineers (ASSE)

Asociación Española de Normalización y Certificación (AENOR)

Association of British Certification Bodies (ABCB)

British Standards Institution (BSI)

Bureau Veritas Certification

Český normalizační institute (CNI)

Comisión Federal de Electricidad (CFE), (Gerencia de la seguridad industrial)

Czech Accreditation Institute (CAI)

Det Norske Veritas (DNV)

DS Certification A/S

EEF the manufacturers' organisation

ENLAR Compliance Services, Inc.

Estonian Centre for Standardisation (EVS)

Health and Safety Executive<sup>1)</sup>

Hong Kong Quality Assurance Agency (HKQAA)

iMS Risk Solutions

Institute for Standardization of Serbia (ISS)

Institution of Occupational Safety and Health (IOSH)

Instituto Argentino de Normalización y Certificación (IRAM)

Instituto Colombiano de Normas Técnicas y Certificación (ICONTEC)

Instituto de Normas Técnicas de Costa Rica (INTECO)

Instituto Mexicano de Normalización y Certificación, A.C. (IMNC, A.C.)

Instituto Uruguayo de Normas Técnicas (UNIT)

ITS Consultants

Japan Industrial Safety and Health Association (JISHA)

Japanese Standards Association (JSA)

Korea Gas Safety Corporation (ISO Certificate Division)

Lloyds Register Quality Assurance (LRQA)

Management Systems Certification Limited

---

<sup>1)</sup> As the regulatory authority responsible for health and safety in Great Britain, the Health and Safety Executive would wish to make it clear that reliance on the OHSAS Standard by organizations will not absolve them from compliance with any of their legal health and safety obligations under the laws of England and Wales, and Scotland.

National Standards Authority of Ireland (NSAI)  
National University of Singapore (NUS)  
Nederlands Normalisatie-instituut (NEN)  
NPKF ELECTON  
NQA  
QMI-SAI Global  
SABS Commercial (Pty) Ltd.  
Service de Normalisation Industrielle Marocaine (SNIMA)  
SGS United Kingdom Ltd  
SIRIM QAS International  
Slovenský ústav technickej normalizácie (SUTN)  
SPRING Singapore  
Standards Institution of Israel (SII)  
Sucofindo International Certification Services (SICS)  
Swedish Industry Association (Sinf)  
Swedish Standards Institute (SIS)  
Technofer Ltd.  
TÜV Rheinland Cert GmbH – TÜV Rheinland Group  
Standards Association of Zimbabwe (SAZ)

We would also like to recognize the invaluable contribution made by those many organizations who took the time to review the working drafts of OHSAS 18002, and who submitted comments for consideration. This helped us greatly in improving the standard, and is much appreciated.

## Foreword

This Occupational Health and Safety Assessment Series (OHSAS) guideline, and OHSAS 18001:2007, *Occupational health and safety management systems — Requirements*, have been developed in response to customer demand for a recognizable occupational health and safety management system standard against which their management systems can be assessed and certified, and for guidance on the implementation of such a standard.

OHSAS 18001 is compatible with the ISO 9001:2008 (Quality) and ISO 14001:2004 (Environmental) management systems standards, in order to facilitate the integration of quality, environmental and occupational health and safety management systems by organizations, should they wish to do so.

OHSAS 18002 quotes the specific requirements from OHSAS 18001 and follows with relevant guidance. The clause numbering of OHSAS 18002 is aligned with that of OHSAS 18001. Text given with an outlined box is an exact duplication of text from OHSAS 18001.

OHSAS 18002 will be reviewed and amended or revised when considered appropriate. Reviews will be conducted when new editions of OHSAS 18001 are published (expected when revised editions of either ISO 9001 or ISO 14001 are published).

This OHSAS Standard will be withdrawn on publication of its contents in, or as, an International Standard.

This OHSAS Standard has been drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

This second edition cancels and replaces the first edition (OHSAS 18002:2000), which has been technically revised.

The principal changes with respect to the previous edition are as follows:

- 1) in relation to the revised text of OHSAS 18001:
  - The importance of “health” has now been given greater emphasis.
  - OHSAS 18001 now refers to itself as a standard, not a specification, or document, as in the earlier edition. This reflects the increasing adoption of OHSAS 18001 as the basis for national standards on occupational health and safety management systems.
  - The “Plan-Do-Check-Act” model diagram is only given in the Introduction, in its entirety, and not also as sectional diagrams at the start of each major clause.
  - Reference publications in Clause 2 have been limited to purely international documents.
  - New definitions have been added, and existing definitions revised.
  - Significant improvement in alignment with ISO 14001:2004 throughout the standard, and improved compatibility with ISO 9001:2008.
  - The term “tolerable risk” has been replaced by the term “acceptable risk” (see 3.1).

- The term “accident” is now included in the term “incident” (see 3.9).
  - The definition of the term “hazard” no longer refers to “damage to property or damage to the workplace environment” (see 3.6).

It is now considered that such “damage” is not directly related to occupational health and safety management, which is the purpose of this OHSAS Standard, and that it is included in the field of asset management. Instead, the risk of such “damage” having an effect on occupational health and safety should be identified through the organization’s risk assessment process, and be controlled through the application of appropriate risk controls.
  - Sub-clauses 4.3.3 and 4.3.4 have been merged, in line with ISO 14001:2004.
  - A new requirement has been introduced for the consideration of the hierarchy of controls as part of OH&S planning (see 4.3.1).
  - Management of change is now more explicitly addressed (see 4.3.1 and 4.4.6).
  - A new clause on the “Evaluation of compliance” (see 4.5.2) has been introduced.
  - New requirements have been introduced for participation and consultation (see 4.4.3.2).
  - New requirements have been introduced for the investigation of incidents (see 4.5.3.1).
- 2) in relation to changes that are specific to OHSAS 18002:
- OHSAS 18002:2000 included a presentation format where firstly the relevant OHSAS 18001 clause was given followed by:
    - a) a description of the intent of the clause;
    - b) typical inputs needed for meeting the requirements of the clause;
    - c) a description of processes that an organization could use to meet the requirements;
    - d) typical outputs expected from meeting the requirements.This format was found to be difficult to apply, so has not been followed in this edition (in fact, the format had not been applied consistently in the 2000 edition). Instead, this edition of OHSAS 18002 is now presented in a more logical format, in which items in a) to d) have been followed during the drafting of the guidance, but have not been given overtly, as previously.
  - New sub-clauses, as per OHSAS 18001 (and from ISO 14001), e.g.:
    - for OHSAS 18001:2007, 4.4.3 Communication, participation and consultation (including new sub-clauses on participation/consultation), and 4.5.3.1 Incident investigation.
    - from ISO 14001:2004, 4.3.3 Objectives and programme(s) (through the merging of the former sub-clauses 4.3.3 and 4.3.4), and 4.5.2 Evaluation of compliance.



- New sub-clauses in alignment with the ILO-OSH:2001 Guidelines, e.g. **4.1.2** Initial review, and **4.3.1.5** Management of change
- Additional new sub-clauses and annexes, e.g. **4.4.2.4** Awareness, Annex C – Examples of items for inclusion in a hazard identification checklist and Annex D – Comparisons of some examples of risk assessment tools and methodologies
- Expanded guidance given in many sub-clauses, e.g. for **4.3.1** Hazard identification, risk assessment and determination of controls, **4.3.2** Legal and other requirements, **4.3.3** Objectives and programme(s), **4.4.6** Operational control, **4.4.7** Emergency preparedness and response, **4.5.5** Internal audit

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

**Compliance with this Occupational Health and Safety Assessment Series (OHSAS) Standard cannot confer immunity from legal obligations.**

## Introduction

Organizations of all kinds are increasingly concerned with achieving and demonstrating sound occupational health and safety (OH&S) performance by controlling their OH&S risks, consistent with their OH&S policy and objectives. They do so in the context of increasingly stringent legislation, the development of economic policies and other measures that foster good OH&S practices, and of increased concern expressed by interested parties about OH&S issues.

Many organizations have undertaken OH&S "reviews" or "audits" to assess their OH&S performance. On their own, however, these "reviews" and "audits" may not be sufficient to provide an organization with the assurance that its performance not only meets, but will continue to meet, its legal and policy requirements. To be effective, they need to be conducted within a structured management system that is integrated within the organization.

The OHSAS Standards covering OH&S management are intended to provide organizations with the elements of an effective OH&S management system that can be integrated with other management requirements and help organizations achieve OH&S and economic objectives. These standards, like other International Standards, are not intended to be used to create non-tariff trade barriers or to increase or change an organization's legal obligations.

OHSAS 18001 specifies requirements for an OH&S management system to enable an organization to develop and implement a policy and objectives which take into account legal requirements and information about OH&S risks. It is intended to apply to all types and sizes of organizations and to accommodate diverse geographical, cultural and social conditions. The basis of the approach is shown in Figure 1. The success of the system depends on commitment from all levels and functions of the organization, and especially from top management. A system of this kind enables an organization to develop an OH&S policy, establish objectives and processes to achieve the policy commitments, take action as needed to improve its performance, and demonstrate the conformity of the system to the requirements of OHSAS 18001. The overall aim of OHSAS 18001 is to support and promote good OH&S practices, including self regulation, in balance with socio-economic needs. It should be noted that many of the requirements can be addressed concurrently or revisited at any time.

The development of OHSAS 18001:2007 focused on improving the standard by:

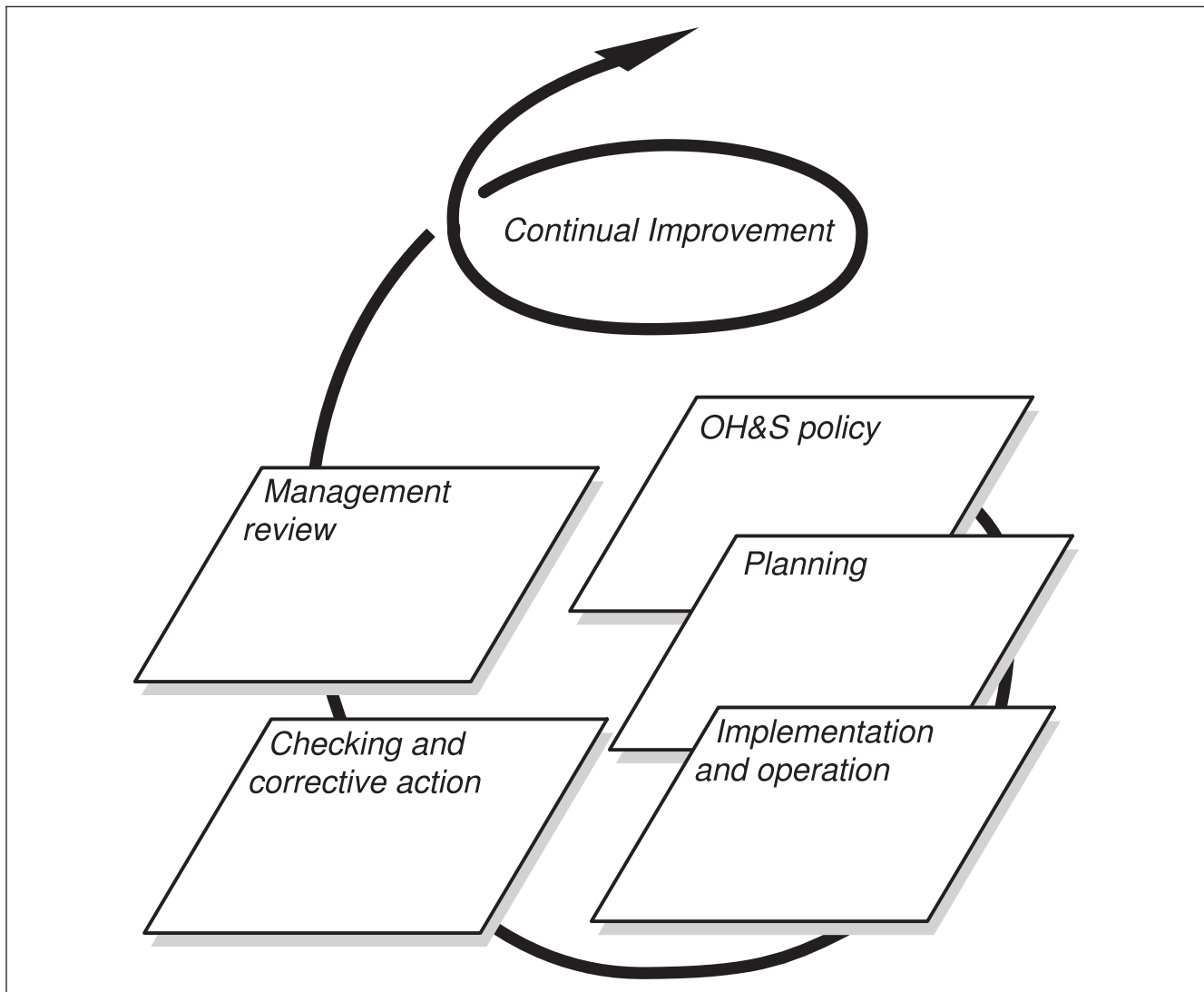
- improving alignment with ISO 14001 and ISO 9001;
- seeking opportunities for alignment with other OH&S management system standards, e.g. the ILO-OSH:2001 Guidelines;
- reflecting developments in OH&S practices;
- clarifying the original text from the OHSAS 18001:1999 requirements based on experience of its use.

There is an important distinction between OHSAS 18001, which describes the requirements for an organization's OH&S management system and can be used for certification/registration and/or self-declaration of an organization's OH&S management system, and

a non-certifiable guideline, such as OHSAS 18002, intended to provide generic assistance to an organization for establishing, implementing or improving an OH&S management system. OH&S management encompasses a full range of issues, including those with strategic and competitive implications. Demonstration of successful implementation of OHSAS 18001 can be used by an organization to assure interested parties that an appropriate OH&S management system is in place.

Any reference to other International Standards is for information only.

Figure 1 OH&S management system model for this OHSAS Standard



*NOTE* This OHSAS Standard is based on the methodology known as Plan-Do-Check-Act (PDCA). PDCA can be briefly described as follows.

- **Plan**: establish the objectives and processes necessary to deliver results in accordance with the organization's OH&S policy.
- **Do**: implement the processes.
- **Check**: monitor and measure processes against OH&S policy, objectives, legal and other requirements, and report the results.
- **Act**: take actions to continually improve OH&S performance.

*Many organizations manage their operations via the application of a system of processes and their interactions, which can be referred to as the "process approach". ISO 9001 promotes the use of the process approach. Since PDCA can be applied to all processes, the two methodologies are considered to be compatible.*

OHSAS 18001 contains requirements that can be objectively audited; however, it does not establish absolute requirements for OH&S performance beyond the commitments, in the OH&S policy, to comply with applicable legal requirements and with other requirements to which the organization subscribes, to the prevention of injury and ill health and to continual improvement. Thus, two organizations carrying out similar operations but having different OH&S performance can both conform to its requirements.

OHSAS 18001 does not include requirements specific to other management systems, such as those for quality, environmental, security, or financial management, though its elements can be aligned or integrated with those of other management systems. It is possible for an organization to adapt its existing management system(s) in order to establish an OH&S management system that conforms to the requirements of OHSAS 18001. It is pointed out, however, that the application of various elements of the management system might differ depending on the intended purpose and the interested parties involved.

The level of detail and complexity of the OH&S management system, the extent of documentation and the resources devoted to it depend on a number of factors, such as the scope of the system, the size of an organization and the nature of its activities, products and services, and the organizational culture. This may be the case in particular for small and medium-sized enterprises.

*NOTE 1 As all of the requirements of OHSAS 18001:2007 are included within OHSAS 18002:2008, organizations can choose to retain a copy of OHSAS 18002 alone, for certification purposes.*

*NOTE 2 There are some small variations in text between the Introduction given in OHSAS 18001 and this Introduction to account for the differences in the two OHSAS standards.*

# Occupational health and safety management systems — Guidelines for the implementation of OHSAS 18001:2007

## 1 Scope

This Occupational Health and Safety Assessment Series (OHSAS) guideline provides generic advice on the application of OHSAS 18001:2007.

It explains the underlying principles of OHSAS 18001 and describes the intent, typical inputs, processes and typical outputs, against each requirement of OHSAS 18001. This is to aid the understanding and implementation of OHSAS 18001.

OHSAS 18002 does not create additional requirements to those specified in OHSAS 18001 nor does it prescribe mandatory approaches to the implementation of OHSAS 18001.

### OHSAS 18001 text

This Occupational Health and Safety Assessment Series (OHSAS) Standard specifies requirements for an occupational health and safety (OH&S) management system, to enable an organization to control its OH&S risks and improve its OH&S performance. It does not state specific OH&S performance criteria, nor does it give detailed specifications for the design of a management system.

This OHSAS Standard is applicable to any organization that wishes to:

- a) establish an OH&S management system to eliminate or minimize risks to personnel and other interested parties who could be exposed to OH&S hazards associated with its activities;
- b) implement, maintain and continually improve an OH&S management system;
- c) assure itself of its conformity with its stated OH&S policy;
- d) demonstrate conformity with this OHSAS Standard by:
  - 1) making a self-determination and self-declaration, or
  - 2) seeking confirmation of its conformance by parties having an interest in the organization, such as customers, or
  - 3) seeking confirmation of its self-declaration by a party external to the organization, or
  - 4) seeking certification/registration of its OH&S management system by an external organization.

All the requirements in this OHSAS Standard are intended to be incorporated into any OH&S management system. The extent of the application will depend on such factors as the OH&S policy of the organization, the nature of its activities and the risks and complexity of its operations.

This OHSAS Standard is intended to address occupational health and safety, and is not intended to address other health and safety areas such as employee wellbeing/wellness programs, product safety, property damage or environmental impacts.

## 2 Reference publications

Other publications that provide information or guidance are listed in the Bibliography. It is advisable that the latest editions of such publications be consulted. Specifically, reference should be made to the following publications.

OHSAS 18001:2007, *Occupational health and safety management systems — Requirements*

International Labour Organization:2001, *Guidelines on occupational safety and health management systems (ILO-OSH:2001)*

ISO 19011:2002, *Guidelines for quality and/or environmental management systems auditing*

*NOTE* A project was approved by the International Organization for Standardization (ISO) in March 2008 to revise ISO 19011 and to expand its scope to cover the auditing of additional fields of management systems, including OH&S management systems. Reference should be made to the revised version when it is available.

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in OHSAS 18001 apply.

### OHSAS 18001 text

#### 3.1

##### **acceptable risk**

risk that has been reduced to a level that can be tolerated by the organization having regard to its legal obligations and its own OH&S policy (3.16)

#### 3.2

##### **audit**

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

[ISO 9000:2005, 3.9.1]

*NOTE 1* Independent does not necessarily mean external to the organization. In many cases, particularly in smaller organizations, independence can be demonstrated by the freedom from responsibility for the activity being audited.

*NOTE 2* For further guidance on "audit evidence" and "audit criteria", see ISO 19011.

**3.3****continual improvement**

recurring process of enhancing the OH&S management system (3.13) in order to achieve improvements in overall OH&S performance (3.15) consistent with the organization's (3.17) OH&S policy (3.16)

*NOTE 1 The process need not take place in all areas of activity simultaneously.*

*NOTE 2 Adapted from ISO 14001:2004, 3.2.*

**3.4****corrective action**

action to eliminate the cause of a detected nonconformity (3.11) or other undesirable situation

*NOTE 1 There can be more than one cause for a nonconformity.*

*NOTE 2 Corrective action is taken to prevent recurrence whereas preventive action (3.18) is taken to prevent occurrence.*

[ISO 9000:2005, 3.6.5]

**3.5****document**

information and its supporting medium

*NOTE The medium can be paper, magnetic, electronic or optical computer disc, photograph or master sample, or a combination thereof.*

[ISO 14001:2004, 3.4]

**3.6****hazard**

source, situation, or act with a potential for harm in terms of human injury or ill health (3.8), or a combination of these

**3.7****hazard identification**

process of recognizing that a hazard (3.6) exists and defining its characteristics

**3.8****ill health**

identifiable, adverse physical or mental condition arising from and/or made worse by a work activity and/or work-related situation

**3.9****incident**

work-related event(s) in which an injury or ill health (3.8) (regardless of severity) or fatality occurred, or could have occurred

*NOTE 1 An accident is an incident which has given rise to injury, ill health or fatality.*

*NOTE 2 An incident where no injury, ill health, or fatality occurs may also be referred to as a "near-miss", "near-hit", "close call" or "dangerous occurrence".*

*NOTE 3 An emergency situation (see 4.4.7) is a particular type of incident.*

**3.10****interested party**

person or group, inside or outside the workplace (3.23), concerned with or affected by the OH&S performance (3.15) of an organization (3.17)

**3.11****nonconformity**

non-fulfilment of a requirement

[ISO 9000:2005, 3.6.2; ISO 14001, 3.15]

*NOTE* A nonconformity can be any deviation from:

- relevant work standards, practices, procedures, legal requirements, etc.
- OH&S management system (3.13) requirements.

**3.12****occupational health and safety (OH&S)**

conditions and factors that affect, or could affect, the health and safety of employees or other workers (including temporary workers and contractor personnel), visitors, or any other person in the workplace (3.23)

*NOTE* Organizations can be subject to legal requirements for the health and safety of persons beyond the immediate workplace, or who are exposed to the workplace activities.

**3.13****OH&S management system**

part of an organization's (3.17) management system used to develop and implement its OH&S policy (3.16) and manage its OH&S risks (3.21)

*NOTE 1* A management system is a set of interrelated elements used to establish policy and objectives and to achieve those objectives.

*NOTE 2* A management system includes organizational structure, planning activities (including, for example, risk assessment and the setting of objectives), responsibilities, practices, procedures (3.19), processes and resources.

*NOTE 3* Adapted from ISO 14001:2004, 3.8.

**3.14****OH&S objective**

OH&S goal, in terms of OH&S performance (3.15), that an organization (3.17) sets itself to achieve

*NOTE 1* Objectives should be quantified wherever practicable.

*NOTE 2* 4.3.3 requires that OH&S objectives are consistent with the OH&S policy (3.16).

**3.15****OH&S performance**

measurable results of an organization's (3.17) management of its OH&S risks (3.21)

*NOTE 1* OH&S performance measurement includes measuring the effectiveness of the organization's controls.



*NOTE 2 In the context of OH&S management systems (3.13), results can also be measured against the organization's (3.17) OH&S policy (3.16), OH&S objectives (3.14), and other OH&S performance requirements.*

### **3.16**

#### **OH&S policy**

overall intentions and direction of an organization (3.17) related to its OH&S performance (3.15) as formally expressed by top management

*NOTE 1 The OH&S policy provides a framework for action and for the setting of OH&S objectives (3.14)*

*NOTE 2 Adapted from ISO 14001:2004, 3.11.*

### **3.17**

#### **organization**

company, corporation, firm, enterprise, authority or institution, or part or combination thereof, whether incorporated or not, public or private, that has its own functions and administration

*NOTE For organizations with more than one operating unit, a single operating unit may be defined as an organization.*

[ISO 14001:2004, 3.16]

### **3.18**

#### **preventive action**

action to eliminate the cause of a potential nonconformity (3.11) or other undesirable potential situation

*NOTE 1 There can be more than one cause for a potential nonconformity.*

*NOTE 2 Preventive action is taken to prevent occurrence whereas corrective action (3.4) is taken to prevent recurrence.*

[ISO 9000:2005, 3.6.4]

### **3.19**

#### **procedure**

specified way to carry out an activity or a process

*NOTE Procedures can be documented or not.*

[ISO 9000:2005, 3.4.5]

### **3.20**

#### **record**

document (3.5) stating results achieved or providing evidence of activities performed

[ISO 14001:2004, 3.20]

### **3.21**

#### **risk**

combination of the likelihood of an occurrence of a hazardous event or exposure(s) and the severity of injury or ill health (3.8) that can be caused by the event or exposure(s)

### **3.22**

#### **risk assessment**

process of evaluating the risk(s) (3.21) arising from a hazard(s), taking into account the adequacy of any existing controls, and deciding whether or not the risk(s) is acceptable

**3.23****workplace**

any physical location in which work related activities are performed under the control of the organization

*NOTE* When giving consideration to what constitutes a workplace, the organization (3.17) should take into account the OH&S effects on personnel who are, for example, travelling or in transit (e.g. driving, flying, on boats or trains), working at the premises of a client or customer, or working at home.

## 4 OH&S management system requirements

### 4.1 General requirements

**OHSAS 18001 text**

The organization shall establish, document, implement, maintain and continually improve an OH&S management system in accordance with the requirements of this OHSAS Standard and determine how it will fulfil these requirements.

The organization shall define and document the scope of its OH&S management system.

#### 4.1.1 OH&S management system

This OHSAS 18001 requirement is a general statement concerning the establishment and maintenance of an OH&S management system within an organization

“Establish” implies a level of permanency and the system should not be considered established until all its elements have been demonstrably implemented. “Maintain” implies that, once established, the system continues to operate. This requires active effort on the part of the organization. Many systems start well but deteriorate due to lack of maintenance. Many of the elements of OHSAS 18001 (such as checking and corrective action and management review) are designed to ensure active maintenance of the system.

An organization seeking to establish an OH&S management system that conforms to OHSAS 18001 should determine its current position with regard to its OH&S risks by means of an initial review (see 4.1.2 for further details on initial review). In determining how it will fulfil the requirements of OHSAS 18001 the organization should consider the conditions and factors that affect, or could affect, the health and safety of persons, what OH&S policies it needs, and how it will manage its OH&S risks.

The level of detail and complexity of the OH&S management system, the extent of documentation and the resources devoted to it are dependent on the nature (size, structure, complexity) of an organization and its activities.

#### 4.1.2 Initial review

An initial review should compare the organization's current management of OH&S against the OHSAS 18001 requirements (including those for applicable legal or other requirements), in order to determine the extent to which these requirements are being met.

The initial review will provide information which an organization can use in formulating plans for implementing and prioritizing improvements to the OH&S management system.

The aim of an initial review should be to consider all OH&S risks faced by the organization, as a basis for establishing the OH&S management system. An organization should consider, but not limit itself to, the following items within its initial review:

- legal and other requirements (see the examples in 4.3.2);
- identification of the OH&S hazards and evaluation of risks faced by the organization;
- OH&S assessments;
- an examination of existing systems, practices, processes and procedures;
- evaluations of OH&S improvement initiatives;
- an evaluation of feedback from the investigation of previous incidents, work related ill health, accidents and emergencies;
- relevant management systems and available resources.

A suitable approach to the initial review can include the use of:

- checklists, interviews, direct inspection and measurement;
- the results of previous management system audits or other reviews, depending on the nature of the organization's activities;
- the results of consultations with workers, contractors or other relevant external interested parties.

Where hazard identification and risk assessment processes already exist, they should be reviewed for adequacy against the requirements of OHSAS 18001.

It is emphasized that an initial review is not a substitute for the implementation of the structured systematic approach to hazard identification, risk assessment and determining controls given in 4.3.1. However an initial review can provide additional inputs into planning these processes.

#### 4.1.3 Scope of the OH&S management system

An organization can choose to implement an OH&S management system with respect to the entire organization, or to a subdivision of the organization, provided this is consistent with its definition of its workplace (see 3.23). However, once the workplace is defined, all the work related activities and services of the organization, or subdivision, within that workplace need to be included in the OH&S management system.

Care should be taken in defining and documenting the scope of the OH&S management system, to determine who, what and where, are to be covered. The scope should not be limited so as to exclude an

operation or activity that can impact on the OH&S (see 3.12) of an organization's employees and other persons under its control in the workplace.

*NOTE The ILO-OSH:2001 Guidelines recommend that employees are consulted when defining the scope, or when changes to the scope are considered.*

## 4.2 OH&S policy

### OHSAS 18001 text

Top management shall define and authorize the organization's OH&S policy and ensure that within the defined scope of its OH&S management system it:

- a) is appropriate to the nature and scale of the organization's OH&S risks;
- b) includes a commitment to prevention of injury and ill health and continual improvement in OH&S management and OH&S performance;
- c) includes a commitment to at least comply with applicable legal requirements and with other requirements to which the organization subscribes that relate to its OH&S hazards;
- d) provides the framework for setting and reviewing OH&S objectives;
- e) is documented, implemented and maintained;
- f) is communicated to all persons working under the control of the organization with the intent that they are made aware of their individual OH&S obligations;
- g) is available to interested parties; and
- h) is reviewed periodically to ensure that it remains relevant and appropriate to the organization.

Top management should demonstrate the leadership and commitment necessary for the OH&S management system to be successful and to achieve improved OH&S performance.

An OH&S policy establishes an overall sense of direction and is the driver for implementing and improving an organization's OH&S management system so that it can maintain and potentially improve its OH&S performance.

It should enable persons under the control of the organization to understand the overall commitment of the organization and how this can affect their individual responsibilities.

The responsibility for defining and authorizing an OH&S policy rests with the organization's top management. The ongoing and proactive involvement of top management in developing and implementing an OH&S policy is crucial.

The organization's OH&S policy should be appropriate to the nature and scale of its identified risks and should guide the setting of objectives. In order to be appropriate, the OH&S policy should:

- be consistent with a vision of the organization's future, and
- be realistic, neither overstating the nature of the risks the organization faces, nor trivializing them.

In developing its OH&S policy, an organization should consider:

- its mission, vision, core values and beliefs,
- coordination with other policies (corporate, integrated, etc.),
- the needs of persons working under the control of the organization,
- the OH&S hazards of the organization,
- legal and other requirements to which the organization subscribes that relate to its OH&S hazards,
- historical and current OH&S performance by the organization,
- opportunities and needs for continual improvement and the prevention of injury and ill health,
- the views of interested parties,
- what is needed to establish realistic and achievable objectives.

The policy is, as a minimum, required to include statements about the commitment of an organization to:

- the prevention of injury and ill health,
- continual improvement in OH&S management,
- continual improvement in OH&S performance,
- compliance with applicable legal requirements, and
- compliance with other requirements to which the organization subscribes.

The OH&S policy can be linked with other policy documents of the organization and should be consistent with the organization's overall business policies and with its policies for other management disciplines, e.g. quality management or environmental management.

The communication of the policy should assist in:

- demonstrating the commitment of top management and the organization to OH&S,
- increasing awareness of the commitments made in the policy statement,
- explaining why the OH&S system is established and is maintained,
- guiding individuals in understanding their OH&S responsibilities and accountabilities (see 4.4.2).

In communicating the policy, consideration should be given to how to create and maintain awareness in both new and existing persons under the control of the organization. The policy can be communicated in alternative forms to the policy statement itself, such as through the use of rules, directives and procedures, wallet cards, posters, etc. In communicating the policy, account should be taken of issues such as diversity in the workplace, literacy levels, language skills, etc.

It is for the organization to determine how it wishes to make the policy available to its interested parties, e.g. through publication on a web site, or by providing printed copies on request.

The OH&S policy should be reviewed periodically (see 4.6) to ensure that it remains relevant and appropriate to the organization. Change is inevitable, as legislation and societal expectations evolve; consequently, the organization's OH&S policy and OH&S management system need to be reviewed regularly to ensure their continuing suitability and effectiveness. If changes are made to the policy, the revised policy should be communicated to all persons working under the control of the organization.

*NOTE "OH&S management" is equivalent to "the management of OH&S" and is the coordinated activities to direct and control an organization with regard to OH&S.*

### 4.3 Planning

#### 4.3.1 Hazard identification, risk assessment and determining controls

##### **OHSAS 18001 text**

The organization shall establish, implement and maintain a procedure(s) for the ongoing hazard identification, risk assessment, and determination of necessary controls.

The procedure(s) for hazard identification and risk assessment shall take into account:

- a) routine and non-routine activities;
- b) activities of all persons having access to the workplace (including contractors and visitors);
- c) human behaviour, capabilities and other human factors;
- d) identified hazards originating outside the workplace capable of adversely affecting the health and safety of persons under the control of the organization within the workplace;
- e) hazards created in the vicinity of the workplace by work-related activities under the control of the organization;

*NOTE 1 It may be more appropriate for such hazards to be assessed as an environmental aspect.*

- f) infrastructure, equipment and materials at the workplace, whether provided by the organization or others;
- g) changes or proposed changes in the organization, its activities, or materials;
- h) modifications to the OH&S management system, including temporary changes, and their impacts on operations, processes, and activities;
- i) any applicable legal obligations relating to risk assessment and implementation of necessary controls (see also the NOTE to 3.12);
- j) the design of work areas, processes, installations, machinery/equipment, operating procedures and work organization, including their adaptation to human capabilities.

The organization's methodology for hazard identification and risk assessment shall:

- a) be defined with respect to its scope, nature and timing to ensure it is proactive rather than reactive; and
- b) provide for the identification, prioritization and documentation of risks, and the application of controls, as appropriate.

For the management of change, the organization shall identify the OH&S hazards and OH&S risks associated with changes in the organization, the OH&S management system, or its activities, prior to the introduction of such changes.

The organization shall ensure that the results of these assessments are considered when determining controls.

When determining controls, or considering changes to existing controls, consideration shall be given to reducing the risks according to the following hierarchy:

- a) elimination;
- b) substitution;
- c) engineering controls;
- d) signage/warnings and/or administrative controls;
- e) personal protective equipment.

The organization shall document and keep the results of identification of hazards, risk assessments and determined controls up-to-date.

The organization shall ensure that the OH&S risks and determined controls are taken into account when establishing, implementing and maintaining its OH&S management system.

#### 4.3.1.1 General

Hazards have the potential to cause human injury or ill health. Hazards therefore need to be identified before the risks associated with these hazards can be assessed and, if no controls exist or existing controls are inadequate, effective controls should be implemented according to the hierarchy of controls [see bullets a) to e) in OHSAS 18001:2007, 4.3.1].

An organization will need to apply the process of hazard identification (see 3.7) and risk assessment (see 3.22) to determine the controls that are necessary to reduce the risks of incidents (see 3.9). The overall purpose of the risk assessment process is to recognize and understand the hazards (see 3.6) that might arise in the course of the organization's activities and ensure that the risks (see 3.21) to people arising from these hazards are assessed, prioritized and controlled to a level that is acceptable (see 3.1).

This is achieved by:

- developing a methodology for hazard identification and risk assessment,
- identifying hazards,



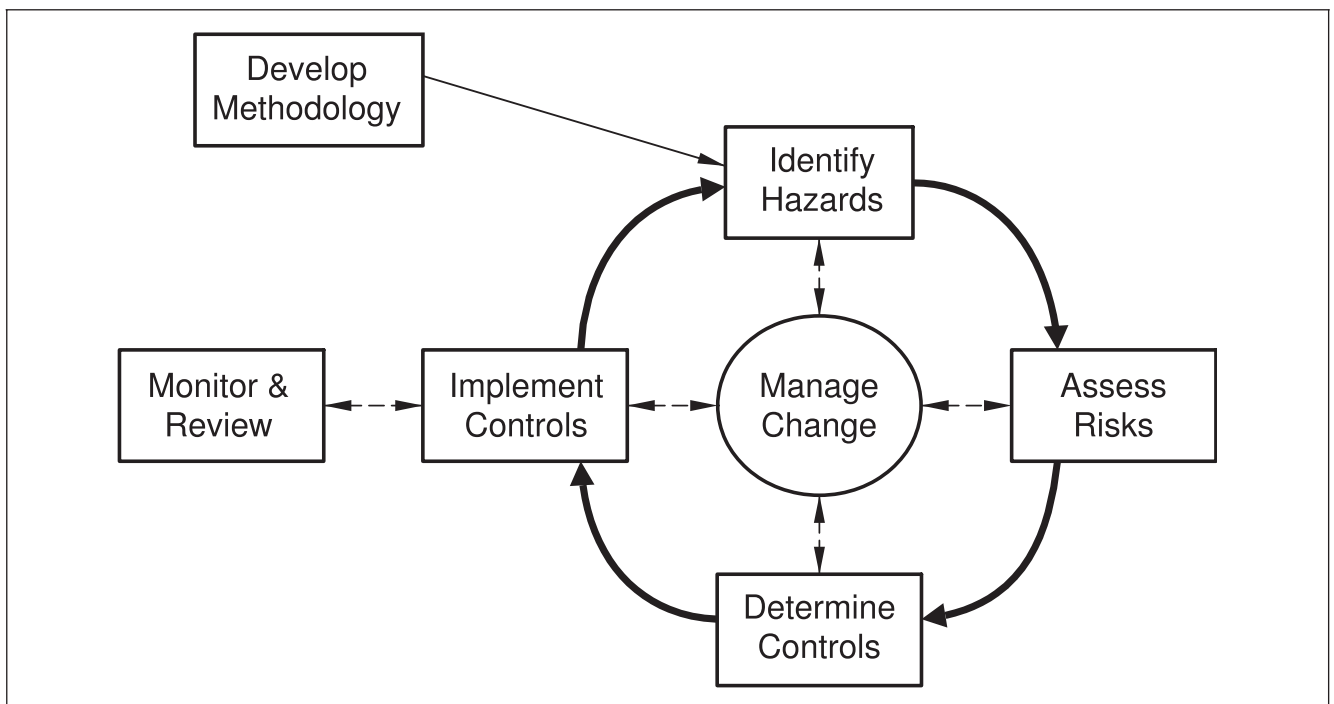
- estimating the associated risks, taking into account the adequacy of any existing controls (it could be necessary to obtain additional data and perform further analysis in order to achieve a reasonable estimation of the risks),
- determining whether these risks are acceptable, and
- determining the appropriate risk controls, where these are found to be necessary (workplace hazards and the way they are to be controlled are often defined in regulations, codes of practice, guidance published by regulators, and industry guidance documents).

The results of risk assessments enable the organization to compare risk reduction options and prioritize resources for effective risk management.

The outputs from the hazard identification, risk assessment and determining control processes should also be used throughout the development and implementation of the OH&S management system.

Figure 2 provides an overview of the risk assessment process.

Figure 2 Overview of the hazard identification and risk assessment process



*NOTE* The development of the methodology can itself be subject to change or improvement.

#### 4.3.1.2 Developing a methodology and procedures for hazard identification and risk assessment

Hazard identification and risk assessment methodologies vary greatly across industries, ranging from simple assessments to complex quantitative analyses with extensive documentation. Individual hazards can require that different methods be used, e.g. an assessment of long term exposure to chemicals can need a different method than that taken for equipment safety or for assessing an



office workstation. Each organization should choose approaches that are appropriate to its scope, nature and size, and which meet its needs in terms of detail, complexity, time, cost and availability of reliable data. In combination, the chosen approaches should result in an inclusive methodology for the ongoing evaluation of all the organization's OH&S risks.

The management of change (see 4.3.1.5) needs to be considered for changes in assessed risks, determination of controls, or the implementation of controls. Management review should be used to determine whether changes to the methodology are needed overall.

To be effective, the organization's procedures for hazard identification and risk assessment should take account of the following:

- hazards,
- risks,
- controls,
- management of change,
- documentation,
- ongoing review.

To ensure consistency of application, it is recommended that these procedure(s) be documented.

OHSAS 18001:2007, 4.3.1, identifies in bullets a) to j) what should be taken into account in developing the procedure(s). Guidance on these can be found in sub-clauses 4.3.1.3 to 4.3.1.8.

#### 4.3.1.3 Hazard Identification

Hazard identification should aim to determine proactively all sources, situations or acts (or a combination of these), arising from an organization's activities, with a potential for harm in terms of human injury or ill health (see the definition of "hazard" in 3.6). Examples include:

- sources (e.g. moving machinery, radiation or energy sources),
- situations (e.g. working at heights), or
- acts (e.g. manual lifting).

Hazard identification should consider the different types of hazards in the workplace, including physical, chemical, biological and psychosocial (see Annex C for examples of hazards).

The organization should establish specific hazard identification tools and techniques that are relevant to the scope of its OH&S management system.

The following sources of information or inputs should be considered during the hazard identification process:

- OH&S legal and other requirements (see 4.3.2), e.g. those that prescribe how hazards should be identified,
- OH&S policy (see 4.2),
- monitoring data (see 4.5.1),
- occupational exposure and health assessments,
- records of incidents (see 3.9),

- reports from previous audits, assessments or reviews,
- input from employees and other interested parties (see 4.4.3),
- information from other management systems (e.g. for quality management or environmental management),
- information from employee OH&S consultations,
- process review and improvement activities in the workplace,
- information on best practice and/or typical hazards in similar organizations,
- reports of incidents that have occurred in similar organizations,
- information on the facilities, processes and activities of the organization, including the following:
  - workplace design, traffic plans (e.g. pedestrian walkways, vehicle routing), site plan(s),
  - process flowcharts and operations manuals,
  - inventories of hazardous materials (raw materials, chemicals, wastes, products, sub-products),
  - equipment specifications,
  - product specifications, material safety data sheets, toxicology and other OH&S data.

Hazard identification processes should be applied to both routine and to non-routine (e.g. periodic, occasional, or emergency) activities and situations.

Examples of non-routine activities and situations that should be considered during the hazard identification process include:

- facilities or equipment cleaning,
- temporary process modifications,
- non-scheduled maintenance,
- plant or equipment start-ups/shut-downs,
- off-site visits (e.g. field trips, customer supplier visits, prospecting, excursions),
- refurbishment,
- extreme weather conditions,
- utility (e.g. power, water, gas, etc.) disruptions,
- temporary arrangements,
- emergency situations.

Hazard identification should consider all persons having access to the workplace (e.g. customers, visitors, service contractors, delivery personnel, as well as employees) and:

- the hazards and risks arising from their activities,
- the hazards arising from the use of products or services supplied to the organization by them,
- their degree of familiarity with the workplace, and
- their behaviour.

Human factors, such as capabilities, behaviours and limitations, have to be taken into account [see bullet c) of OHSAS 18001:2007, 4.3.1] when evaluating the hazards and risks of processes, equipment and work environments. Human factors should be considered whenever there is a human interface and take into account issues such as ease of use, potential for operational errors, operator stress and user fatigue.

In considering human factors, the organization's hazard identification process should consider the following, and their interactions:

- the nature of the job (workplace layout, operator information, work load, physical work, work patterns),
- the environment (heat, lighting, noise, air quality),
- human behaviour (temperament, habits, attitude),
- psychological capabilities (cognition, attention),
- physiological capabilities (biomechanical, anthropometrics/ physical variation of people).

In some instances, there can be hazards which occur or originate outside the workplace that can have an impact on individuals within the workplace (e.g. releases of toxic materials from neighbouring operations). Where such hazards are foreseeable, these should be addressed.

The organization could be obliged to give consideration to hazards created beyond the boundary of the workplace, particularly where there is a legal obligation or duty of care concerning such hazards. In some legal jurisdictions such hazards are instead addressed through the organization's environmental management system.

For the hazard identification to be effective the organization should use an approach that includes information from a variety of sources, especially inputs from people who have knowledge of its processes, tasks or systems, e.g.:

- observations of behaviour and work practices and analyses of the underlying causes of unsafe behaviour,
- benchmarking,
- interviews and surveys,
- safety tours and inspections,
- incident reviews and subsequent analyses,
- monitoring and assessment of hazardous exposures (chemical and physical agents),
- workflow and process analysis, including their potential for creating unsafe behaviour.

Hazard identification should be conducted by a person(s) with competence in relevant hazard identification methodologies and techniques (see 4.4.2) and appropriate knowledge of the work activity.

Checklists can be used as a reminder of what types of potential hazards to consider and to record the initial hazard identification; however, care should be taken to avoid over reliance on the use of checklists (see Annex C). Checklists should be specific to the work area, process or equipment being evaluated.

#### 4.3.1.4 Risk assessment

##### 4.3.1.4.1 General

Risk is the combination of the likelihood of an occurrence of a hazardous event or exposure(s) and the severity of injury or ill health (3.8) that can be caused by the event or exposure(s) (see 3.21).

Risk assessment is a process of evaluating the risk(s) arising from a hazard(s), taking into account the adequacy of any existing controls, and deciding whether the risk(s) is acceptable (see 3.22).

An acceptable risk (see 3.1) is a risk that has been reduced to a level that the organization is willing to assume with respect to its legal obligation, its OH&S policy and its OH&S objectives.

*NOTE* Some reference documents use the term "risk assessment" to encompass the entire process of hazard identification, risk assessment and determining controls; OHSAS 18001 and OHSAS 18002 refer to the individual elements of this process separately and use the term "risk assessment" to refer explicitly to the second stage of this process.

##### 4.3.1.4.2 Risk assessment inputs

Inputs to the risk assessment processes can include, but are not be limited to, information or data on the following:

- details of location(s) where work is carried out,
- the proximity and scope for hazardous interaction between activities in the workplace,
- security arrangements,
- the human capabilities, behaviour, competence, training and experience of those who normally and/or occasionally carry out hazardous tasks,
- toxicological data, epidemiological data and other health related information,
- the proximity of other personnel (e.g. cleaners, visitors, contractors, the public) who might be affected by hazardous work,
- details of any work instructions, systems of work and/or permit-to-work procedures, prepared for hazardous tasks,
- manufacturers' or suppliers' instructions for operation and maintenance of equipment and facilities,
- the availability and use of control measures [e.g. for ventilation, guarding, personal protective equipment (PPE), etc.],
- abnormal conditions (e.g. the potential interruption of utility services such as electricity and water, or other process failures),
- environmental conditions affecting the workplace,
- the potential for failure of plant and machinery components and safety devices or for their degradation from exposure to the elements or process materials,
- details of access to, and adequacy/condition of emergency procedures, emergency escape plans, emergency equipment, emergency escape routes (including signage), emergency communication facilities, and external emergency support, etc.,

- monitoring data related to incidents associated with specific work activities,
- the findings of any existing assessments relating to hazardous work activity,
- details of previous unsafe acts either by the individuals performing the activity or by others (e.g. adjacent personnel, visitors, contractors, etc.),
- the potential for a failure to induce associated failures or disabling of control measures,
- the duration and frequency at which tasks are carried out,
- the accuracy and reliability of the data available for the risk assessment,
- any legal and other requirements (see 4.3.2) which prescribe how the risk assessment has to be performed or what constitutes an acceptable risk, e.g. sampling methods to determine exposure, use of specific risk assessment methods, or permissible exposure levels.

Risk assessment should be conducted by a person(s) with competence in relevant risk assessment methodologies and techniques (see 4.4.2) and appropriate knowledge of the work activity.

#### 4.3.1.4.3 Risk assessment methodologies

An organization can use different risk assessment methods as part of an overall strategy for addressing different areas or activities. When seeking to establish the likelihood of harm, the adequacy of existing control measures should be taken into account. A risk assessment should be detailed enough to determine appropriate control measures.

Some risk assessment methods are complex and appropriate to special or particularly hazardous activities. For example, risk assessment of a chemical process plant might require complex mathematical calculations of the probabilities of events that could lead to a release of agents that might affect individuals in the workplace or the public. In many countries, sector-specific legislation specifies where this degree of complexity is required.

In many circumstances, OH&S risk can be addressed using simpler methods and can be qualitative. These approaches typically involve a greater degree of judgment, since they place less reliance on quantifiable data. In some cases, these methods will serve as initial screening tools, to determine where a more detailed assessment is needed.

The risk assessment should involve consultation with, and appropriate participation by, workers and take into account legal and other requirements. Regulatory guidance should be taken into account where applicable.

The organization should consider limitations in the quality and accuracy of the data used in the risk assessments and the possible effect this could have on the resulting calculation of risk. The higher the level of uncertainty in the data, the greater is the need for caution in determining whether the risk is acceptable.

*NOTE See Annex D for a comparison of risk assessment tools and methodologies.*

#### 4.3.1.4.4 Other considerations for risk assessment

Some organizations develop generic risk assessments for typical activities that can occur in several different sites or locations. Such generic assessments can be useful as a starting point for more specific assessments, but could need to be customized to be appropriate to the particular situation. This approach can improve the speed and efficiency of the risk assessment process and improve the consistency of risk assessments for similar tasks.

When the organization's risk assessment method uses descriptive categories for assessing severity or likelihood of harm, they should be clearly defined, e.g. clear definitions of terms such as "likely" and "unlikely" are needed to ensure that different individuals interpret them consistently.

The organization should consider risks to sensitive populations (e.g. pregnant workers) and vulnerable groups (e.g. inexperienced workers), as well as any particular susceptibilities of the individuals involved in performing particular tasks (e.g. the ability of an individual who is colour-blind to read instructions).

The organization should evaluate how the risk assessment will take into account the number of persons that might be exposed to a particular hazard. Hazards that could cause harm to large numbers of persons should be given careful consideration even when it is less likely for such severe consequences to occur.

Risk assessments to evaluate the harm from exposure to chemical, biological and physical agents might require measurement of exposure concentrations with appropriate instruments and sampling methods. Comparison of these concentrations should be made to applicable occupational exposure limits or standards. The organization should ensure that the risk assessment considers both the short-term and long-term consequences of exposure and the additive effects of multiple agents and exposures.

In some cases risk assessments are performed using sampling to cover a variety of situations and locations. Care should be taken to ensure that the samples used are sufficient and adequately represent all the situations and locations being assessed.

#### 4.3.1.5 Management of change

The organization should manage and control any changes that can affect or impact its OH&S hazards and risks. This includes changes to the organization's structure, personnel, management system, processes, activities, use of materials, etc. Such changes should be evaluated through hazard identification and risk assessment prior to their introduction.

The organization should consider hazards and potential risks associated with new processes or operations at the design stage as well as changes in the organization, existing operations, products, services or suppliers. The following are examples of conditions that should initiate a management of change process:

- new or modified technology (including software), equipment, facilities, or work environment,
- new or revised procedures, work practices, designs, specifications or standards,



- different types or grades of raw materials,
- significant changes to the site's organizational structure and staffing, including the use of contractors,
- modifications of health and safety devices and equipment or controls.

The management of change process should include consideration of the following questions to ensure that any new or changed risks are acceptable:

- have new hazards been created (see 4.3.1.4)?
- what are the risks associated with the new hazards?
- have the risks from other hazards changed?
- could the changes adversely affect existing risk controls?
- have the most appropriate controls been chosen, bearing in mind usability, acceptability and both the immediate and long-term costs?

#### 4.3.1.6 Determining the need for controls

Having completed a risk assessment and having taken account of existing controls, the organization should be able to determine whether existing controls are adequate or need improving, or if new controls are required.

If new or improved controls are required, their selection should be determined by the principle of the hierarchy of controls, i.e. the elimination of hazards where practicable, followed in turn by risk reduction (either by reducing the likelihood of occurrence or potential severity of injury or harm), with the adoption of personal protective equipment (PPE) as a last resort.

The following provides examples of implementing the hierarchy of controls:

- a) Elimination – modify a design to eliminate the hazard, e.g. introduce mechanical lifting devices to eliminate the manual handling hazard;
- b) Substitution – substitute a less hazardous material or reduce the system energy (e.g. lower the force, amperage, pressure, temperature, etc.);
- c) Engineering controls – install ventilation systems, machine guarding, interlocks, sound enclosures, etc.;
- d) Signage, warnings, and/or administrative controls – safety signs, hazardous area marking, photo-luminescent signs, markings for pedestrian walkways, warning sirens/lights, alarms, safety procedures, equipment inspections, access controls, safe systems of working, tagging and work permits, etc.;
- e) Personal protective equipment (PPE) – safety glasses, hearing protection, face shields, safety harnesses and lanyards, respirators and gloves.

In applying the hierarchy consideration should be given to the relative costs, risk reduction benefits, and reliability of the available options.

An organization should take into account:

- the need for a combination of controls, combining elements from the above hierarchy (e.g. engineering and administrative controls),
- established good practice in the control of the particular hazard under consideration,
- adapting work to the individual (e.g. to take account of individual mental and physical capabilities),
- taking advantage of technical progress to improve controls,
- using measures that protect everyone [e.g. by selecting engineering controls that protect everyone in the vicinity of a hazard in preference to personal protective equipment (PPE)],
- human behaviour and whether a particular control measure will be accepted and can be effectively implemented,
- typical basic types of human failure (e.g. simple failure of a frequently repeated action, lapses of memory or attention, lack of understanding or error of judgement, and breach of rules or procedures) and ways of preventing them,
- the need to introduce planned maintenance of, for example, machinery safeguards,
- the possible need for emergency/contingency arrangements where risk controls fail,
- the potential lack of familiarity with the workplace and existing controls of those not in the direct employment of the organization, e.g. visitors, contractor personnel.

Once the controls have been determined the organization can prioritize its actions to implement them. In the prioritization of actions the organization should take into account the potential for risk reduction of the planned controls. It is preferable that actions addressing a high risk activity or offering a substantial reduction of risk take priority over actions that have only limited risk reduction benefit.

In some cases, it is necessary to modify work activities until risk controls are in place or apply temporary risk controls until more effective actions are completed. For example, the use of hearing protection as an interim measure until the source of noise can be eliminated, or the work activity segregated to reduce the noise exposure. Temporary controls should not be regarded as a long-term substitute for more effective risk control measures.

Legal requirements, voluntary standards and codes of practice can specify appropriate controls for specific hazards. In some cases, controls will need to be capable of attaining "as low as reasonably practicable" (ALARP) levels of risk.

The organization should conduct ongoing monitoring to ensure that the adequacy of the controls is being maintained (see 4.5.1).

*NOTE* The term "residual risk" is often used to describe the risk that remains after controls have been implemented.



#### 4.3.1.7 Recording and documenting the results

The organization should document and keep the results of hazard identification, risk assessments and determined controls.

The following types of information should be recorded:

- identification of hazards,
- determination of the risks associated with the identified hazards,
- indication of the levels of the risks related to the hazards,
- description of, or reference to, the measures to be taken to control the risks,
- determination of the competency requirements for implementing the controls (see 4.4.2).

When existing or intended controls are used in determining OH&S risks, these measures should be clearly documented so that the basis of the assessment will be clear when it is reviewed at a later date.

The description of measures to monitor and control risks can be included within operational control procedures (see 4.4.6). The determination of competency requirements can be included within training procedures (see 4.4.2).

#### 4.3.1.8 Ongoing review

It is a requirement that hazard identification and risk assessment be ongoing. This requires the organization to consider the timing and frequency of such reviews, as affected by the following types of issues:

- the need to determine whether existing risk controls are effective and adequate,
- the need to respond to new hazards,
- the need to respond to changes that the organization itself has made (see 4.3.1.5),
- the need to respond to feedback from monitoring activities, incident investigation (see 4.5.3), emergency situations or the results of testing of emergency procedures (see 4.4.7),
- changes in legislation,
- external factors, e.g. emerging occupational health issues,
- advances in control technologies,
- changing diversity in the workforce, including contractors,
- changes proposed by corrective and preventive action (see 4.5.3).

Periodic reviews can help ensure consistency across risk assessments carried out by different people at different times. Where conditions have changed and/or better risk management technologies have become available, improvements should be made as necessary.

It is not necessary to perform new risk assessments when a review can show that the existing or planned controls remain valid.

Internal audits (see 4.5.5) can provide an opportunity to check that hazard identifications, risk assessments and controls, are in place and up-to-date. Internal audits can also be a useful opportunity to check whether the assessment reflects actual workplace conditions and practice.

### 4.3.2 Legal and other requirements

**OHSAS 18001 text**

The organization shall establish, implement and maintain a procedure(s) for identifying and accessing the legal and other OH&S requirements that are applicable to it.

The organization shall ensure that these applicable legal requirements and other requirements to which the organization subscribes are taken into account in establishing, implementing and maintaining its OH&S management system.

The organization shall keep this information up-to-date.

The organization shall communicate relevant information on legal and other requirements to persons working under the control of the organization, and other relevant interested parties.

The organization should have made a policy commitment to compliance with applicable legal and other OH&S requirements that relates to its OH&S hazards (see 4.2).

These legal requirements can take many forms, such as:

- legislation, including statutes, regulations and codes of practice,
- decrees and directives,
- orders issued by regulators,
- permits, licences or other forms of authorization,
- judgements of courts or administrative tribunals,
- treaties, conventions, protocols.

Examples of "other requirements" can include:

- contractual conditions,
- agreements with employees,
- agreements with interested parties,
- agreements with health authorities,
- non-regulatory guidelines,
- voluntary principles, best practices or codes of practice, charters,
- public commitments of the organization or its parent organization, and
- corporate/company requirements.

Some of these commitments or agreements can address a range of issues in addition to OH&S matters. The OH&S management system need only address such commitments or agreements to the extent that they relate to the organization's OH&S hazards.

To meet its policy commitments, the organization should have a structured approach to ensure that the legal and other requirements can be identified, evaluated for applicability, accessed, communicated and be kept up-to-date.

Depending on the nature of its OH&S hazards, operations, equipment, materials, etc., an organization should seek out relevant applicable OH&S legislative or other requirements. This can be achieved through

the use of knowledge within the organization and/or through the use of external sources such as:

- the internet,
- libraries,
- trade associations,
- regulators,
- legal services,
- OH&S institutes,
- OH&S consultants,
- equipment manufacturers,
- materials suppliers,
- contractors,
- customers.

From the results of the initial review, the organization should consider the legal and other requirements that are applicable to:

- its sector,
- its activities,
- its products, processes, facilities, equipment, materials, personnel,
- its location.

External resources, such as those previously listed, can be helpful in locating and evaluating these requirements.

Having identified what is applicable, the organization's procedure needs to include information on how it can access the legal and other requirements. There is no requirement to maintain a library; it is sufficient that the organization be able to access the information when needed.

The organization's procedure should ensure that it can determine any changes that affect the applicability of legal and other requirements relevant to its OH&S hazards.

The organization's procedure needs to identify who should receive information on legal and other requirements, and ensure that relevant information is communicated to them (see 4.4.3)

Further guidance on how legal requirements should be taken into account in an organization's OH&S management system can be found throughout this OHSAS standard.

#### 4.3.3 Objectives and programme(s)

##### **OHSAS 18001 text**

The organization shall establish, implement and maintain documented OH&S objectives, at relevant functions and levels within the organization.

The objectives shall be measurable, where practicable, and consistent with the OH&S policy, including the commitments to the prevention of injury and ill health, to compliance with applicable legal requirements and with other requirements to which the organization subscribes, and to continual improvement.

When establishing and reviewing its objectives, an organization shall take into account the legal requirements and other requirements to which the organization subscribes, and its OH&S risks. It shall also consider its technological options, its financial, operational and business requirements, and the views of relevant interested parties.

The organization shall establish, implement and maintain a programme(s) for achieving its objectives. Programme(s) shall include as a minimum:

- a) designation of responsibility and authority for achieving objectives at relevant functions and levels of the organization; and
- b) the means and time-frame by which the objectives are to be achieved.

The programme(s) shall be reviewed at regular and planned intervals, and adjusted as necessary, to ensure that the objectives are achieved.

#### 4.3.3.1 Setting objectives

Setting objectives is an integral part of the planning of an OH&S management system. An organization should set objectives to fulfil the commitments established in its OH&S policy, including its commitments to the prevention of injury and ill health.

The process of setting and reviewing objectives, and implementing programmes to achieve them, provides a mechanism for the organization to continually improve its OH&S management system and to improve its OH&S performance.

When setting OH&S objectives the organization needs to take into account the legal and other requirements and its OH&S risks that it has identified (see 4.3.1 and 4.3.2). The organization should make use of the other information obtained from the planning process (e.g. a prioritized list of OH&S risks) to determine whether it needs to set specific objectives in relation to any of its legal and other requirements, or its OH&S risks. However, the organization is not required to establish OH&S objectives for each legal and other requirement or OH&S risk identified.

The organization should also determine what other issues and factors it needs to consider, such as:

- technological options, financial, operational and business requirements,
- policy and objectives relevant to the organization's business as a whole,
- results of hazard identification, risk assessment and existing controls,
- evaluations of the effectiveness of the OH&S management system (e.g. from internal audits),
- views of workers (e.g. from employee perception or satisfaction surveys),

- information from employee OH&S consultations, reviews and improvement activities in the workplace (these activities can be either reactive or proactive in nature),
- analysis of performance against previously established OH&S objectives,
- past records of OH&S nonconformities and incidents,
- the results of the management review (see 4.6),
- the need for and availability of resources.

Objectives that are specific, measurable, achievable, relevant, and timely can enable progress against the attainment of the objectives to be measured more readily by the organization (sometimes such objectives are referred to as being "SMART").

It is also advisable that the organization records the background and reasons for setting the objectives, in order to facilitate their future review.

Examples of types of objectives can include:

- objectives to increase or reduce something that specify a numerical figure (e.g. to reduce handling incidents by 20%),
- objectives to introduce controls or eliminate hazards (e.g. for noise reduction in a workshop),
- objectives to introduce less hazardous materials in specific products,
- objectives to increase worker satisfaction in relation to OH&S (e.g. for a reduction of workplace stress),
- objectives to reduce exposures to hazardous substances, equipment or processes (e.g. the introduction of access controls, or guarding),
- objectives to increase awareness or competence in performing work tasks safely,
- objectives that are put in place to meet impending legal requirements prior to their enactment.

During the establishment of OH&S objectives, particular regard should be given to information or data from those people most likely to be affected by individual OH&S objectives, as this can assist in ensuring that the objectives are reasonable and more widely accepted. It is also useful to consider information or data from sources external to the organization, e.g. from contractors or other interested parties.

The OH&S objectives should address both broad corporate OH&S issues and OH&S issues that are specific to individual functions and levels within the organization.

OH&S objectives can be broken down into tasks, depending on the size of the organization, the complexity of the OH&S objective and its time-scale. There should be clear links between the various levels of tasks and the OH&S objectives.

Specific OH&S objectives can be established by different functions and at different levels within the organization. Certain OH&S objectives, applicable to the organization as a whole, can be established by top management. Other OH&S objectives can be established by, or for,

relevant individual departments or functions. Not all functions and departments are required to have specific OH&S objectives.

*NOTE Objectives are sometimes given associated "targets". For the purpose of the OHSAS standards "targets" are viewed as being a sub-set of objectives.*

#### 4.3.3.2 Programme(s)

In order to achieve the objectives a programme(s) should be established. A programme is an action plan for achieving all the OH&S objectives, or individual OH&S objectives. For complex issues more formal project plans can also need to be developed as part of the programme(s).

In considering the means necessary to establish the programme(s) the organization should examine the resources required (financial, human, infrastructure) and the tasks to be performed. Depending on the complexity of the programme established to achieve a particular objective, the organization should assign responsibility, authority, and completion dates for individual tasks to ensure that the OH&S objective can be accomplished within the overall timeframe.

The OH&S objectives and programme(s) should be communicated (e.g. via training and/or group briefing sessions, etc.) to relevant personnel.

Reviews of programme(s) need to be conducted regularly, and the programme(s) adjusted or modified where necessary. This can be as part of management review, or more frequently.

## 4.4 Implementation and operation

### 4.4.1 Resources, roles, responsibility, accountability and authority

#### OHSAS 18001 text

Top management shall take ultimate responsibility for OH&S and the OH&S management system.

Top management shall demonstrate its commitment by:

- a) ensuring the availability of resources essential to establish, implement, maintain and improve the OH&S management system;

*NOTE 1 Resources include human resources and specialized skills, organizational infrastructure, technology and financial resources.*

- b) defining roles, allocating responsibilities and accountabilities, and delegating authorities, to facilitate effective OH&S management; roles, responsibilities, accountabilities, and authorities shall be documented and communicated.

The organization shall appoint a member(s) of top management with specific responsibility for OH&S, irrespective of other responsibilities, and with defined roles and authority for:

- a) ensuring that the OH&S management system is established, implemented and maintained in accordance with this OHSAS Standard;

- b) ensuring that reports on the performance of the OH&S management system are presented to top management for review and used as a basis for improvement of the OH&S management system.

*NOTE 2 The top management appointee (e.g. in a large organization, a Board or executive committee member) may delegate some of their duties to a subordinate management representative(s) while still retaining accountability.*

The identity of the top management appointee shall be made available to all persons working under the control of the organization.

All those with management responsibility shall demonstrate their commitment to the continual improvement of OH&S performance.

The organization shall ensure that persons in the workplace take responsibility for aspects of OH&S over which they have control, including adherence to the organization's applicable OH&S requirements.

*NOTE "Accountability" means ultimate "responsibility", and relates to the person who is held to account if something is not done, does not work, or fails to achieve its objective.*

The successful implementation of an OH&S management system calls for a commitment from all persons working under the control of the organization. This commitment should begin at the highest levels of management.

Top management should:

- determine and make available, in a timely and efficient manner, all the resources needed to prevent injuries and ill health in the workplace,
- identify who needs to do what with respect to the management of OH&S and make sure they are aware of their responsibilities and what they are accountable for,
- ensure that those members of the organization's management with OH&S responsibilities have the necessary authority to fulfil their roles,
- ensure there is clarity of responsibilities at the interfaces between different functions (e.g. between departments, between different levels of management, between workers, between the organization and contractors, between the organization and its neighbours),
- appoint one of its members as the person responsible for the OH&S system and reporting on its performance.

When determining the resources needed to establish, implement and maintain the OH&S system, an organization should consider:

- the financial, human and other resources specific to its operations,
- the technologies specific to its operations,
- infrastructure and equipment,



- information systems, and
- the need for expertise and training.

Resources and their allocation should be reviewed periodically, via management review, to ensure they are sufficient to carry out OH&S programmes and activities, including performance measurement and monitoring. For organizations with established OH&S management systems, the adequacy of resources can be at least partially evaluated by comparing the planned achievement of OH&S objectives with actual results. In evaluating adequacy of resources, consideration should also be given to planned changes and/or new projects or operations.

OHSAS 18001 requires that the responsibilities and authority of all persons who perform duties that are part of the OH&S management system have to be documented. These can be described and included in:

- OH&S management system procedures,
- operational procedures or work station procedures,
- project and/or task descriptions,
- job descriptions,
- induction training packages.

However, the organization is free to choose whatever format(s) best suits its needs.

Such documentation can, among others, be required for the following people:

- the top management appointee for OH&S,
- management at all levels in the organization, including top management,
- safety committee/safety teams,
- process operators and the general workforce,
- those managing the OH&S of contractors,
- those responsible for OH&S training,
- those responsible for equipment that is critical for OH&S,
- those responsible for managing facilities used as a workplace,
- employees with OH&S qualifications, or other OH&S specialists, within the organization,
- employee OH&S representatives on participative/consultative forums.

OHSAS 18001 requires that the OH&S management appointee has to be a member of top management. The OH&S management appointee can be supported by other personnel who have delegated responsibilities for monitoring the overall operation of the OH&S function. However, the management appointee should be regularly informed of the performance of the system, and should retain active involvement in periodic reviews and the setting of OH&S objectives. It should be ensured that any other duties or functions assigned to the top management appointee do not conflict with the fulfilment of their OH&S responsibilities.

The role and responsibilities of any specialist OH&S function within the organization should be appropriately defined to avoid ambiguity



with those of management at all levels (as managers would usually be expected to have responsibility for ensuring that OH&S is managed effectively in their area of control). This should include arrangements to resolve any conflict between OH&S issues and operational considerations including, where appropriate, escalation to a higher level of management.

All managers should provide visible demonstration of their commitment to continual improvement of OH&S performance. Means of demonstration can include visiting and inspecting sites, participating in incident investigation, and providing resources in the context of corrective action, attendance and active involvement at OH&S meetings, communicating the status of safety activities, and acknowledging good OH&S performance.

The organization should communicate and promote that OH&S is the responsibility of everyone in the organization, not just the responsibility of those with defined OH&S management system responsibilities. In taking responsibility for aspects of OH&S over which they have control, all persons in the workplace need to consider not only their own safety but also the safety of others.

#### 4.4.2 Competence, training and awareness

##### OHSAS 18001 text

The organization shall ensure that any person(s) under its control performing tasks that can impact on OH&S is (are) competent on the basis of appropriate education, training or experience, and shall retain associated records.

The organization shall identify training needs associated with its OH&S risks and its OH&S management system. It shall provide training or take other action to meet these needs, evaluate the effectiveness of the training or action taken, and retain associated records.

The organization shall establish, implement and maintain a procedure(s) to make persons working under its control aware of:

- a) the OH&S consequences, actual or potential, of their work activities, their behaviour, and the OH&S benefits of improved personal performance;
- b) their roles and responsibilities and importance in achieving conformity to the OH&S policy and procedures and to the requirements of the OH&S management system, including emergency preparedness and response requirements (see 4.4.7);
- c) the potential consequences of departure from specified procedures.

Training procedures shall take into account differing levels of:

- a) responsibility, ability, language skills and literacy; and
- b) risk.

#### 4.4.2.1 General

To enable persons under the organization's control to work and/or act safely, the organization should ensure that they:

- are aware of its OH&S risks,
- are aware of their roles and responsibilities,
- have the necessary competence to perform tasks that can impact on OH&S,
- are, where necessary, trained to achieve the required awareness/competence.

The organization should require that contractors are able to demonstrate that their employees have the competence and/or appropriate training to work safely.

*NOTE* Competence and awareness do not mean the same thing. Awareness is to be conscious of something, e.g. OH&S risks and hazards. Competence is the demonstrated ability to apply knowledge and skills.

#### 4.4.2.2 Competence

In determining what activities or tasks could impact on OH&S the organization should consider those which:

- the organization's risk assessment has determined, creates an OH&S risk in the workplace,
- are intended to control OH&S risks,
- are specific to the implementation of the OH&S management system.

Management should determine the competence requirements for individual tasks. The organization can seek external advice in defining competence requirements.

When determining the competence required for a task, the following factors should be considered:

- roles and responsibilities in the workplace (including the nature of the tasks to be performed, and their associated OH&S risks),
- the complexity and requirements of operating procedures and instructions,
- the results from incident investigations,
- legal and other requirements,
- individual capability (e.g. literacy, language skills, etc.).

The organization should give specific consideration to the competency requirements for those person(s) who will be:

- the top management appointee (see 4.4.1),
- performing risk assessments (4.3.1),
- performing exposure assessments (4.5.1),
- performing audits (4.5.5),
- performing behavioural observations (4.5.1.1),

- performing incident investigations (4.5.3),
- performing tasks identified by risk assessment that can introduce hazards.

The organization should ensure that all personnel, including top management, are competent prior to permitting them to perform tasks that can impact on OH&S.

An organization should determine and assess any differences between the competence needed to perform an activity and that possessed by the individual required to perform the activity. These differences should be addressed through training or other actions, e.g. additional education and skills development, etc., taking into account the existing capabilities of the individual.

OH&S competence requirements should be considered prior to recruiting new personnel, and/or the reassignment of those already working under the control of the organization.

Records used by the organization for ensuring that personnel are competent should be maintained (4.5.4).

#### 4.4.2.3 Training

The organization should consider the roles, responsibilities and authorities, in relation to its OH&S risks and the OH&S management system, in determining its training or other actions needed for those persons working under its control (including contractors, temporary staff, etc.)

The training or other actions should focus on both competency requirements and the need to enhance awareness.

Training programmes and procedures should take account of OH&S risks and individual capabilities, such as literacy and language skills. For example it could be preferable to use pictures and diagrams or symbols that can be easily understood. The organization should determine if the training materials are needed in multiple languages or if the use of translators is necessary.

The organization should evaluate the effectiveness of the training or actions taken. This can be done in several ways, e.g. by written or oral examination, practical demonstration, observation of behavioural changes over time, or other means that demonstrate competency and awareness.

Training records should be maintained (4.5.4).

*NOTE The ILO-OSH:2001 guidelines in clause 3.4.4 recommend that "Training should be provided to all participants at no cost and should take place during working hours if possible".*

#### 4.4.2.4 Awareness

To ensure they work or act safely, the organization should make persons working under its control sufficiently knowledgeable of:

- emergency procedures,
- the consequences of their actions and behaviour in relation to OH&S risks,
- the benefits of improved OH&S performance,

- the potential consequences of departing from procedures,
- the need to conform to OH&S policies and procedures,
- any other aspects that might impact on OH&S.

Awareness programmes should be provided for contractors, temporary workers and visitors, etc., according to the OH&S risks to which they are exposed.

#### 4.4.3 Communication, participation and consultation

##### OHSAS 18001 text

###### 4.4.3.1 Communication

With regard to its OH&S hazards and OH&S management system, the organization shall establish, implement and maintain a procedure(s) for:

- a) internal communication among the various levels and functions of the organization;
- b) communication with contractors and other visitors to the workplace;
- c) receiving, documenting and responding to relevant communications from external interested parties.

###### 4.4.3.2 Participation and consultation

The organization shall establish, implement and maintain a procedure(s) for:

- a) the participation of workers by their :
  - appropriate involvement in hazard identification, risk assessments and determination of controls;
  - appropriate involvement in incident investigation;
  - involvement in the development and review of OH&S policies and objectives;
  - consultation where there are any changes that affect their OH&S;
  - representation on OH&S matters.

Workers shall be informed about their participation arrangements, including who is their representative(s) on OH&S matters.

- b) consultation with contractors where there are changes that affect their OH&S.

The organization shall ensure that, when appropriate, relevant external interested parties are consulted about pertinent OH&S matters.

##### 4.4.3.1 General

The organization, through the processes of communication and consultation, should encourage participation in good OH&S practices and support for its OH&S policy and OH&S objectives from those affected by its activities or interested in its OH&S management system.

The organization's communication processes should provide for the flow of information upwards, downwards and across the organization. It should provide for both the gathering and the dissemination of information. It should ensure that OH&S information is provided, received and understood by all relevant persons.

Consultation is the process by which management and other persons, or their representatives, jointly consider and discuss issues of mutual concern. It involves seeking acceptable solutions to problems through the general exchange of views and information.

Examples of those who could be interested in or affected by an organization's OH&S management system include employees at all levels of the organization, employee representatives, temporary workers, contractors, visitors, neighbours, volunteers, emergency services (see 4.4.7), insurers and government or regulatory inspectors.

#### **4.4.3.2 Communication**

##### **4.4.3.2.1 Procedures for internal and external communication**

The organization should develop procedures for internal communication among various functions and levels of the organization and for external communication with interested parties.

The organization should effectively communicate information concerning its OH&S hazards and its OH&S management system to those involved in or affected by the management system, in order for them to actively participate in, or support, the prevention of injury and ill health, as applicable.

When developing procedures for communication, the organization should consider the following:

- the target audience and their information needs,
- appropriate methods and media,
- local culture, preferred styles and available technologies,
- organizational complexity, structure and size,
- barriers to effective communication in the workplace such as illiteracy or language,
- legal and other requirements,
- the effectiveness of the various modes and flows of communication across all functions and levels of the organization,
- evaluation of the effectiveness of the communication.

OH&S issues can be communicated to employees, visitors and contractors via means such as:

- OH&S briefings and meetings, induction/orientation talks, etc.,
- newsletters, posters, emails, suggestion boxes/schemes, websites and notice boards containing information on OH&S issues.

##### **4.4.3.2.2 Internal communication**

It is important to effectively communicate information about OH&S risks and the OH&S management system at various levels and between various functions of the organization.

This should include information:

- relating to management's commitment to the OH&S management system (e.g. programmes undertaken and resources committed to improving OH&S performance),
- concerning the identification of hazards and risks (e.g. information on process flows, materials in use, equipment specifications and observation of work practices),
- about OH&S objectives and other continual improvement activities,
- relating to incident investigation (e.g. the type of incidents that are taking place, factors that can contribute to the occurrence of incidents, results of incident investigations),
- relating to progress in eliminating OH&S hazards and risks (e.g. status reports showing progress of projects that have been completed or are underway),
- relating to changes that can impact on the OH&S management system.

#### **4.4.3.2.3 Communication with contractors and other visitors**

It is important to develop and maintain procedures for communicating with contractors and other visitors to the workplace. The extent of this communication should be related to the OH&S risks faced by these parties.

The organization should have arrangements in place to clearly communicate its OH&S requirements to contractors. The procedure(s) should be appropriate to the OH&S hazards and risks associated with the work to be performed. In addition to communicating performance requirements, the organization should communicate the consequences associated with nonconformity with OH&S requirements.

Contracts are often used to communicate OH&S performance requirements. There can be a need to supplement contracts with other on-site arrangements (e.g. pre-project OH&S planning meetings) to ensure that appropriate controls are implemented to protect individuals at the workplace.

The communication should include information about any operational controls (see **4.4.6**) related to the specific tasks to be performed or the area where the work is to be done. This information should be communicated before the contractor comes on-site and then supplemented with additional or other information (e.g. a site tour), as appropriate, when the work starts. The organization should also have procedures in place for consultation with contractors when there are changes that affect their OH&S (see **4.4.3.4**).

In addition to the specific OH&S requirements for activities carried out on-site the following could also be relevant to the organization when developing its procedure(s) for communications with contractors:

- information about individual contractors' OH&S management systems (e.g. their established policies and procedures to address pertinent OH&S hazards),
- legal and other requirements that impact on the method or extent of communication,



- previous OH&S experience (e.g. OH&S performance data),
- the existence of multiple contractors at the worksite,
- staffing for accomplishing OH&S activities (e.g. exposure monitoring, equipment inspections),
- emergency response,
- the need for alignment of the contractor's OH&S policies and practices with those of the organization and other contractors at the worksite,
- the need for additional consultation and/or contractual provisions for high-risk tasks,
- requirements for the assessment of conformance with agreed OH&S performance criteria,
- processes for incident investigation, reporting of nonconformities and corrective action,
- arrangements for day-to-day communications.

For visitors (including delivery people, customers, members of the public, service providers, etc.), communication can include warning signs and security barriers, as well as verbal or written communication. Information that should be communicated includes:

- OH&S requirements relevant to their visit,
- evacuation procedures and responses to alarms,
- traffic controls,
- access controls and escort requirements,
- any personal protective equipment (PPE) that needs to be worn (e.g. safety glasses).

#### **4.4.3.2.4 Communication with external interested parties**

The organization needs to have a procedure(s) in place for receiving, documenting and responding to relevant communications from external interested parties.

The organization should provide appropriate and consistent information about its OH&S hazards and its OH&S management system in accordance with its OH&S policy and applicable legal and other requirements. This can include information concerning its normal operations or potential emergency situations.

External communication procedures often include the identification of designated contact individuals. This allows for appropriate information to be communicated in a consistent manner. This can be especially important in emergency situations where regular updates are requested and/or a wide range of questions need to be answered (see 4.4.7).

#### **4.4.3.3 Procedures for worker participation**

The organization's procedure(s) should address the need for the active and ongoing participation of workers in the development and review of OH&S practices and, where appropriate, the development of the OH&S management system. The participation arrangements should take account of any legal and other requirements.

Workers should be informed about the arrangements that have been made for their participation and the individual who represents them on OH&S matters. OH&S representatives should have defined roles.

In addition to the requirements in OHSAS 18001:2007, 4.4.3.2, the organization's procedure(s) for the involvement of workers could include:

- consultation in the selection of appropriate controls, including discussion of the benefits or adverse outcomes of alternative options for controlling specific hazards or preventing unsafe behaviour,
- involvement in recommending improvements to OH&S performance,
- consultation concerning changes that affect OH&S, particularly before the introduction of new or unfamiliar hazards, e.g.:
  - the introduction of new or modified equipment,
  - the construction, modification or change of use of buildings and facilities,
  - the use of new chemicals or materials,
  - reorganization, new processes, procedures or work patterns.

In developing its procedure(s) for worker participation, the organization should consider potential incentives and barriers to participation (e.g. language and literacy issues, the fear of reprisal), confidentiality and privacy issues.

*NOTE 1 The ILO-OSH:2001 guidelines in clause 3.2.3 recommend that "The employer should make arrangements for workers and their safety and health representatives to have the time and resources to participate actively in the processes of organizing, planning and implementation, evaluation and action for improvement of the OSH management system."*

*NOTE 2 "Workers" can include employees, voluntary workers, temporary workers, contracted personnel.*

#### **4.4.3.4 Procedures for consultation with contractors and external interested parties**

The organization should have a procedure(s) for consulting with contractors and other external interested parties, where appropriate. There can be a need for the organization to consult with regulators concerning certain OH&S matters (e.g. applicability and interpretation of OH&S legal requirements), or with emergency services (see 4.4.7).

In considering the need for consultation with contractors on changes that can affect their OH&S, the organization should take account of the following:

- new or unfamiliar hazards (including those that can be introduced by the contractor),
- reorganization,
- new or amended controls,
- changes in materials, equipment, exposures, etc.,
- changes in emergency arrangements,
- changes in legal or other requirements.



For consultation with external parties, the organization should give consideration to factors such as:

- changes in emergency arrangements,
- hazards that can impact neighbours, or hazards from neighbours,
- changes in legal or other requirements.

#### 4.4.4 Documentation

##### **OHSAS 18001 text**

The OH&S management system documentation shall include:

- a) the OH&S policy and objectives;
- b) description of the scope of the OH&S management system;
- c) description of the main elements of the OH&S management system and their interaction, and reference to related documents;
- d) documents, including records, required by this OHSAS Standard; and
- e) documents, including records, determined by the organization to be necessary to ensure the effective planning, operation and control of processes that relate to the management of its OH&S risks.

*NOTE It is important that documentation is proportional to the level of complexity, hazards and risks concerned and is kept to the minimum required for effectiveness and efficiency.*

The organization should maintain up-to-date documentation that is sufficient to ensure that its OH&S management system can be adequately understood and effectively and efficiently operated.

Typical inputs include the following items:

- details of the documentation and information systems the organization develops to support its OH&S management system and OH&S activities, and to fulfil the requirements of OHSAS 18001,
- details of responsibilities and authorities,
- information on the local environments in which documentation or information is used, and constraints that this can put on the physical nature of documentation, or the use of electronic or other media.

The organization should review its documentation and information needs for the OH&S management system, before developing the documentation necessary to support its OH&S processes.

In deciding what documentation is required the organization should determine where there is any risk that a task, through lack of written procedures or instructions, will not be performed in the required manner.

There is no requirement to develop documentation in a particular format in order to conform to OHSAS 18001, nor is it necessary to

replace existing documentation such as manuals, procedures, or work instructions where these adequately describe required arrangements. If the organization already has an established, documented OH&S management system, it can prove more convenient and effective for it to develop, for example, an overview document describing the inter-relation between its existing procedures and the requirements of OHSAS 18001.

Account should be taken of the following:

- the responsibilities and authorities of the users of the documentation and information, as this should lead to consideration of the degree of security and accessibility that needs to be imposed (particularly with electronic media) and change controls (see 4.4.5),
- the manner in which physical documentation is used, and the environment in which it is used, as this can require consideration of the format in which it is presented (e.g. an instruction could be incorporated into a sign rather than a paper document). Similar consideration should be given concerning the environment for the use of electronic equipment for information systems.

Records are a particular type of document (see 4.5.4).

#### 4.4.5 Control of documents

##### **OHSAS 18001 text**

Documents required by the OH&S management system and by this OHSAS Standard shall be controlled. Records are a special type of document and shall be controlled in accordance with the requirements given in 4.5.4.

The organization shall establish, implement and maintain a procedure(s) to:

- a) approve documents for adequacy prior to issue;
- b) review and update as necessary and re-approve documents;
- c) ensure that changes and the current revision status of documents are identified;
- d) ensure that relevant versions of applicable documents are available at points of use;
- e) ensure that documents remain legible and readily identifiable;
- f) ensure that documents of external origin determined by the organization to be necessary for the planning and operation of the OH&S management system are identified and their distribution controlled; and
- g) prevent the unintended use of obsolete documents and apply suitable identification to them if they are retained for any purpose.

All documents and data containing information required for the operation of the OH&S management system and the performance of the organization's OH&S activities should be identified and controlled.

The organization should give consideration to items such as the following:

- the details of the document and data systems that support its OH&S management system and OH&S activities, and which enable it to fulfil the requirements of OHSAS 18001,
- the OH&S details of its assigned responsibilities and authorities.

Written procedures should define the controls for the identification, approval, issue and removal of OH&S documentation, together with the control of OH&S data (in accordance with the requirements of OHSAS 18001:2007, 4.4.5, above). These procedures should clearly define the categories of documents and data to which they apply.

Documents and data should be available and accessible when required, under routine and non-routine conditions, including emergencies. This could include ensuring that up-to-date plant engineering drawings, hazardous material data sheets, procedures and instructions, etc., are available to those persons who require them in an emergency.

The organization should establish procedures for identifying any documents of external origin required for planning and implementing its OH&S management system. The distribution of these documents needs to be controlled to ensure that the most current information is used in making decisions impacting OH&S. For example, the organization should establish procedures for managing the safety data sheets developed for hazardous substances used by the organization. Responsibility for this task should be assigned. The person charged with this task should ensure that all persons in the organization are kept informed of any relevant changes to such information that affects their duties or working conditions.

The development of an organization's document control process will typically result in items such as the following:

- a document control procedure, including assigned responsibilities and authorities,
- document registers, master lists or indexes,
- a list of controlled documentation and its location,
- archive records (some of which should be held in accordance with legal or other time requirements).

Documents should be reviewed from time to time to ensure that they are still valid and accurate. This can be performed as a dedicated exercise, and could also be necessary:

- as part of a review of risk assessment of processes,
- as part of a response to an incident,
- as part of the management of change procedure, and
- following changes in legal and other requirements, processes, installation, workplace layout, etc.

Obsolete documents retained for reference can present a particular concern, and great care should be taken to ensure that they do not return back into circulation. However, it is sometimes necessary to retain obsolete documents as part of the records relating to the development or performance of the OH&S management system.

#### 4.4.6 Operational control

##### OHSAS 18001 text

The organization shall determine those operations and activities that are associated with the identified hazard(s) where the implementation of controls is necessary to manage the OH&S risk(s). This shall include the management of change (see 4.3.1).

For those operations and activities, the organization shall implement and maintain:

- a) operational controls, as applicable to the organization and its activities; the organization shall integrate those operational controls into its overall OH&S management system;
- b) controls related to purchased goods, equipment and services;
- c) controls related to contractors and other visitors to the workplace;
- d) documented procedures, to cover situations where their absence could lead to deviations from the OH&S policy and the objectives;
- e) stipulated operating criteria where their absence could lead to deviations from the OH&S policy and objectives.

##### 4.4.6.1 General

Once it has gained an understanding of its OH&S hazards (4.3.1), the organization should implement the operational controls that are necessary to manage the associated risks and comply with applicable OH&S legal and other requirements. The overall objective of OH&S operational controls is to manage the OH&S risks to fulfil the OH&S policy.

Information to be considered when establishing and implementing operational controls includes:

- OH&S policy and objectives,
- results of hazard identification, risk assessment, evaluation of existing controls and determination of new controls (see 4.3.1),
- management of change processes (see 4.3.1.5),
- internal specifications (e.g. for materials, equipment, facilities layout),
- information on existing operating procedures,
- legal and other requirements to which the organization subscribes (see 4.3.2),
- product supply chain controls related to purchased goods, equipment and services,
- feedback from participation and consultation (see 4.4.3),
- the nature of, and extent to which, tasks are to be performed by contractors and other external personnel,
- access to the workplace by visitors, delivery personnel, service contractors, etc.

When developing operational controls, priority should be given to control options with higher reliability in preventing injury or ill health, consistent with the hierarchy of controls, i.e. this should start with redesign of equipment or processes to eliminate or reduce hazard(s), improved signage/warnings for hazard avoidance, improved administrative procedures and training to reduce the frequency and duration of the exposure of persons to inadequately controlled hazards, and lastly the use of personal protective equipment (PPE) to reduce the severity of injury or exposure (see 4.3.1.6).

The operational controls need to be implemented, evaluated on an ongoing basis (4.3.1.8) to verify their effectiveness, and integrated into the overall OH&S management system.

#### 4.4.6.2 Establishing and implementing operational controls

Operational controls should be established and implemented as necessary to manage the OH&S risks to an acceptable level, for operational areas and activities, e.g. purchasing, research and development, sales, services, offices, off-site work, home based working, manufacturing, transportation and maintenance. Operational controls can use a variety of different methods, e.g. physical devices (such as barriers, access controls), procedures, work instructions, pictograms, alarms and signage.

*NOTE It is preferable that warning signage is based on accepted design principles, emphasizing standardized graphical symbols and minimizing the use of text, and that when text is required, accepted signal words, e.g. "danger" or "warning", are used. For further guidance see relevant international or national standards.*

The organization should establish operational controls to eliminate, or reduce and control, the OH&S risks that could be introduced into the workplace by employees, contractors, other external personnel, members of the public and/or visitors. Operational controls can also need to take into account situations where OH&S risks extend into public areas or areas controlled by other parties (e.g. when employees of the organization are working at a client's site). It is sometimes necessary to consult with external parties in such circumstances.

Examples of areas in which OH&S risks typically arise, and examples of their associated control measures, include:

- a) general control measures
  - regular maintenance and repair of facilities, machinery and equipment to prevent unsafe conditions from developing,
  - housekeeping and maintenance of clear walkways,
  - traffic management (i.e. the management of the separation of vehicle and pedestrian movements),
  - provision and maintenance of workstations,
  - maintenance of the thermal environment (temperature, air quality),
  - maintenance of the ventilation systems and electrical safety systems,
  - maintenance of emergency plans,
  - policies related to travel, bullying, sexual harassment, drug and alcohol abuse, etc.,

- health programmes (medical surveillance programmes),
- training and awareness programmes relating to the use of particular controls (e.g. permit-to-work systems),
- access controls;
- b) performance of hazardous tasks
  - use of procedures, work instructions, or approved working methods,
  - use of appropriate equipment,
  - pre-qualification and/or training of personnel or contractors for hazardous tasks,
  - use of permit-to-work systems, pre-approvals, or authorizations,
  - procedures controlling the entry and exit of personnel to hazardous work sites,
  - controls to prevent ill health;
- c) use of hazardous materials
  - established inventory levels, storage locations and storage conditions,
  - conditions of use for hazardous materials,
  - limitations of areas where hazardous materials can be used,
  - secure and safe storage provisions and control of access,
  - provision of and access to material safety data and other relevant information,
  - shielding of radiation sources,
  - isolation of biological contaminants,
  - knowledge in the use of and availability of emergency equipment (4.4.7);
- d) facilities and equipment
  - regular maintenance and repair of facilities, machinery and equipment to prevent unsafe conditions from developing,
  - housekeeping and maintenance of clear walkways, and traffic management,
  - provision, control and maintenance of personal protective equipment (PPE),
  - inspection and testing of OH&S equipment, such as guarding, fall arrest systems, shutdown systems, rescue equipment for confined spaces, lock-out systems, fire detection and suppression equipment, exposure monitoring devices, ventilation systems and electrical safety systems,
  - inspection and testing of material handling equipment (cranes, forklifts, hoists and other lifting devices);
- e) purchase of goods, equipment and services
  - establishment of OH&S requirements for goods, equipment and services to be purchased,
  - communication of the organization's own OH&S requirements to suppliers,

- pre-approval requirements for the purchase or transport/transfer of hazardous chemicals, materials and substances,
  - pre-approval requirements and specifications for the purchase of new machinery and equipment,
  - pre-approval of procedures for the safe operation of machinery, equipment, and/or the safe handling of materials prior to their use,
  - selection and monitoring of suppliers,
  - inspection of received goods, equipment and services, and (periodic) verification of their OH&S performance,
  - approval of the design of OH&S provisions for new facilities;
- f) contractors
- establish criteria for the selection of contractors,
  - communication of the organization's own OH&S requirements to contractors,
  - evaluation, monitoring and periodic re-evaluation, of the OH&S performance of contractors;
- g) other external personnel or visitors in the workplace.

As the knowledge and capabilities of visitors or other external personnel vary greatly, this should be considered when developing controls. Examples can include:

- entry controls,
- establishing their knowledge and capabilities prior to permitting the use of equipment,
- provision of advice and training as necessary,
- warning signage/administrative controls,
- methods for monitoring visitor behaviour and supervising their activities.

#### 4.4.6.3 Stipulating operating criteria

The organization should stipulate operating criteria where they are necessary for the prevention of injury or ill health. Operating criteria should be specific to the organization, its operations and activities, and be related to its own OH&S risks, where their absence could lead to deviation from the OH&S policy and objectives.

Examples of operating criteria can include:

- a) for hazardous tasks
- use of specified equipment, and procedures/work instructions for its use,
  - competency requirements,
  - use of specified entry control processes and equipment,
  - authorities/guidelines/instructions/procedures for individual risk assessment prior to immediate commencement of the task;



- b) for hazardous chemicals
  - approved chemical lists,
  - exposure limits,
  - specific inventory limits,
  - specified storage locations and conditions;
- c) for task involving entry into hazardous areas
  - specification of personal protective equipment (PPE) requirements,
  - specified conditions for entry,
  - health and fitness conditions;
- d) for tasks involving work performed by contractors
  - specification of OH&S performance criteria,
  - specification of competency and/or training requirements for contractor personnel,
  - specification/inspection of contractor provided equipment;
- e) for OH&S hazards to visitors
  - entry controls (sign-in/sign-out, access limitations),
  - personal protective equipment (PPE) requirements,
  - site safety briefings,
  - emergency requirements.

#### 4.4.6.4 Maintaining operational controls

Operational controls should be reviewed on a periodic basis to evaluate their ongoing suitability and effectiveness. Changes that are determined to be necessary should be implemented (see 4.3.1).

In addition, procedures should be in place to determine circumstances where new controls and/or modifications of existing operational controls are needed. Proposed changes to existing operations should be evaluated for OH&S hazards and risks before they are implemented. When there are changes to operational controls, the organization should consider whether there are new or modified training needs (see 4.4.2).

#### 4.4.7 Emergency preparedness and response

##### OHSAS 18001 text

The organization shall establish, implement and maintain a procedure(s):

- a) to identify the potential for emergency situations;
- b) to respond to such emergency situations.

The organization shall respond to actual emergency situations and prevent or mitigate associated adverse OH&S consequences.

In planning its emergency response the organization shall take account of the needs of relevant interested parties, e.g. emergency services and neighbours.

The organization shall also periodically test its procedure(s) to respond to emergency situations, where practicable, involving relevant interested parties as appropriate.

The organization shall periodically review and, where necessary, revise its emergency preparedness and response procedure(s), in particular, after periodical testing and after the occurrence of emergency situations (see 4.5.3).

#### 4.4.7.1 General

The organization should assess the potential for emergency situations that impact on OH&S and develop a procedure(s) for an effective response(s). This may be a stand-alone procedure(s) or be combined with other emergency response procedure(s). The organization should periodically test its emergency preparedness and seek to improve the effectiveness of its response activities and procedure(s).

*NOTE* Where the procedure is combined with other emergency response procedure(s), the organization needs to ensure that it addresses all potential OH&S impacts and should not presume that the procedures relating to fire safety, or environmental emergencies, etc., will be sufficient.

#### 4.4.7.2 Identification of potential emergency situations

Procedures to identify potential emergency situations that could impact on OH&S should consider emergencies that can be associated with specific activities, equipment or workplaces.

Examples of possible emergencies, which vary in scale, can include:

- incidents leading to serious injuries or ill health,
- fires and explosions,
- release of hazardous materials/gases,
- natural disasters, bad weather,
- loss of utility supply (e.g. loss of electric power),
- pandemics/epidemics/outbreaks of communicable disease,
- civil disturbance, terrorism, sabotage, workplace violence,
- failure of critical equipment,
- traffic accidents.

When identifying potential emergency situations, consideration should be given to emergencies that can occur during both normal operations and abnormal conditions (e.g. operation start-up or shut-down, construction or demolition activities).

Emergency planning should also be reviewed as a part of the ongoing management of change. Changes in operations can introduce new potential emergencies or necessitate that changes be made to emergency response procedures. For example, changes in facility layout can impact emergency evacuation routes.

The organization should determine and assess how emergency situations will impact all persons within and/or in the immediate vicinity of workplaces controlled by the organization. Consideration should be given to those with special needs, e.g. people with limited mobility,

vision and hearing. This could include employees, temporary workers, contract employees, visitors, neighbours or other members of the public. The organization should also consider potential impacts on emergency services personnel while at the workplace (e.g. fire-fighters).

Information that should be considered in identifying potential emergency situations includes the following:

- the results of hazard identification and risk assessment activities performed during the OH&S planning process (see 4.3.1),
- legal requirements,
- the organization's previous incident (including accident) and emergency experience,
- emergency situations that have occurred in similar organizations,
- information related to accident and/or incident investigations posted on the websites of regulators or emergency response agencies.

#### 4.4.7.3 Establishing and implementing emergency response procedures

Emergency response should focus on the prevention of ill health and injury, and on the minimization of the adverse OH&S consequences to a person(s) exposed to an emergency situation.

A procedure(s) for responding to emergency situations should be developed and should also take into account applicable legal and other requirements.

The emergency procedure(s) should be clear and concise to facilitate their use in emergency situations. They should also be readily available for use by emergency services. Emergency procedure(s) that are stored on a computer or by other electronic means might not be readily available in the event of a power failure, so paper copies of emergency procedure(s) ought to be maintained in readily accessible locations.

Consideration should be given to the existence and/or capability of the following, in developing emergency response procedure(s):

- inventory and location of hazardous materials storage,
- numbers and locations of people,
- critical systems that can impact on OH&S,
- the provision of emergency training,
- detection and emergency control measures,
- medical equipment, first aid kits, etc.,
- control systems, and any supporting secondary or parallel/multiple control systems,
- monitoring systems for hazardous materials,
- fire detection and suppression systems,
- emergency power sources,
- availability of local emergency services and details of any emergency response arrangements currently in place,
- legal and other requirements,
- previous emergency response experience.

When the organization determines that external services are needed for emergency response (e.g. specialist experts in handling hazardous materials and external testing laboratories), pre-approved (contractual) arrangements should be put in place. Particular attention should be paid to staffing levels, response schedules and emergency service limitations.

Emergency response procedure(s) should define the roles, responsibilities and authorities of those with emergency response duties, especially those with an assigned duty to provide an immediate response. These personnel should be involved in the development of the emergency procedure(s) to ensure they are fully aware of the type and scope of emergencies that they can be expected to handle, as well as the arrangements needed for coordination. Emergency service personnel should be provided with the information required to facilitate their involvement in response activities.

Emergency response procedures should give consideration to the following:

- identification of potential emergency situations and locations,
- details of the actions to be taken by personnel during the emergency (including actions to be taken by staff working off-site, by contractors and visitors),
- evacuation procedures,
- responsibilities, and authorities of personnel with specific response duties and roles during the emergency (e.g. fire-wardens, first-aid staff and spill clean-up specialists),
- interface and communication with emergency services,
- communication with employees (both on-site and off-site), regulators and other interested parties (e.g. family, neighbours, local community, media),
- information necessary for undertaking the emergency response (plant layout drawings, identification and location of emergency response equipment, identification and location of hazardous materials, utility shut-off locations, contact information for emergency response providers).

#### 4.4.7.4 Emergency response equipment

The organization should determine and review its emergency response equipment and material needs.

Emergency response equipment and materials can be needed to perform a variety of functions during an emergency, such as evacuation, leak detection, fire suppression, chemical/biological/radiological monitoring, communication, isolation, containment, shelter, personal protection, decontamination, and medical evaluation and treatment.

Emergency response equipment should be available in sufficient quantity and stored in locations where it is readily accessible; it should be stored securely and be protected from being damaged. This equipment should be inspected and/or tested at regular intervals to ensure that it will be operational in an emergency situation.

Special attention should be paid to equipment and materials used to protect emergency response personnel. Individuals should be informed of the limitations of personal protective devices and trained in their proper use.

The type, quantity and storage location(s) for emergency equipment and supplies should be evaluated as a part of the review and testing of emergency procedures.

#### 4.4.7.5 Emergency response training

Personnel should be trained in how to initiate the emergency response and evacuation procedures (see 4.4.2).

The organization should determine the training needed for personnel who are assigned emergency response duties and ensure that this training is received. Emergency response personnel should remain competent and capable to carry out their assigned activities.

The need for retraining or other communications should be determined when modifications are made that impact on the emergency response.

#### 4.4.7.6 Periodic testing of emergency procedures

Periodic testing of emergency procedures should be performed to ensure that the organization and external emergency services can appropriately respond to emergency situations and prevent or mitigate associated OH&S consequences.

Testing of emergency procedures should involve external emergency services providers, where appropriate, to develop an effective working relationship. This can improve communication and cooperation during an emergency.

Emergency drills can be used to evaluate the organization's emergency procedures, equipment and training, as well as increase overall awareness of emergency response protocols. Internal parties (e.g. workers) and external parties (e.g. fire department personnel) can be included in the drills to increase awareness and understanding of emergency response procedures.

The organization should maintain records of emergency drills. The type of information that should be recorded includes a description of the situation and scope of the drill, a timeline of events and actions and observations of any significant achievements or problems. This information should be reviewed with the drill planners and participants to share feedback and recommendations for improvement.

*NOTE OHSAS 18001:2007, 4.4.7, specifies that emergency response procedures shall be periodically tested "where practicable". This means that such testing has to be performed if it is capable of being done.*

#### 4.4.7.7 Reviewing and revising emergency procedures

OHSAS 18001:2007, 4.4.7, requires the organization to review its emergency preparedness and response procedure(s) periodically. Examples of when this can be done are:

- on a schedule defined by the organization,
- during management reviews,
- following organizational changes,
- as a result of management of change, corrective action, or preventive action (see 4.5.3),
- following an event that activated the emergency response procedures,

- following drills or tests that identified deficiencies in the emergency response,
- following changes to legal and other requirements,
- following external changes impacting the emergency response.

When changes are made in emergency preparedness and response procedure(s), these changes should be communicated to the personnel and functions that are impacted by the change; their associated training needs should also be evaluated.

## 4.5 Checking

### 4.5.1 Performance measurement and monitoring

#### OHSAS 18001 text

The organization shall establish, implement and maintain a procedure(s) to monitor and measure OH&S performance on a regular basis. This procedure(s) shall provide for:

- a) both qualitative and quantitative measures, appropriate to the needs of the organization;
- b) monitoring of the extent to which the organization's OH&S objectives are met;
- c) monitoring the effectiveness of controls (for health as well as for safety);
- d) proactive measures of performance that monitor conformance with the OH&S programme(s), controls and operational criteria;
- e) reactive measures of performance that monitor ill health, incidents (including accidents, near-misses, etc.), and other historical evidence of deficient OH&S performance;
- f) recording of data and results of monitoring and measurement sufficient to facilitate subsequent corrective action and preventive action analysis.

If equipment is required to monitor or measure performance, the organization shall establish and maintain procedures for the calibration and maintenance of such equipment, as appropriate. Records of calibration and maintenance activities and results shall be retained.

#### 4.5.1.1 General

An organization should have a systematic approach for measuring and monitoring its OH&S performance on a regular basis, as an integral part of its overall management system. Monitoring involves collecting information, such as measurements or observations, over time, using equipment or techniques that have been confirmed as being fit-for-purpose. Measurements can be either quantitative or qualitative. Monitoring and measurements can serve many purposes in an OH&S management system, such as:



- tracking progress on meeting policy commitments, achieving objectives and targets, and continual improvement,
- monitoring exposures to determine whether applicable legal and other requirements to which the organization subscribes have been met,
- monitoring incidents, injuries and ill health,
- providing data to evaluate the effectiveness of operational controls, or to evaluate the need to modify or introduce new controls (see 4.3.1),
- providing data to proactively and reactively measure the organization's OH&S performance,
- providing data to evaluate the performance of the OH&S management system, and
- providing data for the evaluation of competence.

To achieve these purposes, an organization should plan what will be measured, where and when it should be measured, what measurement methods should be used, and the competence requirements for the persons who will perform the measurements (see 4.4.2). To focus resources on the most important measurements, the organization should determine the characteristics of processes and activities that can be measured and the measurements that provide the most useful information. The organization needs to establish a procedure(s) for performance measurement and monitoring to provide consistency in measurements and enhance the reliability of data produced.

The results of measurement and monitoring should be analysed and used to identify both successes and areas requiring correction or improvement.

The organization's measuring and monitoring should use both reactive and proactive measures of performance, but should primarily focus on proactive measures in order to drive performance improvement and injury reduction.

a) Examples of proactive measures include:

- assessments of compliance with legal and other requirements,
- the effective use of the results of workplace safety tours or inspections,
- evaluation of the effectiveness of OH&S training,
- use of OH&S behaviour based observations,
- use of perception surveys to evaluate OH&S culture and related employee satisfaction,
- the effective use of the results of internal and external audits,
- completion of legally required and other inspections as scheduled,
- the extent to which programme(s) (see 4.3.3) have been implemented,
- the effectiveness of the employee participation process,



- the use of health screening,
  - exposure modelling and monitoring,
  - benchmarking against good OH&S practices,
  - work activity assessments.
- b) Examples of reactive measures include:
- monitoring of ill health,
  - occurrences and rates of incidents and ill health,
  - lost time incident rates, lost time ill health rates,
  - actions required following assessments by regulators,
  - actions following receipt of comments from interested parties.

#### 4.5.1.2 Monitoring and measuring equipment

OH&S monitoring and measurement equipment should be suitable, capable and relevant for the OH&S performance characteristics to be measured.

To assure the validity of results, monitoring equipment used to measure OH&S conditions (e.g. sampling pumps, noise meters, toxic gas detection equipment, etc.) should be maintained in good working order and calibrated or verified, and adjusted if necessary against measurement standards, traceable to international or national measurement standards. If no such standards exist, the basis used for calibration should be recorded.

Where computer software or computer systems are used to gather, analyse, or monitor data, and can affect the accuracy of OH&S performance results, they should be validated to test their suitability, prior to use.

Appropriate equipment should be selected and be used in a way that will provide accurate and consistent results. This could involve confirming the suitability of sampling methods or sampling locations or specifying that the equipment be used in a specific way.

The calibration status of measuring equipment should be clearly identified to the users. OH&S measuring equipment whose calibration status is unknown, or which is known to be out of calibration, should not be used. Additionally, it should be removed from use, and be clearly labelled, tagged, or otherwise marked, to prevent misuse.

Calibration and maintenance should be performed by competent personnel (see 4.4.2).

#### 4.5.2 Evaluation of compliance

##### OHSAS 18001 text

**4.5.2.1** Consistent with its commitment to compliance [see 4.2c)], the organization shall establish, implement and maintain a procedure(s) for periodically evaluating compliance with applicable legal requirements (see 4.3.2).

The organization shall keep records of the results of the periodic evaluations.

*NOTE* The frequency of periodic evaluation may vary for differing legal requirements.

**4.5.2.2** The organization shall evaluate compliance with other requirements to which it subscribes (see 4.3.2). The organization may wish to combine this evaluation with the evaluation of legal compliance referred to in 4.5.2.1 or to establish a separate procedure(s).

The organization shall keep records of the results of the periodic evaluations.

*NOTE* The frequency of periodic evaluation may vary for differing other requirements to which the organization subscribes.

An organization should establish, implement and maintain a procedure for periodically evaluating its compliance with the legal or other requirements that are applicable to its OH&S risks, as part of its commitment to compliance.

Evaluation of the organization's compliance should be performed by competent persons, either from within the organization and/or using external resources.

A variety of inputs can be used to assess compliance, including:

- audits,
- the results of regulatory inspections,
- analysis of legal and other requirements,
- reviews of documents and/or records of incidents and risk assessments,
- interviews,
- facility, equipment and area inspections,
- project or work reviews,
- analysis of test results from monitoring and testing,
- facility tours and/or direct observations.

The organization's processes for the evaluation of compliance can depend on its nature (size, structure and complexity). A compliance evaluation can encompass multiple legal requirements or a single requirement. The frequency of evaluations can be affected by factors such as past compliance performance or specific legal requirements. The organization can choose to evaluate compliance with individual requirements at different times or at different frequencies, or as appropriate.

A compliance evaluation programme can be integrated with other assessment activities. These can include management system audits, environmental audits or quality assurance checks.

Similarly, an organization should periodically evaluate its compliance with other requirements to which it subscribes (for further guidance on other requirements, see 4.3.2). An organization can choose to establish a separate process for conducting such evaluations or it can choose to combine these evaluations with its evaluations of compliance with legal requirements (see above), its management review process (4.6) or other evaluation processes.

The results of the periodic evaluations of compliance with legal or other requirements need to be recorded.

### 4.5.3 Incident investigation, nonconformity, corrective action and preventive action

#### 4.5.3.1 Incident investigation

**OHSAS 18001 text**

The organization shall establish, implement and maintain a procedure(s) to record, investigate and analyse incidents in order to:

- a) determine underlying OH&S deficiencies and other factors that might be causing or contributing to the occurrence of incidents;
- b) identify the need for corrective action;
- c) identify opportunities for preventive action;
- d) identify opportunities for continual improvement;
- e) communicate the results of such investigations.

The investigations shall be performed in a timely manner.

Any identified need for corrective action or opportunities for preventive action shall be dealt with in accordance with the relevant parts of 4.5.3.2.

The results of incident investigations shall be documented and maintained.

Incident investigation is an important tool for preventing reoccurrence of incidents and identifying opportunities for improvements. It can also be used for raising the overall OH&S awareness in the workplace.

The organization should have a procedure(s) for reporting, investigating and analysing incidents. The purpose of the procedure(s) is to provide a structured, proportionate and timely approach for determining and dealing with the underlying (root) cause(s) of the incident.

All incidents should be investigated. The organization should seek to prevent the under-reporting of incidents. In determining the nature of the investigation, the resources needed, and the priority to be given to investigation of an incident, account should be taken of:

- the actual outcome and consequences of the incident, and
- the frequency of such incidents and their potential consequences.

In developing those procedures the organization should give consideration to the following:

- the need for a common understanding and acceptance of what constitutes an "incident" (see 3.9) and the benefits that can be gained from its investigation,
- that reporting should capture all types of incidents, including major and minor accidents, emergencies, near-misses, instances of ill health and those that take place over a period of time (e.g. exposure),
- the need to meet any legal requirements relating to the reporting and investigation of incidents, e.g. maintenance of a register of accidents,
- defining the assignment of responsibilities and authorities for the reporting of incidents and subsequent investigations,

- the need for immediate action to deal with imminent risks,
- the need for investigation to be impartial and objective,
- the need to focus on determining causal factors,
- the benefits of involving those with knowledge of the incident,
- defining the requirements for the conduct and recording of the various phases of the investigation process, such as:
  - gathering facts and collecting evidence, in a timely manner,
  - analysing the results,
  - communicating the need for any identified corrective action and/or preventive action,
  - providing feedback into the processes for hazard identification, risk assessment, emergency response, OH&S performance measurement and monitoring and management review.

Those assigned to conduct incident investigations should be competent (see 4.4.2).

The outputs from the incident investigation processes should address items a) to e) in OHSAS 18001:2007, 4.5.3.1.

#### 4.5.3.2 Nonconformity, corrective action and preventive action

##### **OHSAS 18001 text**

The organization shall establish, implement and maintain a procedure(s) for dealing with actual and potential nonconformity(ies) and for taking corrective action and preventive action. The procedure(s) shall define requirements for:

- a) identifying and correcting nonconformity(ies) and taking action(s) to mitigate their OH&S consequences;
- b) investigating nonconformity(ies), determining their cause(s) and taking actions in order to avoid their recurrence;
- c) evaluating the need for action(s) to prevent nonconformity(ies) and implementing appropriate actions designed to avoid their occurrence;
- d) recording and communicating the results of corrective action(s) and preventive action(s) taken; and
- e) reviewing the effectiveness of corrective action(s) and preventive action(s) taken.

Where the corrective action and preventive action identifies new or changed hazards or the need for new or changed controls, the procedure shall require that the proposed actions shall be taken through a risk assessment prior to implementation.

Any corrective action or preventive action taken to eliminate the causes of actual and potential nonconformity(ies) shall be appropriate to the magnitude of problems and commensurate with the OH&S risk(s) encountered.

The organization shall ensure that any necessary changes arising from corrective action and preventive action are made to the OH&S management system documentation.

For an OH&S management system to be effective on an ongoing basis, an organization should have a procedure(s) for identifying actual and potential nonconformity(ies), making corrections and taking corrective and preventive action, preferably preventing problems before they occur. The organization can establish individual procedures to address corrective and preventive action, or a single procedure to address both.

Nonconformity is a non-fulfilment of a requirement. A requirement can be stated in relation to the OHSAS 18001 management system or in terms of OH&S performance. Examples of issues that can give rise to nonconformities include:

- a) for OH&S management system performance
  - failure of top management to demonstrate commitment,
  - failure to establish OH&S objectives,
  - failure to define responsibilities required by an OH&S management system, such as responsibilities for achieving objectives,
  - failure to periodically evaluate compliance with legal requirements,
  - failure to meet training needs,
  - documentation being out of date or being inappropriate,
  - failure to carry out communications;
- b) for OH&S performance
  - failure to implement the planned programme to achieve improvement objectives,
  - consistent failure to achieve performance improvement objectives,
  - failure to meet legal or other requirements,
  - failure to record incidents,
  - failure to implement corrective action in a timely manner,
  - consistent high rates of illness or injury that are not being addressed,
  - deviations from OH&S procedures,
  - introduction of new materials or processes without appropriate risk assessments being conducted.

Inputs into corrective action and preventive action can be determined from the results of:

- periodic tests of emergency procedures,
- incident investigations,
- internal or external audits,
- the periodic evaluations of compliance,
- performance monitoring,
- maintenance activities,
- employee suggestion schemes and feedback from employee opinion/satisfaction surveys,
- exposure assessments.

Identification of nonconformities should be made part of individual responsibilities (see 4.4.1), with individuals closest to the work being encouraged to report potential or actual problems.

Corrective actions are actions taken to eliminate the underlying (root) cause(s) of identified nonconformity or incidents in order to prevent recurrence.

Once nonconformity is identified, it should be investigated to determine the cause(s), so that corrective action can be focused on the appropriate part of the system. An organization should consider what actions need to be taken to address the problem, and/or what changes need to be made to correct the situation. The response and timing of such actions should be appropriate to the nature and scale of the nonconformity and the OH&S risk.

Preventive actions are actions taken to eliminate the underlying (root) cause(s) of the potential nonconformity or potential undesirable situations, in order to prevent occurrence.

When a potential problem is identified but no actual nonconformity exists, preventive action should be taken using a similar approach as for corrective action. Potential problems can be identified using methods such as extrapolating corrective action of actual nonconformities to other applicable areas where similar activities occur, or hazard analysis.

The organization should ensure that:

- where new or changed hazards or the need for new or changed controls have been determined, the proposed corrective or preventive actions will be taken through a risk assessment, prior to implementation,
- corrective actions and preventive actions are implemented,
- the results of corrective action and preventive action are recorded and communicated,
- there is follow-up to review the effectiveness of the actions taken.

#### 4.5.4 Control of records

##### **OHSAS 18001 text**

The organization shall establish and maintain records as necessary to demonstrate conformity to the requirements of its OH&S management system and of this OHSAS Standard, and the results achieved.

The organization shall establish, implement and maintain a procedure(s) for the identification, storage, protection, retrieval, retention and disposal of records.

Records shall be and remain legible, identifiable and traceable.

Records should be maintained to demonstrate that the organization is operating its OH&S management system effectively and is managing its OH&S risks.

Records that can demonstrate conformance to the requirements include:

- records of the evaluation of compliance with legal and other requirements,
- hazard identification, risk assessment and risk control records,
- records of the monitoring of OH&S performance,
- calibration and maintenance records for equipment used to monitor OH&S performance,
- records of corrective action and preventive action,
- reports of OH&S inspections,
- training and associated records that support evaluations of competence,
- OH&S management system audit reports,
- participation and consultation reports,
- incident reports,
- incident follow-up reports,
- OH&S meeting minutes,
- health surveillance reports,
- personal protective equipment (PPE) maintenance records,
- reports of emergency response drills,
- management review records.

The integrity of records and data should be maintained to facilitate their subsequent use, e.g. for monitoring and review activities, for the identification of trends for preventive action, etc.

In determining the appropriate controls for records the organization should take into account any applicable legal requirements, confidentiality issues (particularly those relating to personnel), storage/access/disposal/back-up requirements, and the use of electronic records.

For electronic records the use of antivirus systems and off-site backup storage should be considered.

#### 4.5.5 Internal audit

##### **OHSAS 18001 text**

The organization shall ensure that internal audits of the OH&S management system are conducted at planned intervals to:

- a) determine whether the OH&S management system:
  - 1) conforms to planned arrangements for OH&S management including the requirements of this OHSAS Standard; and
  - 2) has been properly implemented and is maintained; and
  - 3) is effective in meeting the organization's policy and objectives;
- b) provide information on the results of audits to management.

Audit programme(s) shall be planned, established, implemented and maintained by the organization, based on the results of risk assessments of the organization's activities, and the results of previous audits.



Audit procedure(s) shall be established, implemented and maintained that address:

- a) the responsibilities, competencies, and requirements for planning and conducting audits, reporting results and retaining associated records; and
- b) the determination of audit criteria, scope, frequency and methods.

Selection of auditors and conduct of audits shall ensure objectivity and the impartiality of the audit process.

#### 4.5.5.1 General

Audits can be used by an organization to review and evaluate the performance and effectiveness of its OH&S management system.

An internal OH&S management system audit programme should be established to review the conformity of the organization's OH&S management system to OHSAS 18001.

Planned OH&S management system audits should be carried out by personnel from within the organization and/or by external personnel selected by the organization, to establish whether the OH&S management system has been properly implemented and maintained. Individuals selected to conduct the OH&S management system audits should be competent and be selected in a manner to ensure objectivity and impartiality in the audit process.

*NOTE The general principles and methodology described in ISO 19011 are appropriate to OH&S management system auditing.*

#### 4.5.5.2 Establishing an audit programme

The implementation of an internal audit programme should address the following:

- communication of the audit programme to relevant parties,
- establishing and maintaining a process for the selection of auditors and audit teams,
- providing the resources necessary for the audit programme,
- planning, coordinating and scheduling audits,
- ensuring that audit procedures are established implemented and maintained,
- ensuring the control of records of audit activities,
- ensuring the reporting of audit results and audit follow-up.

*NOTE The above has been adapted from ISO 19011:2002, 5.4.*

The audit programme should be based on the results of risk assessments of the organization's activities and the results of previous audits. The results of the risk assessments (see 4.3.1) should guide the organization in determining the frequency of audits of particular activities, areas or functions and what parts of the management system should be given attention.

The OH&S management system audits should cover all areas and activities within the scope of the OH&S management system (see 4.1), and assess conformity to OHSAS 18001.

The frequency and coverage of OH&S management system audits should be related to the risks associated with the failure of the various elements of the OH&S management system, available data on the performance of the OH&S management system, the output from management reviews, and the extent to which the OH&S management system or the organizational activities are subject to change.

#### 4.5.5.3 Internal audit activities

OH&S management system audits should be conducted according to the audit programme. The organization should consider conducting additional audits:

- as changes occur in the hazards, or risk assessment,
- when indicated by the results of previous audits,
- depending on the type of incidents or increased frequency of incidents, or
- when circumstances indicate that they are necessary.

An internal audit typically consists of the following activities:

- initiating the audit,
- conducting document review and preparing for the audit,
- conducting the audit,
- preparing and communicating the audit report,
- completing the audit and conducting audit follow-up.

*NOTE The above has been adapted from ISO 19011:2002, 6.1.*

#### 4.5.5.4 Initiating an audit

The following activities are typically done to initiate an audit:

- defining the audit objectives, scope and criteria for the audit,

*NOTE Audit criteria are the references against which audit evidence is compared, e.g. OHSAS 18001, OH&S policy and procedures.*

- selection of appropriate auditors and audit team for the audit taking into account the need for objectivity and impartiality,
- determining the audit methodology,
- confirming audit arrangements with the auditee and other individuals who will take part in the audit.

Determination of any applicable workplace OH&S rules is an important part of this process. In some cases, auditors could need additional training and/or be required to conform to additional requirements [e.g. the wearing of specialized personal protective equipment (PPE)].

#### 4.5.5.5 Selection of auditors

One or more persons can undertake OH&S management system audits. A team approach can widen involvement and improve cooperation. A team approach can also allow a wider range of

specialist skills to be utilized and allow for individual auditors to have specific competencies.

In order to maintain independence, objectivity and impartiality, auditors should not audit their own work.

Auditors need to understand their task and be competent to carry it out. Auditors should be familiar with the OH&S hazards and risks of the areas they are auditing and any applicable legal or other requirements. They need to have the experience and knowledge of the relevant audit criteria and activities they are auditing to enable them to evaluate performance and determine deficiencies.

#### **4.5.5.6 Conducting document reviews and preparing for an audit**

Prior to conducting an audit, the auditors should review appropriate OH&S management system documents and records, and the results of prior audits. This information should be used by the organization in making its plans for an audit.

The documentation that can be reviewed includes:

- information on roles responsibilities and authorities (e.g. an organization chart),
- OH&S policy statement,
- OH&S objectives and programme(s),
- OH&S management system audit procedures,
- OH&S procedures and work instructions,
- hazard identification, risk assessment and risk control results,
- applicable legal and other requirements,
- incident, nonconformity and corrective action reports.

The amount of documentation to be reviewed and the detail provided in the plans for the audit should reflect the scope and complexity of the audit. The plans for the audit should cover the following:

- audit objectives,
- audit criteria,
- audit methodology,
- audit scope and/or location,
- audit schedule,
- roles and responsibilities of the various audit parties.

The audit planning information can be contained in more than one document. The focus should be on providing adequate information to implement the audit.

If other parties need to be included in the audit process (e.g. employee representatives), this should be included in the plans for the audit.

#### **4.5.5.7 Conducting an audit**

The following activities are typically part of the audit:

- communication during the audit,
- collecting and verifying information,
- generating audit findings and conclusions.

Depending on the scope and complexity of the audit, it can be necessary to make formal arrangements for communication during the audit. The audit team should communicate to the auditee in a timely manner:

- the plans for the audit,
- the status of the audit activities,
- any concerns raised during the audit, and
- the audit conclusions.

Communication of the plans for the audit can be achieved through the use of an opening meeting. Audit findings and conclusions should be reported during a closing meeting.

Evidence collected during the audit which suggests an imminent risk that requires immediate action should be reported without delay.

During the audit, information relevant to the audit objectives, scope and criteria should be collected by appropriate methods. The methods will depend on the nature of the OH&S management system audit being undertaken.

The audit should ensure that a representative sample of the important activities is audited and that relevant personnel are interviewed. This can include interviews of personnel such as individual workers, employee representatives and relevant external personnel, e.g. contractors.

Relevant documentation, records and results should be examined.

Wherever possible, checks should be built into the OH&S management system audit procedures to help to avoid misinterpretation or misapplication of collected data, information, or other records.

Audit evidence should be evaluated against the audit criteria to generate the audit findings and conclusions. Audit evidence should be verifiable. Audit evidence should be recorded.

#### **4.5.5.8 Preparing and communicating the audit report**

The results of the OH&S management system audits should be recorded and reported to management, in a timely manner.

The content of the final OH&S management system audit report should be clear, precise and complete. It should be dated and signed-off by the auditor.

It should contain the following elements:

- the audit objectives and scope,
- information about the plans of the audit (identification of the members of the auditing team and the audited representatives, dates of audit and identification of the areas subject to audit),
- the identification of reference documents and other audit criteria used to conduct the audit (e.g. OHSAS 18001, OH&S procedures),
- details of identified nonconformities,
- any relevant remarks on the extent to which the OH&S management system:

- conforms to planned arrangements,
- is being properly implemented and maintained,
- achieves the stated OH&S policy and objectives.

The results of OH&S management system audits should be communicated to all relevant parties as soon as possible, to allow corrective actions to be taken.

Confidentiality should be considered when communicating the information contained within the OH&S management system audit reports.

#### 4.5.5.9 Completing the audit and conducting audit follow-up

A review of the results should be carried out and effective corrective action taken, where necessary.

Follow-up monitoring of audit findings should be established to ensure that identified nonconformities are addressed.

Top management should consider OH&S management system audit findings and recommendations, and take appropriate action as necessary within an appropriate time.

## 4.6 Management review

### OHSAS 18001 text

Top management shall review the organization's OH&S management system, at planned intervals, to ensure its continuing suitability, adequacy and effectiveness. Reviews shall include assessing opportunities for improvement and the need for changes to the OH&S management system, including the OH&S policy and OH&S objectives. Records of the management reviews shall be retained.

Input to management reviews shall include:

- a) results of internal audits and evaluations of compliance with applicable legal requirements and with other requirements to which the organization subscribes;
- b) the results of participation and consultation (see 4.4.3);
- c) relevant communication(s) from external interested parties, including complaints;
- d) the OH&S performance of the organization;
- e) the extent to which objectives have been met;
- f) status of incident investigations, corrective actions and preventive actions;
- g) follow-up actions from previous management reviews;
- h) changing circumstances, including developments in legal and other requirements related to OH&S; and
- i) recommendations for improvement.

The outputs from management reviews shall be consistent with the organization's commitment to continual improvement and shall include any decisions and actions related to possible changes to:

- a) OH&S performance;
- b) OH&S policy and objectives;
- c) resources; and
- d) other elements of the OH&S management system.

Relevant outputs from management review shall be made available for communication and consultation (see 4.4.3).

Management reviews should focus on the overall performance of the OH&S management system with regard to:

- suitability (is the system appropriate to the organization; dependent on its size, the nature of its risks, etc.),
- adequacy (is the system fully addressing the organization's OH&S policy and objectives?), and
- effectiveness (is it accomplishing the desired results?).

Management reviews should be carried out by top management, on a regular basis (e.g. quarterly, semi-annually, or annually) and can be carried out by meetings or other communication means. Partial management reviews of the performance of the OH&S management system can be held at more frequent intervals, if appropriate. Different reviews can address different elements of the overall management review.

The management appointee (see 4.4.1) has the responsibility for ensuring that reports on the overall performance of the OH&S management system are presented to top management, for review.

In planning for a management review, consideration should be given to the following:

- the topics to be addressed,
- who needs to participate to ensure the effectiveness of the review (top management, managers, OH&S specialist advisors, other personnel),
- responsibilities of individual participants in respect of the review,
- information to be brought to the review,
- how the review will be recorded.

In relation to the OH&S performance of the organization, and to show evidence of progress on the policy commitments to prevent injury and ill health, the following inputs could be considered:

- reports of emergencies (actual or exercises),
- worker satisfaction surveys,
- incident statistics,
- results of regulatory inspections,
- results and/or recommendations from monitoring and measurement,
- OH&S performance of contractors,

- OH&S performance of supplied products and services,
- information on changes in legal and other requirements.

In addition to the specific inputs for management review required by OHSAS 18001, the following inputs can also be considered:

- reports from individual managers on the effectiveness of the system locally,
- reports of ongoing hazard identification, risk assessment and risk control processes,
- progress in the achievement of OH&S training plans.

In addition to the outputs required by OHSAS 18001, details of the following issues can also be considered:

- the suitability, adequacy and effectiveness of current hazard identification, risk assessment and risk control processes,
- current levels of risk and the effectiveness of existing control measures,
- adequacy of resources (financial, personnel, material),
- the state of preparedness for emergency,
- an assessment of the effects of foreseeable changes to legislation or technology.

Depending on the decisions and actions agreed at a review, the nature and types of communication of the results of the review, and to whom they will be communicated, should also be considered.



Annex A (informative) **Correspondence between  
OHSAS 18001:2007, ISO 14001:2004  
and ISO 9001:2008**

Table A.1 Correspondence between OHSAS 18001:2007, ISO 14001:2004 and ISO 9001:2008

OHSAS 18001:2007		ISO 14001:2004		ISO 9001:2008	
—	Introduction	—	Introduction	0 0.1 0.2 0.3 0.4	Introduction General Process approach Relationship with ISO 9004 Compatibility with other management systems
1	Scope	1	Scope	1 1.1 1.2	Scope General Application
2	Normative references	2	Normative references	2	Normative reference
3	Terms and definitions	3	Terms and definitions	3	Terms and definitions
4	OH&S management system elements (title only)	4	Environmental management system requirements (title only)	4	Quality management system (title only)
4.1	General requirements	4.1	General requirements	4.1 5.5 5.5.1	General requirements Responsibility, authority and communication Responsibility and authority
4.2	OH&S policy	4.2	Environmental policy	5.1 5.3 8.5.1	Management commitment Quality policy Continual improvement
4.3	Planning (title only)	4.3	Planning (title only)	5.4	Planning (title only)
4.3.1	Hazard identification, risk assessment and determining controls	4.3.1	Environmental aspects	5.2 7.2.1 7.2.2	Customer focus Determination of requirements related to the product Review of requirements related to the product
4.3.2	Legal and other requirements	4.3.2	Legal and other requirements	5.2 7.2.1	Customer focus Determination of requirements related to the product
4.3.3	Objectives and programme(s)	4.3.3	Objectives, targets and programme(s)	5.4.1 5.4.2 8.5.1	Quality objectives Quality management system planning Continual improvement
4.4	Implementation and operation (title only)	4.4	Implementation and operation (title only)	7	Product realization (title only)

Table A.1 Correspondence between OHSAS 18001:2007, ISO 14001:2004 and ISO 9001:2008 (continued)

OHSAS 18001:2007		ISO 14001:2004		ISO 9001:2008	
4.4.1	Resources, roles, responsibility, accountability and authority	4.4.1	Resources, roles, responsibility and authority	5.1 5.5.1 5.5.2 6.1 6.3	Management commitment Responsibility and authority Management representative Provision of resources Infrastructure
4.4.2	Competence, training and awareness	4.4.2	Competence, training and awareness	6.2.1 6.2.2	(Human resources) General Competence, training and awareness
4.4.3	Communication, participation and consultation	4.4.3	Communication	5.5.3 7.2.3	Internal communication Customer communication
4.4.4	Documentation	4.4.4	Documentation	4.2.1	(Documentation requirements) General
4.4.5	Control of documents	4.4.5	Control of documents	4.2.3	Control of documents
4.4.6	Operational control	4.4.6	Operational control	7.1 7.2 7.2.1 7.2.2 7.3.1 7.3.2 7.3.3 7.3.4 7.3.5 7.3.6 7.3.7 7.4.1 7.4.2 7.4.3 7.5 7.5.1 7.5.2 7.5.5	Planning of product realization Customer-related processes Determination of requirements related to the product Review of requirements related to the product Design and development planning Design and development inputs Design and development outputs Design and development review Design and development verification Design and development validation Control of design and development changes Purchasing process Purchasing information Verification of purchased product Production and service provision Control of production and service provision Validation of processes for production and service provision Preservation of product

Table A.1 Correspondence between OHSAS 18001:2007, ISO 14001:2004 and ISO 9001:2008 (continued)

OHSAS 18001:2007		ISO 14001:2004		ISO 9001:2008	
4.4.7	Emergency preparedness and response	4.4.7	Emergency preparedness and response	8.3	Control of nonconforming product
4.5	Checking (title only)	4.5	Checking (title only)	8	Measurement, analysis and improvement (title only)
4.5.1	Performance measurement and monitoring	4.5.1	Monitoring and measurement	7.6 8.1 8.2.3 8.2.4 8.4	Control of monitoring and measuring equipment (Measurement, analysis and improvement) General Monitoring and measurement of processes Monitoring and measurement of product Analysis of data
4.5.2	Evaluation of compliance	4.5.2	Evaluation of compliance	8.2.3 8.2.4	Monitoring and measurement of processes Monitoring and measurement of product
4.5.3	Incident investigation, nonconformity, corrective action and preventive action (title only)	—	—	—	—
4.5.3.1	Incident investigation	—	—	—	—
4.5.3.2	Nonconformity, corrective and preventive action	4.5.3	Nonconformity, corrective action and preventive action	8.3 8.4 8.5.2 8.5.3	Control of nonconforming product Analysis of data Corrective action Preventive action
4.5.4	Control of records	4.5.4	Control of records	4.2.4	Control of records
4.5.5	Internal audit	4.5.5	Internal audit	8.2.2	Internal audit
4.6	Management review	4.6	Management review	5.1 5.6 5.6.1 5.6.2 5.6.3 8.5.1	Management commitment Management review (title only) General Review input Review output Continual improvement

Annex B (informative) **Correspondence between OHSAS 18001, OHSAS 18002 and the ILO-OSH:2001 Guidelines on occupational safety and health management systems**

### B.1 Introduction

This Annex identifies the key differences between the International Labour Organization's ILO-OSH Guidelines and the OHSAS documents, and provides a comparative assessment of their differing requirements.

It should be noted that **no areas of significant difference have been identified.**

Consequently, those organizations that have implemented an OH&S management system that is compliant with OHSAS 18001 may be reassured that their OH&S management system will also be compatible with the recommendations of the ILO-OSH Guidelines.

A correspondence table between the individual clauses of the OHSAS documents and those of the ILO-OSH Guidelines is given in **B.4.**

### B.2 Overview

The two prime objectives of the ILO-OSH Guidelines are:

- a) to assist countries in the establishment of a national framework for occupational health and safety management systems; and
- b) to provide guidance to individual organizations regarding the integration of OH&S elements into their overall policy and management arrangements.

OHSAS 18001 specifies requirements for OH&S management systems, to enable organizations to control risks and to improve their OH&S performance. OHSAS 18002 gives guidance on the implementation of OHSAS 18001. The OHSAS documents are therefore comparable with Section 3 of the ILO-OSH Guidelines "*The occupational safety and health management system in the organization*".

### B.3 Detailed analysis of Section 3 of the ILO-OSH Guidelines against the OHSAS documents

#### B.3.1 Scope

The focus of the ILO-OSH Guidelines is on workers. The focus of the OHSAS Standards, towards persons under the control of the organization and other interested parties, is broader.

#### B.3.2 OH&S management system models

The models picturing the main elements of an OH&S management system are directly equivalent between the ILO-OSH Guidelines and the OHSAS documents.

**B.3.3 ILO-OSH Section 3.2, Worker participation**

In the ILO-OSH *Guidelines*, subsection 3.2.4 recommends that:  
*"The employer should ensure as appropriate, the establishment and efficient functioning of a health and safety committee and the recognition of workers health and safety representatives in accordance with national laws and practice"*.

OHSAS 18001:2007, 4.4.3, requires the organization to establish a procedure for communication, participation and consultation, and to involve a wider spectrum of interested parties (due to the broader scope of application of the document).

**B.3.4 ILO-OSH Section 3.3, Responsibility and accountability**

The ILO-OSH *Guidelines* recommend in 3.3.2(h) the establishment of prevention and health promotion programmes. There is no requirement in the OHSAS Standards for this.

**B.3.5 ILO-OSH Section 3.4, Competence and training**

The recommendation of the ILO-OSH *Guidelines* sub-section 3.4.4:  
*"Training should be provided to all participants at no cost and should take place during working hours if possible"*, is not a requirement of the OHSAS documents.

**B.3.6 ILO-OSH Section 3.10.4, Procurement**

The ILO-OSH *Guidelines* emphasize that safety and health requirements of the organization should be incorporated into purchasing and leasing specifications.

The OHSAS Standards address procurement by their requirements for risk assessment, identification of legal requirements and the establishment of operational controls.

**B.3.7 ILO-OSH Section 3.10.5, Contracting**

The ILO-OSH *Guidelines* define the steps to be taken to ensure that the organization's safety and health requirements are applied to contractors (they also provide a summary of the actions needed to ensure that they are). This is implicit in OHSAS.

**B.3.8 ILO-OSH Section 3.12, Investigation of work-related injuries, ill health, diseases and incidents, and their impact on safety and health performance**

The ILO-OSH *Guidelines* do not require corrective actions or preventive actions to be reviewed through the risk assessment process prior to implementation, as they are in OHSAS 18001:2007, 4.5.3.2.

**B.3.9 ILO-OSH Section 3.13, Audit**

The ILO-OSH *Guidelines* recommend consultation on the selection of auditors. In contrast, the OHSAS documents require audit personnel to be impartial and objective.

**B.3.10 ILO-OSH Section 3.16, Continual improvement**

This is a separate sub-clause in the ILO-OSH Guidelines. It details arrangements that should be taken into account for the achievement of continual improvement. Similar arrangements are detailed throughout the OHSAS documents, which consequently do not have a corresponding clause.

**B.4 Correspondence between the clauses of the OHSAS documents and the clauses of the ILO-OSH Guidelines**

Table B.1 Correspondence between the clauses of the OHSAS documents and the clauses of the ILO-OSH Guidelines

Clause	OHSAS	Clause	ILO-OSH Guidelines
	Introduction	— 3.0	Introduction The occupational safety and health management system in the organization
	Foreword	—	The International Labour Organization
1	Scope	1.0	Objectives
2	Reference publications	—	Bibliography
3	Terms and definitions	—	Glossary
4	OH&S management system elements (title only)	—	—
4.1	General requirements	3.0	The occupational safety and health management system in the organization
4.2	OH&S policy	3.1 3.16	Occupational safety and health policy Continual improvement
4.3	Planning (title only)	—	Planning and implementation (title only)
4.3.1	Hazard identification, risk assessment and determining controls	3.7 3.8 3.10 3.10.1 3.10.2 3.10.5	Initial review System planning, development and implementation Hazard prevention Prevention and control measures Management of change Contracting
4.3.2	Legal and other requirements	3.7.2 3.10.1.2	(Initial review) (Prevention and control measures)
4.3.3	Objectives and programme(s)	3.8 3.9 3.16	System planning, development and implementation Occupational safety and health objectives Continual improvement
4.4	Implementation and operation (title only)	—	—
4.4.1	Resources, roles, responsibility, accountability and authority	3.3 3.8 3.16	Responsibility and accountability System planning, development and implementation Continual improvement
4.4.2	Competence, training and awareness	3.4	Competence and training

Table B.1 Correspondence between the clauses of the OHSAS documents and the clauses of the ILO-OSH Guidelines (*continued*)

Clause	OHSAS	Clause	ILO-OSH Guidelines
4.4.3	Communication, participation and consultation	3.2 3.6	Worker participation Communication
4.4.4	Documentation	3.5	Occupational safety and health management system documentation
4.4.5	Control of documents	3.5	Occupational safety and health management system documentation
4.4.6	Operational control	3.10.2 3.10.4 3.10.5	Management of change Procurement Contracting
4.4.7	Emergency preparedness and response	3.10.3	Emergency prevention, preparedness and response
4.5	Checking (title only)	—	Evaluation (title only)
4.5.1	Performance measurement and monitoring	3.11	Performance monitoring and measurement
4.5.2	Evaluation of compliance	—	—
4.5.3	Incident investigation, nonconformity, corrective action and preventive action (title only)	—	—
4.5.3.1	Incident investigation	3.12 3.16	Investigation of work-related injuries, ill health, diseases and incidents and their impact on safety and health performance Continual improvement
4.5.3.2	Nonconformity, corrective and preventive action	3.15	Preventive and corrective action
4.5.4	Control of records	3.5	Occupational safety and health management system documentation
4.5.5	Internal audit	3.13	Audit
4.6	Management review	3.14 3.16	Management review Continual improvement



## Annex C (informative) **Examples of items for inclusion in a hazard identification checklist**

### **c.1 Physical hazards**

- slippery or uneven ground,
- working at height,
- objects falling from height,
- inadequate space to work,
- poor ergonomics (e.g. workplace design that does not take account of human factors),
- manual handling,
- repetitive work,
- trappings, entanglement, burns and other hazards arising from equipment,
- transport hazards, either on the road or on premises/sites, while travelling or as a pedestrian (linked to the speed and external features of vehicles and the road environment),
- fire and explosion (linked to the amount and nature of flammable material),
- harmful energy sources such as electricity, radiation, noise or vibration (linked to the amount of energy involved),
- stored energy, which can be released quickly and cause physical harm to the body (linked to the amount of energy),
- frequently repeated tasks, which can lead to upper limb disorders (linked to the duration of the tasks),
- unsuitable thermal environment, which can lead to hypothermia or heat stress,
- violence to staff, leading to physical harm (linked to the nature of the perpetrators),
- ionizing radiation (from x- or gamma-ray machines or radioactive substances),
- non-ionizing radiation (e.g. light, magnetic, radio-waves).

### **c.2 Chemical hazards**

Substances hazardous to health or safety due to:

- inhalation of vapours, gases, or particles,
- contact with, or being absorbed through, the body,
- ingestion,
- the storage, incompatibility, or degradation of materials.

### **c.3 Biological hazards**

Biological agents, allergens, or pathogens (such as bacteria or viruses), that might be:

- inhaled,
- transmitted via contact, including by bodily fluids (e.g. needle-stick injuries), insect bites, etc.,
- ingested (e.g. via contaminated food products).

### **c.4 Psychosocial hazards**

Situations that can lead to negative psychosocial (including psychological) conditions, such as stress (including post-traumatic stress), anxiety, fatigue, depression, from e.g.:

- excessive workload,
- lack of communication or management control,
- workplace physical environment,
- physical violence,
- bullying or intimidation.

*NOTE 1 Psychosocial hazards can arise from issues external to the workplace and can impact the OH&S of individuals or their colleagues.*

*NOTE 2 ISO 14121 also provides additional examples of sources and hazards.*

## Annex D (informative) Comparisons of some examples of risk assessment tools and methodologies

Tool	Strengths	Weaknesses
Checklists/ Questionnaires	<ul style="list-style-type: none"> <li>• Easy to use</li> <li>• Use can prevent "missing something" in initial evaluations</li> </ul>	<ul style="list-style-type: none"> <li>• Often limited to yes/no answers</li> <li>• Only as good as the checklist used – it might not take into account unique situations</li> </ul>
Risk matrices	<ul style="list-style-type: none"> <li>• Relatively easy to use</li> <li>• Provides visual representation</li> <li>• Does not require use of numbers</li> </ul>	<ul style="list-style-type: none"> <li>• Only 2-dimensional – cannot take into account multiple factors impacting risk</li> <li>• Predetermined answer might not be appropriate to the situation</li> </ul>
Ranking/Voting tables	<ul style="list-style-type: none"> <li>• Relatively easy to use</li> <li>• Good for capturing expert opinion</li> <li>• Allows for consideration of multiple risk factors (e.g. severity, probability, detectability, data uncertainty)</li> </ul>	<ul style="list-style-type: none"> <li>• Requires use of numbers</li> <li>• If the quality of the data is not good, the results will be poor</li> <li>• Can result in comparison of incomparable risks</li> </ul>
Failure modes and effects analysis (FMEA); Hazard and operability studies (HAZOP)	<ul style="list-style-type: none"> <li>• Good for detailed analysis of processes</li> <li>• Allows input of technical data</li> </ul>	<ul style="list-style-type: none"> <li>• Needs expertise to use</li> <li>• Needs numerical data to input into analysis</li> <li>• Takes resources (time and money)</li> <li>• Better for risks associated with equipment than those associated with human factors</li> </ul>
Exposure assessment strategy	<ul style="list-style-type: none"> <li>• Good for analysis of data associated with hazardous materials and environments</li> </ul>	<ul style="list-style-type: none"> <li>• Needs expertise to use</li> <li>• Needs numerical data to input</li> </ul>
Computer modelling	<ul style="list-style-type: none"> <li>• If relevant and sufficient data are available, computer modelling can give good answers</li> <li>• Generally uses numerical inputs and is less subjective</li> </ul>	<ul style="list-style-type: none"> <li>• Significant time and money needed to develop and validate</li> <li>• Potential for over-reliance on the results, without questioning their validity</li> </ul>
Pareto analysis	<ul style="list-style-type: none"> <li>• A simple technique that can assist in determining the most important changes to make.</li> </ul>	<ul style="list-style-type: none"> <li>• Only useful for comparing similar items, i.e. is unidimensional</li> </ul>

## Bibliography

- ISO 7000:2004, *Graphical symbols for use on equipment — Index and synopsis*
- ISO 7001:2007, *Graphical symbols — Public information symbols*
- ISO 7010:2003, *Graphical symbols — Safety colours and safety signs — Safety signs used in workplaces and public areas*
- ISO 9000:2005, *Quality management systems — Fundamentals and vocabulary*
- ISO 9001:2008, *Quality management systems — Requirements*
- ISO 14001:2004, *Environmental management systems — Requirements with guidance for use*
- ISO 14121-1:2007, *Safety of machinery — Risk assessment — Part 1: Principles*
- ISO/TR 14121-2:2007, *Safety of machinery — Risk assessment — Part 2: Practical guidance and examples of methods*
- ISO 16069:2004, *Graphical symbols — Safety signs — Safety way guidance systems (SWGS)*
- ISO 17398:2004, *Safety colours and safety signs — Classification, performance and durability of safety signs*
- ISO 20712-1:2008, *Water safety signs and beach safety flags — Part 1: Specifications for water safety signs used in workplaces and public areas*
- ISO 20712-3:2008, *Water safety signs and beach safety flags — Part 3: Guidance for use*
- ISO/FDIS 23601, *Safety identification — Escape and evacuation plan signs<sup>2)</sup>*
- IEC 61508-5:2002, *Functional safety of electrical/electronic/programmable electronic safety-related systems — Part 5: Examples of methods for the determination of safety integrity levels*

---

<sup>2)</sup> To be published



# OHSAS Project Group

The OHSAS Project Group is an international association of national standards bodies, certification, accreditation bodies, occupational health and safety institutes, industry associations, consulting organizations and government agencies.

## Secretariat

The British Standards Institution currently provides the Secretariat of the OHSAS Project Group:

The OHSAS Project Group Secretariat  
c/o British Standards Institution  
389 Chiswick High Road, London W4 4AL, United Kingdom  
Tel: +44 (0)20 8996 9001. Fax: +44 (0)20 8996 7001.  
E-mail: OHSAS.Secretariat@bsi-global.com

## Revisions

OHSAS Standards are updated by amendment or revision. Users of OHSAS Standards should make sure that they possess the latest amendments or editions.

It is the constant aim of the OHSAS Project Group to improve the quality of our products and services. We would be grateful if anyone finding an inaccuracy or ambiguity while using this OHSAS Standard would inform the Secretariat.

## Copyright

Copyright subsists in all OHSAS publications. Except as permitted under the United Kingdom's Copyright, Designs and Patents Act 1988 no extract may be reproduced, stored in a retrieval system or transmitted in any form or by any means – electronic, photocopying, recording or otherwise – without prior written permission from the OHSAS Project Group.

This does not preclude the free use, in the course of implementing the standard, of necessary details such as symbols, and size, type or grade designations. If these details are to be used for any other purpose than implementation then the prior written permission of the OHSAS Project Group must be obtained.

Details and advice can be obtained from the OHSAS Project Group Secretariat

---





# British Standards Institution (BSI)

BSI is the independent national body responsible for preparing British Standards. It presents the UK view on standards in Europe and at the international level.

It is incorporated by Royal Charter.

## Revisions

British Standards are updated by amendment or revision. Users of British Standards should make sure that they possess the latest amendments or editions.

It is the constant aim of BSI to improve the quality of our products and services. We would be grateful if anyone finding an inaccuracy or ambiguity while using this British Standard would inform the Secretary of the technical committee responsible, the identity of which can be found on the inside front cover.

**Tel: +44 (0)20 8996 9000 Fax: +44 (0)20 8996 7400**

BSI offers members an individual updating service called PLUS which ensures that subscribers automatically receive the latest editions of standards.

## Buying standards

Orders for all BSI, international and foreign standards publications should be addressed to BSI Customer Services.

**Tel: +44 (0)20 8996 9001 Fax: +44 (0)20 8996 7001**  
**Email: [orders@bsigroup.com](mailto:orders@bsigroup.com)**

You may also buy directly using a debit/credit card from the BSI Shop on the website [www.bsigroup.com/shop](http://www.bsigroup.com/shop)

In response to orders for international standards, it is BSI policy to supply the BSI implementation of those that have been published as British Standards, unless otherwise requested.

## Information on standards

BSI provides a wide range of information on national, European and international standards through its Library.

Various BSI electronic information services are also available which give details on all its products and services. Contact the Information Centre.

**Tel: +44 (0)20 8996 7111**  
**Fax: +44 (0)20 8996 7048 Email: [info@bsigroup.com](mailto:info@bsigroup.com)**

Subscribing members of BSI are kept up to date with standards developments and receive substantial discounts on the purchase price of standards. For details of these and other benefits contact Membership Administration.

**Tel: +44 (0)20 8996 7002 Fax: +44 (0)20 8996 7001**  
**Email: [membership@bsigroup.com](mailto:membership@bsigroup.com)**

Information regarding online access to British Standards via British Standards Online can be found at [www.bsigroup.com/BSOL](http://www.bsigroup.com/BSOL)

Further information about BSI is available on the BSI website at [www.bsigroup.com](http://www.bsigroup.com)

## Copyright

Copyright subsists in all BSI publications. BSI also holds the copyright, in the UK, of the publications of the international standardization bodies. Except as permitted under the Copyright, Designs and Patents Act 1988 no extract may be reproduced, stored in a retrieval system or transmitted in any form or by any means – electronic, photocopying, recording or otherwise – without prior written permission from BSI.

This does not preclude the free use, in the course of implementing the standard of necessary details such as symbols, and size, type or grade designations. If these details are to be used for any other purpose than implementation then the prior written permission of BSI must be obtained. Details and advice can be obtained from the Copyright & Licensing Manager.

**Tel: +44 (0)20 8996 7070 Email: [copyright@bsigroup.com](mailto:copyright@bsigroup.com)**

## BSI Group Headquarters

389 Chiswick High Road London W4 4AL UK

Tel +44 (0)20 8996 9001

Fax +44 (0)20 8996 7001

[www.bsigroup.com/standards](http://www.bsigroup.com/standards)

*raising standards worldwide™*



BS 18004:2008



# BSI British Standards

## Guide to achieving effective occupational health and safety performance

NO COPYING WITHOUT BSI PERMISSION EXCEPT AS PERMITTED BY COPYRIGHT LAW

*raising standards worldwide™*

**BSI**  
British Standards

**Publishing and copyright information**

The BSI copyright notice displayed in this document indicates when the document was last issued.

© BSI 2008

ISBN 978 0 580 52910 8

ICS 03.100.01; 13.100

The following BSI references relate to the work on this standard:

Committee reference HS/1

Draft for comment 08/30166683 DC

**Publication history**

First published as BS 8800 May 1996

Second edition July 2004

First published as BS 18004 November 2008

**Amendments issued since publication**

<b>Amd. No.</b>	<b>Date</b>	<b>Text affected</b>
-----------------	-------------	----------------------

---

## Contents

Foreword *iii*

1	Scope	1
2	Reference publications	2
3	Terms and definitions	2
4	OH&S management system	7
4.1	General	7
4.2	OH&S policy	9
4.3	Planning	12
4.4	Implementation and operation	19
4.5	Checking	35
4.6	Performance review	43

### Annexes

Annex A (informative)	Integration (of a BS OHSAS 18001 management system)	46
Annex B (informative)	Guidance on implementation and operation	49
Annex C (informative)	Promoting an effective OH&S management system	52
Annex D (informative)	Guidance on setting objectives and planning and implementing OH&S programmes	60
Annex E (informative)	Guidance on risk assessment and control	68
Annex F (informative)	Operational control	92
Annex G (informative)	Occupational health	97
Annex H (informative)	Worker involvement	101
Annex I (informative)	Emergency preparedness and response	107
Annex J (informative)	Measuring performance	115
Annex K (informative)	Incident investigation	123
Annex L (informative)	Internal audit	132
Bibliography		143

### List of figures

Figure 1	Elements of an OH&S management system	7
Figure 2	Overview of the risk assessment process	13
Figure A.1	Process for integrating systems	47
Figure A.2	PAS 99 framework	48
Figure D.1	Process for planning and implementing OH&S programmes	63
Figure D.2	Programme review	65
Figure L.1	Audit process	136

### List of tables

Table E.1	Comparisons of some examples of risk assessment tools and methodologies	78
Table E.2	Examples of harm categories	80
Table E.3	Examples of categories for likelihood of harm	82
Table E.4	A simple risk estimator	83
Table E.5	A simple risk categorization	84
Table E.6	A simple risk-based control plan	85
Table E.7	Hazard checklist	91

### Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 144, an inside back cover and a back cover.



## Foreword

### Publishing information

This British Standard was published by BSI and came into effect on 30 November 2008. It was prepared by Technical Committee HS/1, *Occupational health and safety management*. A list of organizations represented on this committee can be obtained on request to its secretary.

### Relationship with other documents

BS 18004:2008 supersedes BS 8800:2004, which is withdrawn.

BS 18004 is one of three related documents on occupational health and safety management systems published by the BSI since June 2007. The first was BS OHSAS 18001:2007, which specifies what an organization needs to have in place to meet the criteria for occupational health and safety management.

BS OHSAS 18001 is supported by BS OHSAS 18002:2008, which gives guidance on what an organization should consider when implementing and operating a system that meets the requirements of BS OHSAS 18001.

BS 18004:2008 gives good practice guidance on successful health and safety management, and builds on the guidance advocated in HSG 65 [1]. Structured around the OHSAS 18001 framework, it provides guidance in line with developments in OHS management within the UK and provides extensive annexes intended to support those organizations that wish to deliver good health and safety performance.

### Use of this document

As a guide, BS 18004 takes the form of guidance and recommendations. It should not be quoted as if it were a specification and particular care should be taken to ensure that claims of compliance are not misleading.

Any user claiming compliance with BS 18004 is expected to be able to justify any course of action that deviates from its recommendations.

### Presentational conventions

The provisions in this standard are presented in roman (i.e. upright) type. Its recommendations are expressed in sentences in which the principal auxiliary verb is "should".

*Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.*

### Contractual and legal considerations

In the UK, and Europe generally, there are various legal requirements for occupational health and safety that apply to the potentially harmful effects of work activities and which extend beyond the workplace to those affected by workplace activities (see Note to 3.17 on the definition of occupational health and safety). It is essential

for the organization to take the matters addressed by these legal requirements into account in establishing, implementing and maintaining its OH&S management system – and in particular when identifying hazards, assessing risks and determining controls (see **4.3.2** and **4.3.3**).

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

**Compliance with a British Standard cannot confer immunity from legal obligations.**



# 1 Scope

This British Standard provides guidance for an occupational health and safety (OH&S) management system or the OH&S elements of an organization's overall management system, to enable an organization to control its OH&S risks and improve its OH&S performance. It does not state specific OH&S performance criteria, nor does it give detailed specifications for the design of a management system.

This guidance is applicable to any organization that wishes to:

- a) establish an OH&S management system to control risks to personnel and other interested parties who could be exposed to OH&S hazards associated with its activities, facilities, processes or plant;
- b) implement, maintain and continually improve an OH&S management system;
- c) demonstrate commitment to good practice, including self-regulation, and continual improvement in OH&S performance;
- d) assure itself of its conformity with its stated OH&S policy and with BS OHSAS 18001 by:
  - 1) making a self-determination and self-declaration; or
  - 2) seeking confirmation of its conformity by parties having an interest in the organization, such as customers; or
  - 3) seeking confirmation of its self-declaration by a party external to the organization; or
  - 4) seeking certification/registration of its OH&S management system by an external organization.

All elements in this standard are intended to be incorporated into any OH&S management system and to enable an organization to incorporate OH&S within its overall management system. The extent of the application will depend on such factors as the OH&S policy of the organization, the nature of its activities and the risks and complexity of its operations.

This standard is intended to address occupational health and safety, and is not intended to address other health and safety areas, such as worker wellbeing/wellness programmes, product safety, property damage or environmental impacts.

This standard is intended for use by organizations of all sizes, regardless of the nature of their activities. It is intended that its application is proportional to the circumstances and needs of the particular organization. Further guidance for small and medium enterprises (SMEs) will be provided in BS 18005, a new standard in preparation.

*NOTE Annex A gives information about integrating a BS OHSAS 18001 management system within the overall business risk management system. Annex B and Annex C provide guidance on implementing, operating and promoting an effective OH&S management system. Annex D covers setting objectives and planning and implementing OH&S programmes. Annex E gives guidance on risk assessment and control and Annex F discusses operational control. Occupational health is discussed in Annex G, while Annex H provides advice on how to involve workers. Information on emergency preparedness and response is given in Annex I. Annex J discusses how to measure performance. Incident investigation is discussed in Annex K. Annex L gives guidance on the process of internal audit.*

## 2 Reference publications

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

BS EN ISO 9000:2005, *Quality management systems — Fundamentals and vocabulary*

BS EN ISO 9001:2008, *Quality management systems — Requirements*

BS EN ISO 14001:2004, *Environmental management systems — Requirements with guidance for use*

BS EN ISO 19011:2002, *Guidelines for quality and/or environmental management systems auditing*

BS OHSAS 18001:2007, *Occupational health and safety management systems — Requirements*

BS OHSAS 18002, *Occupational health and safety management systems — Guidelines for the implementation of BS OHSAS 18001*

PAS 99, *Specification of common management system requirements as a framework for integration*

International Labour Organization:2001, *Guidelines on occupational health and safety management systems — ILO-OSH 2001*

## 3 Terms and definitions

For the purposes of this British Standard the following terms and definitions apply.

### 3.1 acceptable risk

risk (3.26) that has been reduced to a level that can be tolerated by the organization having regard to its legal obligations and its own OH&S policy (3.21)

### 3.2 accident

incident (3.13) giving rise to injury, ill health or fatality

### 3.3 audit

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

[BS EN ISO 9000:2005, 3.9.1]

*NOTE 1 Independent does not necessarily mean external to the organization. In many cases, independence can be demonstrated by the freedom from responsibility for the activity being audited.*

*NOTE 2 For further guidance on "audit evidence" and "audit criteria" see BS EN ISO 19011.*

### 3.4 competent person

person with the appropriate combination of skill, knowledge, qualifications and experience

**3.5 continual improvement**

recurring process of enhancing the OH&S management system (3.18) in order to achieve improvements in overall OH&S performance (3.20) consistent with the organization's (3.22) OH&S policy (3.21)

*NOTE* The process need not take place in all areas of activity simultaneously.

[BS EN ISO 14001:2004, 3.2. Modified]

**3.6 corrective action**

action to eliminate the cause of a detected nonconformity (3.16) or other undesirable situation

*NOTE 1* There can be more than one cause for a nonconformity.

*NOTE 2* Corrective action is taken to prevent recurrence whereas preventive action (3.23) is taken to prevent occurrence.

[BS EN ISO 9000:2005, 3.6.5]

**3.7 document**

information and its supporting medium

*NOTE* The medium can be paper, magnetic, electronic or optical computer disc, photograph or master sample, or a combination thereof.

[BS EN ISO 14001:2004, 3.4]

**3.8 hazard**

source, situation, or act with a potential for harm in terms of human injury or ill health (3.12), or a combination of these

**3.9 hazard identification**

process of recognizing that a hazard (3.8) exists and defining its characteristics

**3.10 hazardous event**

occurrence that results in, or has the potential to result in, an incident

*NOTE* This could include long-term exposure.

**3.11 health surveillance**

monitoring health of employees to detect signs or symptoms of work-related ill health (3.12) so that steps can be taken to eliminate, or reduce the probability of, further harm

**3.12 ill health**

identifiable, adverse physical or mental condition arising from and/or made worse by a work activity and/or work-related situation

*NOTE* This is sometimes referred to as occupational work-related ill health.

**3.13 incident**

work-related event(s) in which an injury or ill health (3.12) (regardless of severity) or fatality occurred, or could have occurred

*NOTE 1* An accident (3.2) is an incident which has given rise to injury, ill health or fatality.

*NOTE 2* An incident where no injury, ill health, or fatality occurs may also be referred to as a “near-miss”, “near-hit”, “close call” or “dangerous occurrence”.

*NOTE 3* An emergency situation (see 4.4.8) is a particular type of incident.

### 3.14 integration

combining the elements of an OH&S management system with those of another, e.g. environmental management, system

### 3.15 interested party

person or group, inside or outside the workplace (3.34), concerned with or affected by the OH&S performance (3.20) of an organization (3.22)

*NOTE* Regulatory agencies, neighbours and emergency services are examples of interested parties.

### 3.16 nonconformity

non-fulfillment of a requirement

[BS EN ISO 9000:2005, 3.6.2; BS EN ISO 14001, 3.15]

*NOTE* A nonconformity can be any deviation from:

- relevant work standards, practices, procedures, legal requirements, etc.
- OH&S management system (3.18) criteria.

### 3.17 occupational health and safety (OH&S)

conditions and factors that affect, or could affect, the health and safety of employees or other workers (including temporary workers and contractor personnel), visitors and any other person in the workplace (3.34)

*NOTE* Organizations can be subject to legal requirements for the health and safety of persons beyond the immediate workplace, or who are exposed to the workplace activities.

### 3.18 OH&S management system

part of an organization's (3.22) management system used to develop and implement its OH&S policy (3.21) and manage its OH&S risks (3.26)

*NOTE 1* A management system is a set of interrelated elements used to establish policy and objectives and to achieve those objectives.

*NOTE 2* A management system includes organizational structure, planning activities (including for example, risk assessment and the setting of objectives), responsibilities, practices, procedures (3.24), processes and resources.

[BS EN ISO 14001:2004, 3.8. Modified]

### 3.19 OH&S objective

OH&S goal, in terms of OH&S performance (3.20) that an organization (3.22) sets itself to achieve

*NOTE 1* Objectives should be quantified wherever practicable.

*NOTE 2* 4.3.4 states that OH&S objectives should be consistent with the OH&S policy (3.21).

**3.20 OH&S performance**

measurable results of an organization's (3.22) management of its OH&S risks (3.26)

*NOTE 1 OH&S performance measurement includes measuring the effectiveness of the organization's controls.*

*NOTE 2 In the context of OH&S management systems (3.18), results can also be measured against the organization's (3.22) OH&S policy (3.21), OH&S objectives (3.19), and other OH&S performance criteria.*

**3.21 OH&S policy**

overall intentions and direction of an organization (3.22) related to its OH&S performance (3.20) as formally expressed by top management

*NOTE The OH&S policy provides a framework for action and for the setting of OH&S objectives (3.19).*

[BS EN ISO 14001:2004, 3.11. Modified]

**3.22 organization**

company, corporation, firm, enterprise, authority or institution, or part or combination thereof, whether incorporated or not, public or private, that has its own functions and administration

*NOTE For organizations with more than one operating unit, a single operating unit may be defined as an organization.*

[BS EN ISO 14001:2004, 3.16]

**3.23 preventive action**

action to eliminate the cause of a potential nonconformity (3.16) or other undesirable potential situation

*NOTE 1 There can be more than one cause for a potential nonconformity.*

*NOTE 2 Preventive action is taken to prevent occurrence whereas corrective action (3.6) is taken to prevent recurrence.*

[BS EN ISO 9000:2005, 3.6.4]

**3.24 procedure**

specified way to carry out an activity or a process

*NOTE Procedures can be documented or not.*

[BS EN ISO 9000:2005, 3.4.5]

**3.25 record**

document (3.7) stating results achieved or providing evidence of activities performed

[BS EN ISO 14001:2004, 3.20]

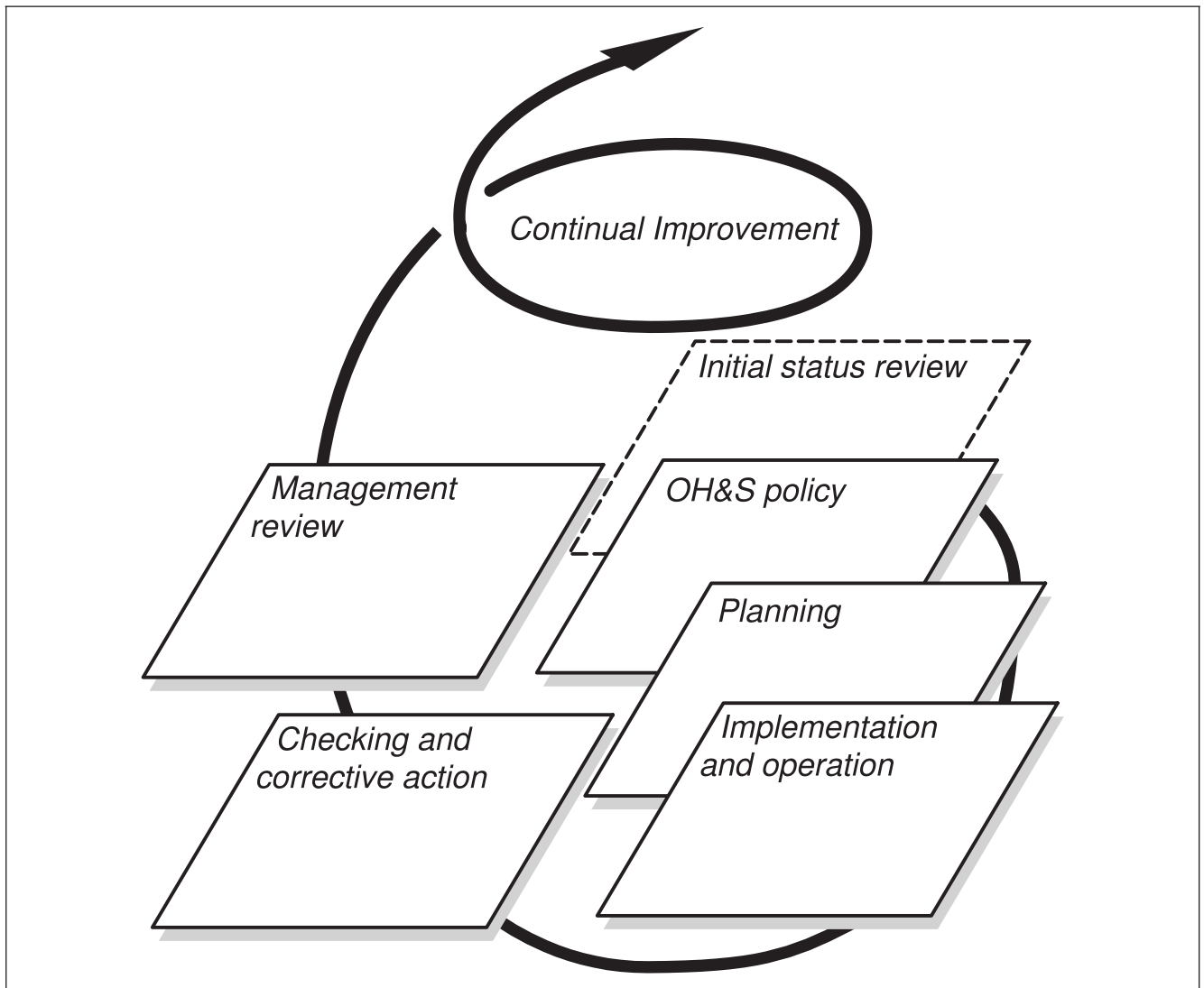
**3.26 risk**

combination of the likelihood of an occurrence of a hazardous event or exposure(s) and the severity of injury or ill health (3.12) that can be caused by the event or exposure(s)

- 3.27 risk assessment**  
process of evaluating the risk(s) (3.26) arising from a hazard(s), taking into account the adequacy of any existing controls, and deciding whether or not the risk(s) is acceptable
- 3.28 risk control**  
selection and application of suitable measures to reduce risk
- 3.29 stakeholders**  
those with a vested interest in an organization's achievements  
*NOTE This is a wide-ranging term that includes, but is not limited to, internal and "outsourced" employees, customers, suppliers, partners, employees, distributors, investors, insurers, shareholders, owners, government and regulators.*
- 3.30 status review**  
formal evaluation of the OH&S management system
- 3.31 top management**  
person or group of people who direct and control an organization at the highest level  
[BS EN ISO 9000:2005]
- 3.32 health and safety culture**  
product of individual and group values, attitudes, competencies and patterns of behaviour that determine the commitment to, and the style and proficiency of, an organization's approach to health and safety
- 3.33 worker representative**  
representative of employee occupational health and safety
- 3.34 workplace**  
any physical location in which work-related activities are performed under the control of the organization  
*NOTE When giving consideration to what constitutes a workplace, the organization (3.22) should take into account the OH&S effects on personnel who are, for example, travelling or in transit (e.g. driving, flying, on boats or trains), working at the premises of a client or customer, or working at home.*

## 4 OH&S management system

Figure 1 Elements of an OH&S management system



### 4.1 General

#### 4.1.1 Introduction

Within some organizations elements of the OH&S management system may already be in place, such as the policy and risk assessment records, but others will probably need to be developed further. Some organizations will have an integrated system in place which includes elements that have common requirements to those identified in this standard.

The organization should establish, document, implement, maintain and continually improve an OH&S management system in accordance with this guidance.

“Establish” implies a level of permanency and the system should not be considered established until all its elements have been



demonstrably implemented. "Maintain" implies that, once established, the system continues to operate effectively. This requires active effort on the part of the organization. Many systems start well but deteriorate due to lack of maintenance. Many of the elements of this guidance (such as checking and performance review) are designed to ensure active maintenance of the system.

It is important that all the elements in this guide are incorporated into the OH&S management system, but the manner and extent to which individual elements should be applied will depend on factors such as the size of the organization, the nature of its activities, and the hazards, the risks and the conditions in which it operates. Whilst there are various methods of developing the elements it is recommended that the guidance in Annexes B, C, D, E, F, G, H, I, J, K and L is followed.

An organization with no existing OH&S management system should determine its current position with regard to its OH&S risks by means of an initial status review (see 4.1.2).

#### 4.1.2 Initial status review

An initial status review should be carried out if the organization does not have an established and effective OH&S management system. The initial status review should provide information on the scope, adequacy and implementation of the current management system. Where no formal management system exists, or if the organization is newly established, the initial status review should serve as a basis for establishing what arrangements should be made to ensure an effective OH&S management system is implemented. The initial status review should indicate where the organization currently stands in relation to managing risks.

The review should be carried out by competent persons in consultation with the workers or their representatives. The review should establish to what extent existing arrangements are in place for:

- 1) identifying and anticipating hazards, and assessing risks to health and safety arising from the work environment and work activities (see 4.3.2);
- 2) ensuring the health and safety of those involved in, or affected by, work activities (see 4.3.2);
- 3) developing and implementing effective risk controls to eliminate hazards and minimize risk to health or safety (see 4.3.2);
- 4) identifying and implementing best practice and performance in the organization's employment sector and other appropriate sectors (e.g. from relevant HSC industry advisory committees and trade association guidelines);
- 5) identifying and responding to the requirements of relevant legal and other requirements dealing with OH&S issues (see 4.3.3);

*NOTE* The focus of this exercise should be to identify legal and other requirements that apply to the organization's:

- industry sector;
- activities;
- products, processes, facilities, equipment, materials and personnel; and
- location.



- 6) obtaining or developing guidance on OH&S management and making it available throughout the organization (see 4.4.4);
- 7) consultation within and disseminating information throughout the organization (see 4.4.4);
- 8) measuring and evaluating OH&S management performance (see 4.5), including the reporting and investigation of incidents; and
- 9) establishing effective arrangements for the audit and review of the OH&S management system (see 4.5.5 and 4.6).

The review should also examine existing OH&S management practices, processes and procedures and evaluate data from previous incidents, work-related ill health and emergencies.

The results of the initial status review should:

- be documented;
- become the basis for developing and implementing the OH&S management system;
- provide a baseline from which continual improvement can be measured.

An effective approach to the initial status review is to consider each element of the existing or proposed management system against the guidelines for each element of the process described in this standard. Checklists, interviews, direct inspection and measurement techniques might be of use in this process. Where hazard identification and risk assessment processes already exist, they should be reviewed for adequacy against the guidance in 4.3.2.

*NOTE The annexes provide information to ensure coverage of key activities.*

#### 4.1.3 Scope of the OH&S management system

The scope should be defined and documented so that it is clear and takes account of the definition of “workplace” (see 3.34) and “OH&S” (see 3.17).

An organization can choose to implement an OH&S management system with respect to the entire organization, or to a subdivision of the organization, provided this is consistent with its definition of its workplace. However, once the workplace is defined, all the work-related activities and services of the organization, or subdivision, within that workplace need to be included in the OH&S management system.

Care should be taken in defining and documenting the scope of the OH&S management system, to determine who, what and where, are to be covered. The scope should not be limited so as to exclude an operation or activity that can impact on the OH&S of an organization's employees and other persons under its control in the workplace.

#### 4.2 OH&S policy

An effective OH&S policy should demonstrate the organization's commitment to OH&S. It establishes an overall sense of direction and should guide the setting of objectives against which all subsequent actions will be evaluated. It should contribute to all aspects of business

performance as part of a demonstrable commitment to continual improvement and the development of human factors, including the culture, attitude and beliefs within the organization.

Top management should demonstrate the leadership (see Annex C) and commitment necessary for the OH&S management system to be successful and to achieve improved OH&S performance. The ongoing, proactive involvement of top management in developing and implementing an OH&S policy is crucial.

BS OHSAS 18001:2007 requires that top management define and authorize the organization's OH&S policy and ensure that, within the defined scope of its OH&S management system, it:

- a) is appropriate to the nature and scale of the organization's OH&S risks;
- b) includes a commitment to prevention of injury and ill health and continual improvement in OH&S management and OH&S performance;
- c) includes a commitment to at least comply with applicable legal requirements and with other requirements to which the organization subscribes that relate to its OH&S hazards;
- d) provides the framework for setting and reviewing OH&S objectives;
- e) is documented, implemented and maintained;
- f) is communicated to all persons working under the control of the organization with the intent that they are made aware of their individual OH&S obligations;
- g) is available to interested parties; and
- h) is reviewed periodically to ensure that it remains relevant and appropriate to the organization.

In order to be appropriate, the OH&S policy should:

- be consistent with a vision of the organization's future, and
- be realistic, neither overstating the nature of the risks the organization faces, nor trivializing them.

In developing its OH&S policy, an organization should consider:

- its mission, vision, core values and beliefs;
- coordination with other (corporate or integrated, etc.) policies;
- the needs of persons working under the control of the organization;
- the OH&S hazards of the organization;
- historical and current OH&S performance by the organization;
- opportunities and needs for continual improvement and the prevention of injury and ill health;
- the views of interested parties; and
- what is needed to establish realistic and achievable objectives.

In addition, care should be taken to ensure that the policy includes a commitment to protecting the safety and health of persons at work and others who might be affected by their work activities. Good practice indicates that the above can be achieved by:

- i) top management committing itself to its declared aim and stated policy of protecting people with respect to OH&S;
- ii) recognizing and implementing OH&S as an integral part of improving business performance;
- iii) achieving a high level of OH&S performance, and a commitment to continual cost-effective improvement in performance;
- iv) controlling risk and the prevention of injury, ill health, diseases and incidents;
- v) acknowledging that people are the key resource and promoting the general health and safety of workers;
- vi) providing adequate and appropriate resources and supervision to implement the policy, including access to competent specialist advice where necessary;
- vii) publishing OH&S objectives as a minimum by internal notification;
- viii) placing management of OH&S as a prime responsibility of line management from most senior executive to first-line supervisory level;
- ix) visible participation of top and line management in ensuring good practices are in operation on a day-to-day basis;
- x) ensuring its understanding, implementation and maintenance at all levels in the organization;
- xi) ensuring worker involvement, participation and consultation to gain commitment to the policy and its implementation;
- xii) ensuring that workers at all levels receive appropriate training and are competent to carry out their duties and responsibilities;
- xiii) periodically reviewing the policy, the management system and audit of compliance to policy, as a driver of continual improvement;
- xiv) considering bench marking performance, either internally or with related external organizations; and
- xv) periodically reporting OH&S management performance internally and to external parties where relevant.

The organization's OH&S policy should be set out in a succinct policy statement that captures appropriately the key issues set out in the above lists. This policy statement should be signed and dated by the top manager with responsibility for OH&S. Depending on the type of organization and risks associated with the organization's operations, the policy statement might need to be supplemented in more detail.

The OH&S policy should be consistent with the organization's other management policies, e.g. quality or environmental.

The OH&S policy and policy statement should be reviewed, revalidated and, where necessary, revised by top management as often as necessary to ensure that it remains relevant and appropriate to the organization. It should be communicated and made readily accessible to all persons at their place of work and made available to relevant interested parties, as appropriate (see 4.4.4.2). If changes are introduced, these should be communicated as soon as is practicable.

In communicating the policy, consideration should be given as to how to create and maintain awareness in both new and existing persons

under the control of the organization. The policy can be communicated in alternative forms to the policy statement itself, such as through the use of rules, directives and procedures, wallet cards, posters, etc. In communicating the policy, account should be taken of issues such as diversity in the workplace, literacy levels, language skills, etc.

## 4.3 Planning

### 4.3.1 General

Planning is an integral part of all elements of an OH&S management system. An effective OH&S management system should be planned to:

- a) control risks;
- b) react to changing demands; and
- c) sustain a positive health and safety culture (see Annex C).

Effective planning is concerned with prevention through identifying, eliminating and controlling hazards and risks. This is equally important when dealing with health risks, which might only become apparent after a long latency period. Planning should be a collaborative effort involving individuals throughout the organization. This is a good way of demonstrating and gaining commitment to continual improvement and promoting a positive health and safety culture.

*NOTE Annex C offers practical guidance on how to develop an OH&S management system in a way that promotes a positive safety culture. It also offers guidance on how to measure and improve the safety culture of an organization.*

The planning process should address the following key areas:

- hazard identification, risk assessment and determining controls (see 4.3.2);
- legal and other requirements (see 4.3.3); and
- objectives and programme(s) (see 4.3.4).

Annex D provides guidance on a planning process that could be used to develop any aspect of the OH&S management system.

### 4.3.2 Hazard identification, risk assessment and determining controls

It is essential that there is a comprehensive appreciation of the significant OH&S hazards and risks associated with the organization's undertakings. An organization will need to apply the process of hazard identification (see 3.9) and risk assessment (see 3.27) to determine the controls that are necessary to reduce the risks of injury and ill health. The overall purpose of the risk assessment process is to understand the hazards (see 3.8) that exist or might arise in the course of the organization's activities, and ensure that the risks (see 3.26) to people arising from these hazards are assessed, prioritized and controlled to eliminate hazards or reduce risks to acceptable levels (see 3.1).

This is achieved by:

- developing a methodology for hazard identification and risk assessment;
- identifying hazards;

- estimating the associated risks, taking into account the adequacy of any existing controls (it might be necessary to obtain additional data and perform further analysis in order to achieve a reasonable estimation of the risks);
- determining whether these risks are acceptable (see 3.1); and
- determining the appropriate and effective risk controls to reduce risks where these are found to be necessary.

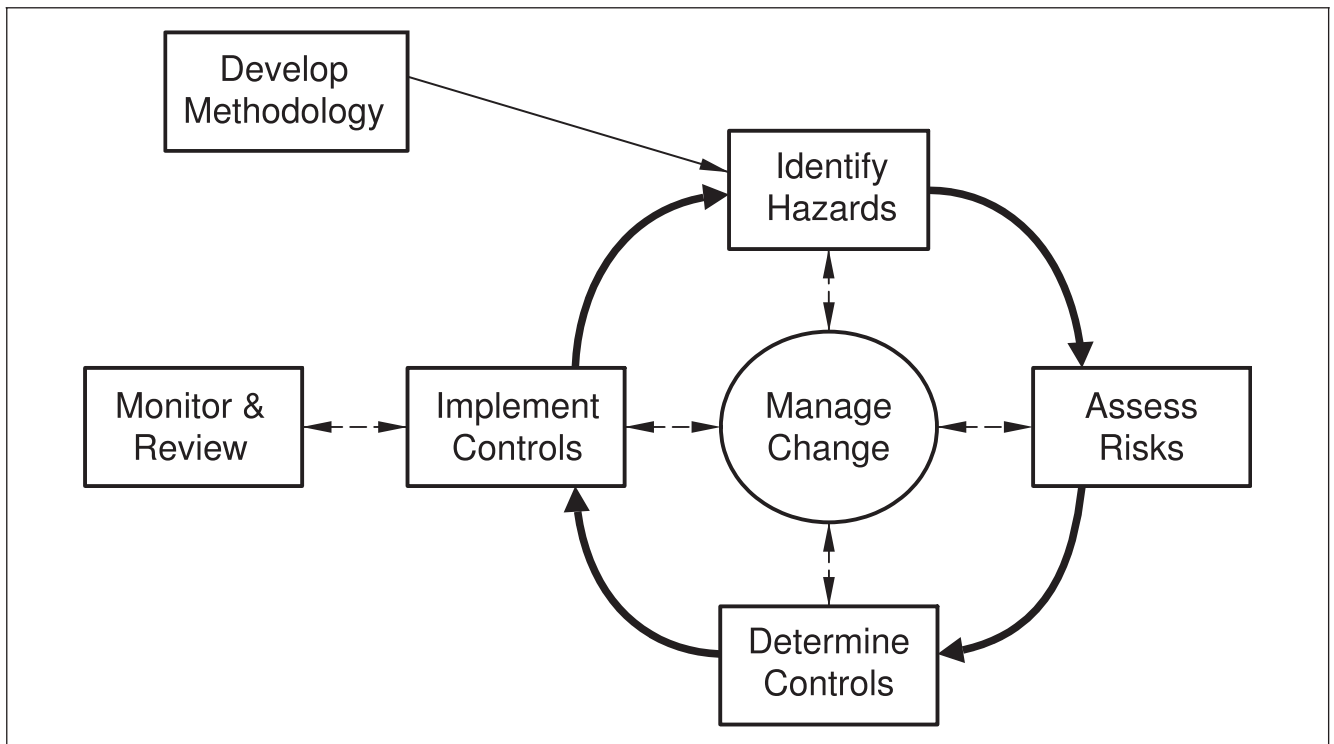
Annex E provides guidance on the principles and practicalities of OH&S hazard identification, risk assessment and risk control.

The results of risk assessments enable the organization to compare risk reduction options and prioritize actions and associated resources for effective risk management.

The outputs from the hazard identification, risk assessment and determining control processes should also be used throughout the development and implementation of the OH&S management system.

Figure 2 provides an overview of the risk assessment process.

Figure 2 Overview of the risk assessment process



*NOTE* The development of the methodology can itself be subject to change or improvement.

Hazards have the potential to cause human injury or ill health. Hazards therefore need to be identified before the risks associated with these hazards can be assessed and, if no controls exist or existing controls are inadequate, effective controls should be implemented according to the hierarchy of controls.

In high hazard industries, organizations need to ensure that proper attention is given to the high consequence, low probability type event to ensure that adequate control is achieved.

The procedure(s) for hazard identification and risk assessment should take into account:

- a) routine and non-routine activities (see Annex E);
- b) activities of all persons having access to the workplace (including contractors and visitors);
- c) human behaviour, capabilities and other human factors;
- d) identified hazards originating outside the workplace capable of adversely affecting the health and safety of persons under the control of the organization within the workplace;
- e) hazards created in the vicinity of the workplace by work-related activities under the control of the organization;
- f) infrastructure, equipment and materials at the workplace, whether provided by the organization or others;
- g) changes or proposed changes in the organization, its activities, or materials;
- h) modifications to the OH&S management system, including temporary changes, and their impacts on operations, processes, and activities;
- i) any applicable legal obligations relating to risk assessment and implementation of necessary controls (see also the Note to 3.17); and
- j) the design of work areas, processes, installations, machinery/equipment, operating procedures and work organization, including their adaptation to human capabilities.

The organization's methodology for hazard identification and risk assessment should:

- a) be defined with respect to its scope, nature and timing to ensure it is proactive rather than reactive; and
- b) provide for the identification, prioritization and documentation of risks, and the application of controls, as appropriate.

For the management of change, the organization should identify the OH&S hazards and OH&S risks associated with changes in the organization, the OH&S management system, or its activities, prior to the introduction of such changes.

Depending on the nature of the change and circumstances the risk assessment could vary in depth and detail. Temporary measures might need to be taken in certain circumstances but should always be confirmed by a full risk assessment. Such changes should always be covered by the management of change procedure.

When determining controls, or considering changes to existing controls, consideration should be given to reducing the risks according to the following hierarchy:

- a) elimination;
- b) substitution;
- c) engineering controls;
- d) signage/warnings and/or administrative controls; and
- e) personal protective equipment.



The organization should document and keep up-to-date the results of identification of hazards, risk assessments and determined controls.

The organization should ensure that the OH&S risks and determined controls are taken into account when establishing, implementing and maintaining its OH&S management system.

Risk controls and risk control systems are more effective when they are properly designed to take into account the strengths and weaknesses of human behaviour, attitudes to risk and existing business practice.

### 4.3.3 Legal and other requirements

The organization should establish, implement and maintain a procedure(s) for identifying and accessing current and emerging legal and other OH&S requirements and guidance that are applicable to its activities and services.

The organization should ensure that these applicable legal requirements and other requirements to which the organization subscribes are taken into account in establishing, implementing and maintaining its OH&S management system.

The organization should keep this information up-to-date.

The organization should communicate relevant information on legal and other requirements to persons working under its control, and to other relevant interested parties. Relevant workers within the organization should be aware of and understand these requirements, which vary from locality/country to locality/country.

Legal requirements can take many forms, such as:

- legislation, including statutes, regulations and codes of practice;
- decrees and directives;
- orders issued by regulators;
- permits, licences or other forms of authorization;
- judgements of courts or administrative tribunals; and
- treaties, conventions or protocols.

Depending on its circumstances and needs, an organization may subscribe voluntarily to requirements, other than legal requirements, that relate to its OH&S hazards. Such other OH&S requirements, can include:

- contractual conditions;
- agreements with workers;
- agreements with interested parties;
- agreements with health authorities;
- non-regulatory guidelines;
- voluntary principles, best practices or codes of practice;
- public commitments of the organization or its parent organization; and
- corporate/company requirements.

Depending on the nature of its OH&S hazards, operations, equipment, materials, etc., an organization should seek out relevant applicable

OH&S legislative or other requirements. This might be achieved through the use of knowledge within the organization and/or through the use of external sources such as:

- the internet;
- libraries;
- trade associations;
- regulators;
- legal services;
- OH&S institutes;
- OH&S consultants;
- equipment manufacturers;
- materials suppliers;
- contractors;
- customers.

Having identified what is applicable, the organization's procedure needs to include information on how it can access the legal and other requirements. There is no requirement to maintain a library; it is sufficient that the organization is able to access the information when needed.

The organization's procedure should ensure that it can identify any changes that affect the applicability of legal and other requirements relevant to its OH&S hazards.

The organization's procedure needs to identify who should receive information on legal and other requirements, and ensure that relevant information is communicated to them (see 4.4.4).

#### **4.3.4 Objectives and programme(s)**

##### **4.3.4.1 General**

In the planning process, an organization sets objectives to fulfil the commitments established in its OH&S policy.

The process of setting and reviewing objectives and implementing programmes to achieve them provides a mechanism for the organization to improve OH&S performance or to improve the OH&S management system.

##### **4.3.4.2 Objectives**

The organization should establish, implement and maintain documented OH&S objectives, at relevant functions and levels within the organization.

The organization should set objectives to fulfil the commitments established in its OH&S policy, including its commitments to the prevention of injury and ill health. Setting objectives is an integral part of the planning of an OH&S management system.

The objectives should be measurable, where practicable, and consistent with the OH&S policy.

When establishing and reviewing its objectives, an organization should take into account the legal requirements and other



requirements to which the organization subscribes, and its OH&S risks. It should also consider its technological options, its financial, operational and business requirements, and the views of relevant interested parties.

The process of setting and reviewing objectives, and implementing programmes to achieve them, provides a mechanism for the organization to continually improve its OH&S management system and to improve its OH&S performance.

The organization should make use of the other information obtained from the planning process (e.g. a prioritized list of OH&S risks) to determine whether it needs to set specific objectives in relation to any of its legal and other requirements, or its OH&S risks. However, the organization is not required to establish OH&S objectives for each legal and other requirement or OH&S risk identified.

Examples of types of OH&S objectives include:

- reduction of risk levels;
- the introduction of additional features into the OH&S management system;
- the steps taken to improve existing features, or the consistency of their application; and
- the elimination, or the reduction in frequency, of particular undesired incident(s).

The key elements to planning and setting the objectives are as follows.

- a) The organization's objectives should be clearly defined and prioritized.
- b) Objectives should be specific to the organization and appropriate to its size, the nature of its activities, and the hazards, risks and the conditions in which it operates.
- c) Suitable, specific and transparent performance indicators should be chosen to measure if objectives have been or are being achieved. These indicators should be defined before moving to the next stage.
- d) Adequate financial, human resources and technical support should be made available.

*NOTE 1 Sometimes the acronym "SMART" is applied to the establishment of objectives, i.e. that they should be specific, measurable, achievable, realistic, time-oriented.*

Selecting and prioritizing objectives is most effectively achieved by involving the workers in the decision making process.

Issues that the organization may wish to take into consideration when setting objectives include:

- policy and objectives relevant to the organization's business as a whole;
- results of hazard identification and risk assessment;
- legal and other requirements;
- technological options and financial and operational requirements;
- evaluations of the effectiveness of the OH&S management system (e.g. from internal audits);

- views of workers (e.g. from attitude surveys);
- information from worker OH&S consultations, reviews and improvement activities in the workplace (these activities can be either reactive or proactive in nature);
- analysis of performance against previously established OH&S objectives;
- past records of OH&S nonconformities and incidents;
- information or data from clients, contractors or other interested parties;
- the results of the management review (see 4.6.2); and
- the need for and availability of resources.

During the establishment of OH&S objectives, particular regard should be given to information or data from those people most likely to be affected by individual OH&S objectives, as this can assist in ensuring that the objectives are reasonable and more widely accepted.

The OH&S objectives should address both broad corporate OH&S issues and OH&S issues that are specific to individual functions and levels within the organization.

OH&S objectives can be broken down into tasks, depending on their complexity and timescales, and the size of the organization. There should be clear links between the various levels of tasks and the OH&S objectives.

Overall OH&S objectives should be endorsed by top management. Specific OH&S objectives and tasks may be established by other functions as appropriate.

Not all functions and departments will need specific OH&S objectives.

*NOTE 2 The organization should guard against setting too many overall objectives; it is preferable for it to focus on a limited set of key objectives. There should be links between the overall objectives and the specific objectives.*

*NOTE 3 Objectives are sometimes given associated "targets". For the purpose of the OHSAS standards "targets" are viewed as being a sub-set of objectives.*

#### 4.3.4.3 Programme(s)

In order to achieve the objectives a programme(s) should be established. A programme is an action plan for achieving all the OH&S objectives, or individual OH&S objectives.

The organization should establish, implement and maintain a programme(s) for achieving its objectives. The programme(s) should include as a minimum:

- a) designation of responsibility and authority for achieving objectives at relevant functions and levels of the organization; and
- b) the means and time-frame by which the objectives are to be achieved.

In considering the means necessary to establish the programme(s) the organization should examine the resources required (financial, human and infrastructure) and the tasks to be performed. Depending on

the complexity of the programme established to achieve a particular objective, the organization should assign responsibility, authority, and completion dates for individual tasks, to ensure that the OH&S objective can be accomplished within the overall timeframe.

The OH&S objectives and programme(s) should be communicated (e.g. via training and/or group briefing sessions) to relevant personnel.

The programme(s) should be reviewed at regular and planned intervals, and adjusted as necessary, to ensure that the objectives are achieved.

#### 4.3.4.4 Management arrangements

The design of management arrangements should reflect the organization's business needs and the nature of their risks. However, there should be appropriate activity across all five elements of the model (policy, planning, implementing, operating and reviewing).

Specifically, the organization should make arrangements to cover the following key areas:

- a) overall plans and objectives, including workers and resources, for the organization to implement its policy;
- b) operational plans to implement arrangements to control the risks identified in 4.3.2 and to meet the recommendations of 4.3.3;
- c) contingency plans to mitigate or avoid the effects of foreseeable emergencies (e.g. prevention, preparedness and response procedures);
- d) planning for organizational activities (see 4.3.4);
- e) plans covering the management of change of either a permanent or temporary nature (e.g. change associated with new processes or plant, working procedures, production fluctuations, legal requirements, and organizational and staffing changes);
- f) plans covering interactions with other interested parties (e.g. control, selection and management of contractors, liaison with emergency services and visitor control);
- g) planning for measuring performance, audits and status reviews (see 4.5 and 4.6);
- h) implementing corrective actions; and
- i) plans for assisting recovery and return to work of any worker who is injured or ill through their work activities.

Where fundamental changes cannot be made prioritized action plans should be drawn up and implemented. In the interim properly assessed short-term measures should be taken to control the risk.

## 4.4 Implementation and operation

### 4.4.1 General

Responsibilities, relationships and good practices of OH&S that promote a positive health and safety culture and secure the implementation and continued development of the OH&S policy should be defined.

The management structure and the processes used within the organization should:

- a) establish and maintain control of the OH&S arrangements;
- b) promote cooperation between individuals, worker representatives and groups so that health and safety is a collaborative effort;
- c) ensure the communication of relevant information throughout the organization;
- d) secure the competence of workers and the selection of competent contractors;
- e) provide clear and visible leadership on OH&S (see Annex C); and
- f) ensure continual improvement.

#### 4.4.2 Resources, roles, responsibility, accountability and authority

##### 4.4.2.1 Management responsibilities

Top management (the board of directors or executive management or equivalent) should take ultimate responsibility for OH&S and the OH&S management system and demonstrate its commitment by:

- a) ensuring the availability of resources essential to establish, implement, maintain and improve the OH&S management system;

*NOTE Resources include human resources and specialized skills, organizational infrastructure, technology and financial resources.*

- b) defining roles, allocating responsibilities and accountabilities, and delegating authorities, to facilitate effective OH&S management; roles, responsibilities, accountabilities, and authorities should be documented and communicated;

*NOTE "Accountability" means "ultimate responsibility", and relates to the person who is held to account if something is not done, does not work or fails to achieve its objective.*

- c) ensuring that those with responsibilities for OH&S management have the necessary authority to fulfil their role; and
- d) being actively involved in the continual improvement of OH&S performance.

When determining the resources needed to establish, implement and maintain the OH&S management system, the organization should consider:

- the financial, human and other resources specific to its operations;
- the technologies specific to its operations;
- infrastructure and equipment;
- information systems; and
- the need for expertise and training.

Resources and their allocation should be reviewed periodically and in conjunction with the management review to ensure they are sufficient to carry out OH&S programmes and activities, including performance measurement and monitoring. In evaluating the

adequacy of resources, consideration should also be given to planned changes and/or new projects or operations.

There should be clarity of responsibilities at the interfaces between different functions (e.g. between departments, between different levels of management, between workers, between the organization and contractors, and between the organization and its neighbours).

The organization should appoint a member(s) of top management with specific responsibility for OH&S, irrespective of other responsibilities, and with defined roles and authority for:

- a) ensuring that the OH&S management system is established, implemented and maintained in accordance with this guidance and is performing to expectations in all locations and spheres of operation within the organization (see Annex C);
- b) ensuring that reports on the performance of the OH&S management system are presented to top management for review and used as a basis for improvement of the OH&S management system;
- c) ensuring that where necessary one or more competent persons are appointed to help undertake the measures needed;
- d) the achievement of all OH&S objectives; and
- e) the management review (see 4.6.2) and evaluation of the OH&S management system.

The existence of a top management appointee (e.g. in a large organization, a Board or executive committee member) does not absolve other top managers of their collective and individual responsibility. This appointee may delegate some of their duties to a subordinate management representative(s) while still retaining accountability. However, the management appointee should be regularly informed of the performance of the system, and should retain active involvement in periodic reviews and the setting of OH&S objectives. It should be ensured that any other duties or functions assigned to the top management appointee do not conflict with the fulfilment of their OH&S responsibilities.

The identity of the top management appointee should be made available to all persons working under the control of the organization.

Management at all levels have responsibility for ensuring that OH&S is managed effectively within their areas of control. The role and responsibilities of any specialist OH&S function within the organization should be appropriately defined to avoid ambiguity. This should include arrangements to resolve any conflict between OH&S issues and operational considerations and, where appropriate, escalation to a higher level of management.

Top management should determine the level of supervision for staff at all levels necessary for tasks to be carried out safely.

All managers should clearly demonstrate their commitment to OH&S by, for example:

- attending and actively participating at OH&S meetings;
- visiting and inspecting sites;
- participating in risk assessment and risk control processes;
- participating in incident investigation;

- committing resources to preventive and corrective actions; and
- issuing messages of support.

The organization should communicate and promote OH&S as the responsibility of everyone in the organization, not just those with defined OH&S management system duties.

#### 4.4.2.2 General responsibilities

In addition to any allocated responsibilities, all workers should be made aware that they have a general responsibility for their own and others' health and safety.

The organization should establish, implement and maintain a procedure(s) to ensure that persons working under its control are aware of:

- a) their responsibility for the health and safety at work of themselves, those they manage, and others with whom they work;
- b) their responsibility for the health and safety of people who might be affected by the activities they manage, e.g. contractors and public;
- c) their roles and responsibilities and importance in achieving conformity to the OH&S policy and procedures and to the requirements of the OH&S management system, including emergency preparedness and response requirements (see 4.4.8);
- d) the OH&S consequences, actual or potential, of their work activities, their behaviour, and the OH&S benefits of improved personal performance; and
- e) the influence that their action or inaction can have on the effectiveness of the OH&S management system and the potential consequences of departure from specified procedures.

All levels of the organization should be fully aware of the relevance and importance of their activities and how they contribute to the achievement of the organization's OH&S objectives.

#### 4.4.2.3 Responsibility allocation

Individual responsibilities for the implementation of OH&S policy should be clearly allocated and communicated to those involved. To achieve this, the following aspects should be addressed.

- a) Individual OH&S responsibilities should be clearly defined and communicated to those involved. Where job descriptions are used they should include such responsibilities.
- b) Responsibilities should be reasonable and all workers should be given the authority and resources (including time) necessary to carry out their responsibilities.
- c) Appropriate arrangements should exist whereby workers are held accountable for discharging their responsibilities.
- d) Reporting relationships should be clear and unambiguous.
- e) Where personal appraisal systems exist, OH&S performance should be included in the appraisal system.



#### 4.4.2.4 Organizational arrangements

It is important that OH&S, in its broadest sense, is fully integrated across the organization and into all its activities, whatever the size or nature of its work (see Annex A). When organizing the implementation of the policy and the effective management of OH&S, the organization should:

- a) have (or have access to) sufficient OH&S knowledge, skills and experience to manage its activities safely and in accordance with legal requirements;
- b) establish effective arrangements to identify and eliminate or control OH&S hazards and risks and promote health at work (see 4.3.2); and
- c) define the allocation of responsibilities and accountabilities in the management structure (see 4.4.2).

#### 4.4.3 Competence, training and awareness

##### 4.4.3.1 General

When organizing the implementation of the OH&S policy and the effective management of OH&S, the organization should allocate adequate resources and supervision commensurate with its size and the nature of its activities, and:

- a) ensure personnel have the necessary competencies to carry out their responsibilities;
- b) identify existing competencies actually required and any gaps between them at all levels within the organization, and provide any necessary training;
- c) ensure persons under its control have the necessary awareness of OH&S issues and are motivated to work or act in a safe manner.

The organization should require that contractors are able to demonstrate that their workers have the requisite competence and/or appropriate training.

*NOTE* "Awareness" is to be conscious of something, e.g. OH&S risks and hazards. "Competence" is the demonstrated ability to apply knowledge and skills.

##### 4.4.3.2 Competence

The organization should ensure that any person(s) under its control performing tasks that can impact on OH&S is (are) competent on the basis of appropriate education, training or experience, and should retain associated records.

In determining what activities or tasks could impact on OH&S the organization should consider those which:

- the organization's risk assessment has determined create an OH&S risk(s) in the workplace;
- are intended to control OH&S risks;
- are specific to the implementation of the OH&S management system.



The organization should determine the competence requirements for individual tasks and ensure that personnel meet the necessary requirements based on their education, training and/or experience. The organization can seek external advice in defining competence requirements.

OH&S competence requirements should be considered prior to recruiting new personnel, and/or the reassignment of those already working under the control of the organization.

The organization should identify and assess any differences between the competence needed to perform an activity and that possessed by the individual required to perform the activity. These differences may be addressed through training or other actions, e.g. additional education and skills development, but with due regard to the capabilities of the individual.

When determining the competence required for a task, the following factors should be considered:

- roles and responsibilities in the workplace, the nature of the tasks to be performed, and their associated OH&S risks, controls and measures;
- the complexity and requirements of operating procedures and instructions;
- the results from incident investigations;
- legal and other requirements; and
- individual capability (e.g. literacy, language skills, etc.).

The organization should give specific consideration to the competency requirements for those who will be:

- the top management appointee (see 4.4.2.1);
- performing risk assessments (4.3.2) and identifying legal and other requirements;
- performing exposure assessments (4.5.1);
- performing incident investigations (4.5.3.2); and
- performing audits (4.5.5).

The organization should ensure that people are competent prior to permitting them to perform tasks that can impact on OH&S.

*NOTE This can include visitors or members of the public using equipment or carrying out activities.*

#### 4.4.3.3 Training

The organization should identify training needs associated with its OH&S risks and management system. It should provide training to meet these needs, evaluate the effectiveness of the training, and retain associated records (see 4.4.5).

Training procedures should take into account differing levels of:

- a) responsibility, ability, language skills and literacy; and
- b) risk.

The organization should consider the roles and responsibilities, in relation to its OH&S risks and the OH&S management system, in

determining the training needed for those persons working under its control (including contractors, temporary workers, etc.).

Training should focus on both competency requirements and the need to enhance awareness.

When developing training programmes, the following elements should be considered:

- a) a systematic programme of induction and ongoing training for workers and those who transfer between divisions, sites, departments, areas, jobs or tasks in the organization or are returning to work after a prolonged absence; the training could include the local OH&S arrangements, the hazards, risks, precautions and procedures of work to be undertaken before work commences;
- b) training for all individuals who manage staff, contractors and others, e.g. temporary workers; this could include training in risk assessment and control techniques for designers, maintenance personnel and those responsible for the development of the process or working methods;
- c) training for directors and top managers addressing their roles and responsibilities for ensuring the OH&S management system functions as necessary to control risks and minimize ill health and injury; and
- d) individual capabilities, such as literacy and language skills, for example it might be preferable to use pictures and diagrams or symbols that can be easily understood; training materials might be needed in multiple languages or the use of translators might be necessary.

Contractors, temporary workers and visitors should be included in the training programme according to the level of risks to which they might be exposed or could cause.

The organization should evaluate the effectiveness of the training by, for example, written or oral examination and practical demonstration or observation.

#### 4.4.3.4 Awareness

In addition to ensuring that individuals are competent for their individual roles or activities, the organization should ensure that all persons under its control understand:

- emergency procedures;
- the OH&S consequences, actual or potential, of their work activities, and their behaviour in relation to OH&S risks;
- the benefits of improved OH&S performance;
- the potential consequences of departing from procedures;
- the need to conform to OH&S policies and procedures;
- the influence that their action or inaction can have on the effectiveness of the OH&S management system, and are motivated to work or act in a safe manner.

Awareness training should take account of OH&S risks and individual capabilities, e.g. literacy, language skills and maturity.

Awareness training should be provided for contractors, temporary workers and visitors, etc., according to the level of risk to which they are exposed.

#### **4.4.4 Communication, participation and consultation**

##### **4.4.4.1 General**

The organization, through the processes of communication and consultation, should encourage participation in good OH&S practices and support for its OH&S policy and OH&S objectives from those affected by its activities or interested in its OH&S management system.

The organization's communication processes should provide for the flow of information upwards, downwards and across the organization. It should provide for both the gathering and the dissemination of information. It should ensure that OH&S information is provided, received and understood by all relevant persons.

Consultation is the process by which management and other persons, or their representatives, jointly consider and discuss issues of mutual concern. It involves seeking acceptable solutions to problems through the general exchange of views and information.

Examples of those who could be interested in or affected by an organization's OH&S management system include employees at all levels of the organization, employee representatives, temporary workers, contractors, visitors, neighbours, volunteers, emergency services (see **4.4.8**), insurers and government or regulatory inspectors.

##### **4.4.4.2 Communication**

###### **4.4.4.2.1 Procedure for communication**

With regard to its OH&S hazards and OH&S management system, the organization should establish, implement and maintain a procedure(s) for:

- a) internal communication among the various levels and functions of the organization;
- b) communication with contractors and other visitors to the workplace; and
- c) receiving, documenting and responding to relevant communications from external interested parties.

The organization should effectively communicate information concerning its OH&S hazards and management system to those involved in or affected by the management system. These could include all workers, including temporary workers, and their representatives, contractors, visitors, neighbours, volunteers, emergency services (see **4.4.8**), insurers and government or regulatory body inspectors.

When developing procedures for communication, the organization should consider the following:

- the target audience and their information needs;
- appropriate methods and media;
- local culture, preferred styles and available technologies for communication;

- organizational complexity, structure and size;
- barriers to effective communication in the workplace, such as illiteracy or language;
- legal and other requirements;
- the effectiveness of the various modes and flows of communication across all functions and levels of the organization; and
- evaluation of the effectiveness of the communication.

OH&S issues can be communicated by means such as:

- OH&S briefings and meetings, induction/orientation talks, etc.; and
- newsletters, posters, emails, suggestion boxes/schemes, websites, notice boards containing information on OH&S issues.

#### 4.4.4.2.2 Internal communication

It is important to communicate effectively information about OH&S risks and the OH&S management system at various levels and between various functions of the organization.

This should include information relating to:

- a) management's commitment to the OH&S management system (e.g. programmes undertaken and resources committed to improving OH&S performance);
- b) the identification of hazards and risks (e.g. information on process flows, materials in use, equipment specifications and observation of work practices);
- c) OH&S objectives and other continual improvement activities;
- d) incident investigation (e.g. the type of incidents that are taking place, factors that can contribute to the occurrence of incidents and results of incident investigations);
- e) progress in eliminating OH&S hazards and risks (e.g. status reports showing the progress of projects that have been completed or are underway); and
- f) operational changes that might impact on the OH&S management system.

The OH&S policy should be communicated to all persons working under the control of the organization in order to assist them to understand:

- what management is committed to; and
- what they are individually required to do,

by:

- demonstrating the commitment of top management and the organization to OH&S;
- increasing awareness of the commitments made in the policy statement;
- explaining why the OH&S system is established and maintained; and
- guiding individuals in understanding their OH&S accountabilities and responsibilities (see 4.4.2).

#### 4.4.4.2.3 Communication with contractors and other visitors

It is important to develop and maintain procedures for communicating with contractors and other visitors to the workplace. The extent of this communication should be related to the OH&S risks faced by these parties.

The organization should have arrangements in place to clearly communicate its OH&S requirements to contractors. The procedure(s) should be appropriate to the OH&S hazards and risks associated with the work to be performed. In addition to communicating performance requirements, the organization should communicate the consequences associated with nonconformity with OH&S requirements.

Contracts are often used to communicate OH&S performance requirements. Contracts might need to be supplemented with other on-site arrangements (e.g. pre-project OH&S planning meetings) to ensure that appropriate controls are implemented to protect individuals at the workplace.

The communication should include information about any operational controls (see 4.4.7) related to the specific tasks to be performed or the area where the work is to be done. This information should be communicated before the contractor comes on site and then supplemented with additional or other information (e.g. a site tour), as appropriate, when the work starts. The organization should also have procedures in place for consultation with contractors when there are changes that affect their OH&S (see 4.4.4.2.4).

In addition to the specific OH&S requirements for activities carried out on site the following could also be relevant to the organization when developing its procedure(s) for communications with contractors:

- information about a contractor's OH&S management system (e.g. established policies and procedures to address pertinent OH&S hazards);
- legal and other requirements that impact on the method or extent of communication;
- previous OH&S experience (e.g. OH&S performance data);
- the existence of multiple contractors at the worksite;
- staffing for accomplishing OH&S activities (e.g. exposure monitoring and equipment inspections);
- emergency response;
- the need for alignment of contractors' OH&S policies and practices with those of the organization and other contractors at the worksite;
- the need for additional consultation and/or contractual provisions for high-risk tasks;
- requirements for the assessment of conformity with agreed OH&S performance criteria;
- processes for incident investigation, reporting of nonconformities and corrective action; and
- arrangements for day-to-day communications.

For visitors (including delivery people, customers, members of the public, service providers, etc.), communication can include warning

signs and security barriers, as well as verbal or written communication. Information that should be communicated includes:

- OH&S requirements relevant to their visit;
- evacuation procedures and responses to alarms;
- traffic controls;
- access controls and escort requirements; and
- any personal protective equipment (PPE) that needs to be worn (e.g. safety glasses).

#### 4.4.4.2.4 Communication with external interested parties

The organization needs to have a procedure(s) in place for receiving, documenting and responding to relevant communications from external interested parties.

The organization should provide appropriate and consistent information about its OH&S hazards and management system in accordance with its OH&S policy and other requirements. This can include information concerning its normal operations or potential emergency situations.

*NOTE* There might also be legal requirements to provide information about OH&S hazards and the management system.

External communication procedures often include the identification of designated contact individuals. This allows for appropriate information to be communicated in a consistent manner. This can be especially important in emergency situations where regular updates are requested and a wide range of questions need to be answered (see 4.4.8).

#### 4.4.4.3 Procedure for worker participation

The organization should establish, implement and maintain a procedure(s) for:

- a) the participation of workers by their appropriate involvement in:
  - hazard identification, risk assessments and determination of controls;
  - incident investigation;
  - the development and review of OH&S policies and objectives; and
  - the development of new or improved OH&S arrangements and procedures;
- b) consultation with workers on OH&S matters, including:
  - changes that affect their OH&S (e.g. the introduction of new or modified equipment, new chemicals or materials, new processes, procedures or work patterns);
  - the selection of appropriate controls, including discussion of alternative options for controlling specific hazards and their beneficial or adverse outcomes.

The organization's procedure(s) should address the need for the active and ongoing participation of workers in the development and review of OH&S practices and, where appropriate, the development of the



OH&S management system. The participation arrangements should take account of any legal and other requirements.

Workers should be informed about the arrangements that have been made for their participation and the individual who represents them on OH&S matters. OH&S representatives should have defined roles.

In addition, the organization's procedure(s) for the involvement of workers could include:

- consultation in the selection of appropriate controls, including discussion of the benefits or adverse outcomes of alternative options for controlling specific hazards or preventing unsafe behaviour;
- involvement in recommending improvements to OH&S performance;
- consultation concerning changes that affect OH&S, particularly before the introduction of new or unfamiliar hazards, e.g.:
  - the introduction of new or modified equipment;
  - the construction, modification or change of use of buildings and facilities;
  - the use of new chemicals or materials;
  - reorganization, new processes, procedures or work patterns.

In developing its procedure(s) for worker participation, the organization should consider potential incentives and barriers to participation (e.g. language and literacy issues, the fear of reprisal), confidentiality and privacy issues (See Annex H).

The organization should make arrangements for workers and their safety and health representatives to have the time and resources, including any necessary training and information, to participate actively in the processes of organizing, planning and implementation, evaluation and action for improvement of the OSH management system, as recommended by the ILO-OSH:2001 guidelines.

#### **4.4.4.4 Procedures for consultation with contractors and external interested parties**

The organization should have a procedure(s) for consulting with contractors and other relevant external interested parties, where appropriate.

In considering the need for consultation with contractors on changes that might affect their OH&S, the organization should take account of the following:

- new or unfamiliar hazards (including those that might be introduced by the contractor);
- reorganization;
- new or amended controls;
- changes in materials, equipment, exposures, etc.;
- changes in emergency arrangements; and
- changes in legal or other requirements.



The organization might need to consult with and provide information to external interested parties (see Note to 3.15) concerning certain OH&S matters (see 4.4.8).

For consultation with external parties, the organization should give consideration to factors such as:

- changes in emergency arrangements;
- hazards that can impact neighbours, or hazards from neighbours; and
- changes in legal or other requirements.

#### 4.4.5 Documentation

The organization should produce and maintain up-to-date documentation that is sufficient to ensure that its OH&S management system is effective. It is also important in assembling and retaining OH&S knowledge.

The organization should review its documentation and information needs for the OH&S management system before developing the documentation necessary to support its OH&S processes.

In determining the extent of documentation required the general principle that applies is that if there is any risk that a task, through lack of a written procedure or instructions, will not be performed in the required manner then a written procedure is required.

It is important that documentation is:

- a) tailored to the organization's needs, taking into account statutory requirements;
- b) proportional to the level of complexity, hazards and risks concerned; and
- c) kept to the minimum required for effectiveness and efficiency.

The OH&S management system documentation should include:

- a) the OH&S policy, OH&S policy statement and objectives;
- b) description of the scope of the OH&S management system;
- c) description of the main elements of the OH&S management system and their interaction, and reference to related documents;
- d) documents, including records, identified by this guidance;
- e) documents, including records, determined by the organization to be necessary to ensure the effective planning, operation and control of processes that relate to the management of its OH&S risks;
- f) organization statements showing health and safety roles and responsibilities (see 4.4.2);
- g) performance requirements and measures;
- h) supporting organizational and risk control information and procedures;
- i) appropriate findings from initial status reviews (see 4.1.2), risk assessments investigations (see 4.3.2 and 4.5.3), audits (see 4.5.5) and periodic status reviews (see 4.6.3).

The responsibilities and authority of all persons who perform duties that are part of the OH&S management system should be documented. These can make use of:

- OH&S management system procedures;
- operational procedures or work station procedures;
- task descriptions;
- job descriptions; and
- induction training packages.

However, the organization is free to choose whatever format best suits its needs.

Such documentation can, among others, be required for the following people:

- top management;
- the top management appointee for OH&S;
- line management at all levels in the organization;
- process operators and the workers generally;
- those managing the OH&S of contractors;
- those responsible for OH&S training;
- those responsible for equipment that is critical for OH&S;
- workers with OH&S qualifications, or other OH&S specialists, within the organization; and
- worker OH&S representatives on participative/consultative forums.

The organization should make arrangements to ensure that OH&S documentation is:

- applicable to the purpose for which it is intended, taking into account requirements of data protection legislation; and
- available to enable OH&S plans to be fully implemented and is proportional to their needs.

Records are a particular type of document. Whereas the above documents specify how safe conditions are to be achieved, records contain the history of actual events and contain the evidence that safe conditions were achieved at a particular time. Records can include specific safety plans, the results of measurement surveys and health surveillance data.

#### 4.4.6 Control of documents

All documents and data containing information required for the operation of the OH&S management system and the performance of the organization's OH&S activities should be identified and controlled.

The organization should establish, implement and maintain a procedure(s) to:

- a) approve documents for adequacy prior to issue;
- b) review, update as necessary and re-approve documents;
- c) ensure that changes and the current revision status of documents are identified;

- d) ensure that relevant versions of applicable documents are available at points of use;
- e) ensure that documents remain legible and readily identifiable;
- f) ensure that documents of external origin determined by the organization to be necessary for the planning and operation of the OH&S management system are identified and their distribution controlled; and
- g) prevent the unintended use of obsolete documents and apply suitable identification to them if they are retained for any purpose.

The procedure(s) should define the controls for the identification, approval, issue and removal of OH&S documentation, together with the control of OH&S data in accordance with items a) to g). The procedure(s) should clearly define the categories of documentation and data to which they apply.

Documents and data should be available and accessible when required, under routine and non-routine conditions, including emergencies. This should include ensuring that up-to-date plant engineering drawings, hazardous material data sheets, procedures, instructions, etc., are available to those persons who require them in an emergency.

The organization should establish procedures for identifying any documents of external origin required for planning and implementing its OH&S management system. External reference documentation includes legislation, codes of practice, guidelines, specifications, and technical safety information, such as toxicological information. The organization should ensure that it has formalized procedures for ensuring that it maintains these documents up-to-date. Responsibility for this task should be assigned. The person(s) charged with this task should ensure that all persons in the organization are kept informed of any relevant changes to such information that affects their duties or working conditions.

Documents should be reviewed periodically to ensure that they are still valid and accurate. This can be done as part of an internal audit or as a separate dedicated exercise. It can also be done:

- as part of a review of risk assessment of processes;
- as part of a response to an incident;
- as part of the management of change procedure; and
- following changes in legal and other requirements, processes, installation, workplace layout, etc.

Obsolete documents retained for reference can present a particular concern, and great care should be taken to ensure that they do not return back into circulation. However, it is sometimes necessary to retain obsolete documents as part of the records relating to the development or performance of the OH&S management system.

Typical controls include the following:

- document control procedure, including assigned responsibilities and authorities;
- document registers, master lists or indexes;
- list of controlled documentation and its location; and
- archive records (some of which might be held in accordance with legal or other time requirements).

#### 4.4.7 Operational control

Once it has gained an understanding of its OH&S hazards (4.3.2), the organization should implement the operational controls that are necessary to manage the associated risks and comply with applicable OH&S legal and other requirements.

The organization should determine those operations and activities that are associated with the identified hazard(s) where the implementation of controls is necessary to manage the OH&S risk(s). This should include the management of change (see 4.3.2).

For those operations and activities, the organization should implement and maintain:

- a) operational controls, as applicable to the organization and its activities; the organization should integrate those operational controls into its overall OH&S management system;
- b) controls related to purchased goods, equipment and services;
- c) controls related to contractors and other visitors to the workplace;
- d) documented procedures, to cover situations where their absence could lead to deviations from the OH&S policy and the objectives; and
- e) stipulated operating criteria where their absence could lead to deviations from the OH&S policy and objectives.

When developing operational controls, consideration should be given to control options with higher reliability in preventing injury or ill health, consistent with the hierarchy of controls.

Annex F provides guidance on the principles and practicalities of operational controls.

Operational controls should be reviewed on a periodic basis to evaluate their ongoing suitability and effectiveness. Changes that are identified as necessary should be implemented (see 4.3.2).

In addition, procedures should be in place to determine circumstances where new controls and/or modifications of existing operational controls are needed. Proposed changes to existing operations should be evaluated for OH&S hazards and risks before they are implemented. When there are changes to operational controls, the organization should consider whether there are new or modified training needs (see 4.4.3).

#### 4.4.8 Emergency preparedness and response

The organization should establish, implement and maintain a procedure(s):

- a) to identify the potential for emergency situations; and
- b) to respond to such emergency situations.

The organization should respond to actual emergency situations and prevent or mitigate associated adverse OH&S consequences.

In planning its emergency response the organization should take account of the needs of relevant interested parties, e.g. emergency services and neighbours.

The organization should periodically test its procedure(s) to respond to emergency situations, where practicable, involving relevant interested parties as appropriate.

The organization should also periodically review and, where necessary, revise its emergency preparedness and response procedure(s), in particular, after periodical testing and after the occurrence of emergency situations.

Emergency preparedness goes beyond first aid and emergency evacuation arrangements. There is a need to identify all potential emergency situations and to put in place plans to mitigate the risk of such eventualities. Good practice would include measures that go beyond dealing with the immediate emergency and take account of recovery and dealing with issues arising from an emergency other than those that affect continuity of operations.

Emergency response procedures should be periodically tested "where practicable". This means that such testing has to be performed if it is capable of being conducted. Annex I provides further guidance on emergency preparedness and response.

## 4.5 Checking

### 4.5.1 Performance measurement and monitoring

The primary purpose of measuring health and safety performance is to judge the implementation and effectiveness of the arrangements for controlling risk.

The organization should establish, implement and maintain a procedure(s) to monitor and measure OH&S performance on a regular basis. This procedure(s) should provide for:

- a) both qualitative and quantitative measures, appropriate to the needs of the organization;
- b) monitoring of the extent to which the organization's OH&S objectives are met;
- c) monitoring the effectiveness of controls (for health as well as for safety);
- d) proactive measures of performance that monitor conformity with the OH&S programme(s), controls and operational criteria;
- e) reactive measures of performance that monitor ill health, incidents (including accidents, near-misses, etc.), and other historical evidence of deficient OH&S performance; and
- f) recording of data and results of monitoring and measurement sufficient to facilitate subsequent corrective action and preventive action analysis.

Performance measurement provides information on the progress and current status of the arrangements (processes and activities) used by an organization to control risks to health and safety. Monitoring involves collecting information, such as measurements or observations, over time.

Measurement information sustains the operation and development of the OH&S management system, and so controls the risk, by:

- a) providing information on how the system operates in practice;
- b) identifying areas where corrective action is necessary;
- c) providing a basis for continual improvement; and
- d) providing feedback and motivation.

Performance measurement should be carried out both proactively and reactively and should include consideration of both leading and lagging performance indicators.

Annex J provides guidance on measuring performance, including the application of leading and lagging performance indicators.

The performance measures chosen should be appropriate to the nature of the hazards and risks presented by the organization's activities. In particular, for organizations in the major hazards sector with the potential for low-probability high-hazard events, such as major releases of flammable or toxic material, the measures chosen should be specific to measuring performance against prevention of such events.

Although the primary focus for performance measurement is to meet the internal needs of the organization, there is an increasing need to demonstrate to external stakeholders (regulators, insurance companies, shareholders, suppliers, contractors, members of the public, etc.) that arrangements to control health and safety risks are in place, operating correctly and are effective. Health and safety performance should be communicated to the organization's various stakeholders as appropriate.

If equipment is required to monitor or measure performance, the organization should establish and maintain procedures for the calibration and maintenance of such equipment, as appropriate. Records of calibration and maintenance activities and results should be retained.

#### **4.5.2 Evaluation of compliance**

Consistent with its commitment to compliance [see 4.2c)], the organization should establish, implement and maintain a procedure(s) for periodically evaluating compliance with applicable legal requirements and other OH&S requirements to which it subscribes (see 4.3.3).

The organization may wish to combine these evaluations or establish separate procedures.

The organization should keep records of the results of the periodic evaluations.

The organization should establish a procedure(s) for evaluation of compliance that suits its size, type and complexity.

A compliance evaluation can encompass multiple legal requirements or a single requirement. The organization can choose to evaluate compliance with individual requirements at different times or at different frequencies. The frequency may for instance depend on the specified time frames given in statute or on the risk and changing circumstances.



Similarly, the organization should periodically evaluate its compliance with other requirements to which it subscribes and with its policy. An organization can choose to establish a separate process for conducting such evaluations or it may choose to combine these evaluations with its evaluations of compliance with legal requirements, its management review process (4.6.2) or other evaluation processes.

A variety of inputs can be used to evaluate compliance, including:

- audits;
- the results of regulatory inspections;
- analysis of legal and other requirements;
- reviews of documents;
- records of incidents and risk assessments;
- facility inspections;
- plant, machinery, equipment and work area inspections;
- project or work reviews;
- interviews;
- analysis of results from measuring and monitoring; and
- direct observations.

### **4.5.3 Incident investigation, nonconformity, corrective action and preventive action**

#### **4.5.3.1 General**

Arrangements should exist to ensure a consistent response to, and thorough investigation of, nonconformities and incidents. The results of investigations should be analysed and reviewed to identify common features and trends that might reveal areas for improvement. It is essential that these arrangements include the use of competent persons.

The depth and/or detail of the investigation should reflect the significance or the potential significance of the event being investigated. Investigations should establish reasons for nonconformities in order to identify underlying failures in the OH&S management system and to establish the root causes of, and learn from, events. Where necessary, existing systems or procedures should be amended to prevent recurrence of nonconformities.

Investigations are also necessary to:

- a) satisfy legal recording and reporting requirements;
- b) collect information which might be needed if the incident becomes the subject of legal action;
- c) collect information for potential insurance claims;
- d) maintain records for other purposes specific to the organization; and
- e) review the adequacy of risk assessments in place.

Arrangements should ensure that appropriate managers are responsible for carrying out the investigations with the support of health and safety advisers, technical support and workers, where necessary. Arrangements to involve external investigative agencies, where necessary, should be clearly defined.



Investigations should identify both the immediate circumstances and the underlying organizational causes. Recommendations should be made on measures to improve the management system and arrangements, risk controls and risk control systems. Systems should be in place to ensure that remedial actions arising from investigations are prioritized, tracked and completed. Organizational and policy changes should be considered and recommendations made. Such recommendations should be reported to the level of management with the authority to initiate the necessary remedial action.

Following reviews actions should be prioritized and incorporated into an action plan. Essential and urgent actions should be given a high priority. All actions should be assigned to a responsible individual and progress on implementation monitored.

Where fundamental changes cannot be made immediately or within a reasonable time, properly assessed, short-term measures should be taken to control the risk in the meantime.

#### 4.5.3.2 Incident investigation

The organization should establish, implement and maintain a procedure(s) to record, investigate and analyse incidents in order to:

- a) determine underlying OH&S deficiencies and other factors that might be causing or contributing to the occurrence of incidents;
- b) identify the need for corrective action;
- c) identify opportunities for preventive action;
- d) identify opportunities for continual improvement; and
- e) communicate the results of such investigations.

The investigations should be performed in a timely manner.

Any identified need for corrective action or opportunities for preventive action should be dealt with in accordance with the relevant parts of 4.5.3.3.

The results of incident investigations should be documented and maintained.

A good system for incident investigation offers the organization opportunities to:

- prevent recurrence of incidents and identify opportunities for proactive improvement; and
- raise the overall OH&S awareness in the workplace.

The purpose of the procedure(s) is to provide a structured, proportionate and timely approach to identifying and dealing with the underlying (root) cause(s) of an incident.

All incidents should be evaluated to determine the level of detail required of any investigation. The organization should seek to prevent the under-reporting of incidents.

In determining the nature of the investigation, the resources needed, and the priority to be given to investigation of an incident, account should be taken of:

- the actual outcome and consequences of the incident; and
- the frequency of such incidents and their potential consequences.

In developing those procedures the organization should give consideration to the following:

- the need for a common understanding and acceptance of what constitutes an “incident” (see 3.13) and the benefits that can be gained from its investigation;
- that reporting should capture all types of incidents, including major and minor accidents, emergencies, near-misses, instances of ill health and those that take place over a period of time (e.g. exposure);
- defining the reporting requirements appropriate for different types of incident;
- the need to meet any legal requirements relating to the reporting and investigation of incidents, e.g. maintenance of a register of accidents;
- defining the assignment of responsibilities and authorities for the reporting of incidents and subsequent investigations;
- the need for immediate action to deal with imminent risks;
- the need for investigation to be impartial and objective;
- the need to focus on determining causal factors;
- the benefits of involving those with knowledge of the incident;
- defining the requirements for the conduct and recording of the various phases of the investigation process, such as:
  - gathering facts and collecting evidence in a timely manner;
  - analysing the results;
  - communicating the need for any identified corrective action and/or preventive action; and
  - provision of feedback into the processes for hazard identification, risk assessment, emergency response, OH&S performance measurement and monitoring and management review.

Annex K provides further guidance on incident investigation.

#### 4.5.3.3 Nonconformity, corrective and preventive action

For an OH&S management system to be effective on an ongoing basis, it is necessary to identify actual and potential nonconformity(ies), make corrections and take corrective and preventive action, preferably preventing problems before they occur. The organization can establish individual procedures to address corrective and preventive action, or a single procedure to address both.

The organization should establish, implement and maintain a procedure(s) for dealing with actual and potential nonconformity(ies) and for taking corrective action and preventive action. The procedure(s) should define requirements for:

- a) identifying and correcting nonconformity(ies) and taking action(s) to mitigate their OH&S consequences;
- b) investigating nonconformity(ies), determining their cause(s) and taking actions in order to avoid their recurrence;

- c) evaluating the need for action(s) to prevent nonconformity(ies) and implementing appropriate actions designed to avoid their occurrence;
- d) recording and communicating the results of corrective action(s) and preventive action(s) taken; and
- e) reviewing the effectiveness of corrective action(s) and preventive action(s) taken.

Nonconformity (3.16) is a non-fulfilment of a requirement. A requirement can be stated in relation to the management system or in terms of OH&S performance. Examples of typical nonconformities include:

- a) for OH&S management system performance:
  - failure of top management to demonstrate commitment;
  - failure to establish OH&S objectives;
  - failure to define responsibilities required by an OH&S management system, such as responsibilities for achieving objectives;
  - failure to periodically evaluate compliance with legal requirements; and
  - documentation being out-of-date or inappropriate.
- b) for OH&S performance:
  - failure to implement the planned programme to achieve improvements and incident reduction objectives;
  - consistent failure to achieve to performance improvement objectives;
  - failure to meet legal or other requirements;
  - failure to record incidents;
  - failure to implement corrective action in a timely manner;
  - consistent high rates of illness or injury that are not being addressed;
  - deviations from OH&S procedures; and
  - introduction of new materials or processes without appropriate risk assessments being conducted.

The need for corrective action and preventive action can be identified from the results of:

- a) periodic tests of emergency procedures;
- b) incident investigations;
- c) internal or external audits;
- d) the periodic evaluations of compliance;
- e) performance monitoring;
- f) maintenance activities;
- g) employee suggestion schemes and feedback from employee opinion/satisfactions surveys; and
- h) exposure assessments.

Any corrective action or preventive action taken to eliminate the causes of actual and potential nonconformity(ies) should be

appropriate to the magnitude of problems and commensurate with the OH&S risk(s) encountered.

The organization should ensure that any necessary changes arising from corrective action and preventive action are made to the OH&S management system documentation.

Identification of nonconformities should be made part of individual responsibilities (see 4.4.2), with individuals closest to the work being encouraged to report potential or actual problems.

Once nonconformity is identified, it should be investigated to determine the cause(s), so that corrective action can be focused on the appropriate part of the system. The organization should consider what actions need to be taken to address the problem, and/or what changes need to be made to correct the situation.

When a potential problem is identified but no actual nonconformity exists, preventive action should be taken. Potential problems can be identified using methods such as extrapolating corrective action of actual nonconformities to other applicable areas where similar activities occur, or hazard analysis.

The organization should ensure that:

- a) corrective actions and preventive actions are implemented; and
- b) there is follow-up to review the effectiveness of the actions taken.

Where the corrective action and preventive action identifies new or changed hazards or the need for new or changed controls, the procedure should require that the proposed actions should be risk-assessed prior to implementation.

#### 4.5.4 Control of records

The organization should establish and maintain records as necessary to demonstrate conformity to the requirements of its OH&S management system and of this guidance, and the results achieved.

The organization should establish, implement and maintain a procedure(s) for the identification, storage, protection, retrieval, retention and disposal of records.

Records should be and remain legible, identifiable and traceable.

Records that can demonstrate conformity to requirements include:

- legal and other requirements conformity evaluation reports;
- hazard identification, risk assessment and risk control documentation;
- OH&S performance monitoring records;
- calibration and maintenance records for equipment used to monitor OH&S performance;
- records of corrective action and preventive action;
- OH&S inspection reports;
- training and associated records that support evaluation of competence;
- OH&S management system audit reports;
- participation and consultation reports;
- incident reports;

- incident follow-up reports;
- OH&S meeting minutes;
- health surveillance reports;
- PPE maintenance records;
- reports of emergency response drills; and
- management review records.

In determining the appropriate controls for records the organization should take into account the need to:

- demonstrate compliance with legal and other requirements;
- ensure confidentiality (particularly those relating to personnel);
- ensure retention of appropriate OH&S knowledge;
- review and identify trends for planning, preventive action, etc.;
- review occupational health provision (see Annex G);
- mitigate any liability claims;
- use and maintain the integrity of electronic records (hard drive failures, viruses, etc.); and
- store/access/dispose and back-up records.

#### 4.5.5 Internal audit

In addition to measurement of OH&S performance and periodic status reviews (see 4.6.3), there should be periodic audits that enable a deeper and more critical appraisal of all the elements of the OH&S management system.

While audits need to be thorough, their approach and frequency should be tailored to the size of the organization and the nature of its hazards and the results of previous audits.

The organization should ensure that internal audits of the OH&S management system are conducted at planned intervals to:

- a) determine whether the OH&S management system:
  - 1) conforms to planned arrangements for OH&S management;
  - 2) has been properly implemented and is maintained; and
  - 3) is effective in meeting the organization's policy and objectives;
- b) provide information on the results of audits to management.

Audit programme(s) should be planned, established, implemented and maintained by the organization, based on the results of risk assessments of the organization's activities, and the results of previous audits.

Audit procedure(s) should be established, implemented and maintained that address:

- the responsibilities, competencies and requirements for planning and conducting audits, reporting results and retaining associated records;
- the determination of audit criteria, scope, frequency and methods.

Selection of auditors and conduct of audits should be such as to ensure objectivity and the impartiality of the audit process.

At different times and for different reasons audits need to determine:

- a) whether the established OH&S management system is understood and implemented;
- b) whether the organization's overall OH&S management system is capable of achieving the required standards of OH&S performance;
- c) whether the organization is fulfilling all its obligations with regard to OH&S;
- d) the strengths and weaknesses of the OH&S management system; and
- e) whether the organization is actually doing and achieving what it claims.

To maximize the benefits, audits should be conducted by competent persons independent of the area or activity being audited and/or by external personnel selected by the organization.

Auditors should collect evidence from interviews, documents and worksite visits, and check for consistency.

Audits can be comprehensive or address selected topics according to circumstances. The results of audits should be made available and communicated, and corrective action taken as required.

*NOTE The general principles and methodology described in BS EN ISO 19011 are appropriate to OH&S management system auditing. Annex L provides guidance on internal auditing.*

The audit reports containing both favourable and unfavourable conclusions should be used by top management in the management review (see 4.6.2).

## 4.6 Performance review

### 4.6.1 General

There are two performance review processes, namely management review (see 4.6.2) and status review (see 4.6.3), that are the major drivers for continual improvement.

The management review should be undertaken by top management; in contrast, periodic status reviews should be carried out at an appropriate level within the organization.

### 4.6.2 Management review

Management review should focus on the overall performance of the OH&S management system with regard to:

- suitability (Is the system appropriate to the organization; dependent on its size, the nature of its risks, etc.);
- adequacy (Is the system fully addressing the organization's OH&S policy and objectives?); and
- effectiveness (Is the system accomplishing the desired results?).

The management appointee (see 4.4.2.1) has the responsibility for ensuring that reports on the overall performance of the OH&S management system are presented to top management for review.



Top management should review the organization's OH&S management system, at planned intervals, to ensure its continuing suitability, adequacy and effectiveness. Reviews should include assessing opportunities for improvement and the need for changes to the OH&S management system, including the OH&S policy and OH&S objectives. Records of the management reviews should be retained.

In relation to the OH&S performance of the organization, and to show evidence of progress on the policy commitments, the following inputs could be considered in addition to those leading and lagging indicators identified in Annex J:

- reports of emergencies (actual or exercises);
- results and/or recommendations from monitoring and measurement;
- OH&S performance of contractors; and
- OH&S performance of supplied products and services.

In addition to the specific inputs for management review required by BS OHSAS 18001, reports from individual managers on the effectiveness of the system can also be considered.

In addition to the outputs, details of the following issues can also be considered:

- the suitability, adequacy and effectiveness of current hazard identification, risk assessment and risk control processes;
- current levels of risk and the effectiveness of existing control measures;
- adequacy of resources (financial, personnel, material);
- the state of preparedness for emergency; and
- an assessment of the effects of foreseeable changes to legislation or technology.

Relevant outputs from management review should be made available for communication and consultation (see 4.4.4). Depending on the decisions and actions agreed at a review, the nature and types of communication, and to whom they will be communicated, should also be considered.

The outputs can also be incorporated within performance reports (e.g. annual report, corporate governance and social responsibility statements) for communication to their various stakeholders, including shareholders.

The outputs could include a self declaration of conformity with BS OHSAS 18001 and this guidance or a decision to seek third party certification to BS OHSAS 18001.

Finally, management review will lead to the setting of further plans and objectives to drive continual improvement.

#### 4.6.3 Periodic status review

An organization may seek to review its performance more formally and have a periodic status review in addition to the management review to determine the adequacy of performance throughout the organization. The output should be used to make decisions about the nature and timing of actions necessary to remedy deficiencies or compensate for changes in a timely manner.



In general, the periodic status review follows a similar approach to that used for the initial status review (see 4.1.2).

The periodic status review should consider:

- a) the overall performance of the OH&S management system;
- b) the performance of individual elements of the system (see Figure 1);
- c) the findings of investigations and audits (see 4.5.3 and 4.5.5); and
- d) internal and external factors, such as changes in organizational structure or production patterns, pending legislation and the introduction of new technology.

This information should be used to review the performance of the organization against its policy and objectives, to improve the organization's approach to:

- a) controlling risk;
- b) improving business performance;
- c) allowing comparisons to be made between its performance and other organizations in the same (and different) business sector.

The periodic status review also provides an opportunity to anticipate potential future changes.

It is essential that the findings of the review are translated, where appropriate, into definite changes and improvements in other elements of the OH&S management system (see Figure 1).

Annex D and Annex E provide a structured approach for making changes to any element of the management system deemed necessary.

Reviewing performance should be based on information from measuring activities (including both proactive and reactive monitoring), incident investigations and auditing activities.

Performance measurement should be a continual process and response to the findings undertaken at various levels within an organization, including for example:

- responses by line management to remedy failures to implement workplace precautions and risk control systems which they observe in the course of routine activities;
- responses to remedy specific examples of substandard performance which are identified by reactive or proactive monitoring; and
- responses to the assessment of plans and objectives either at the individual, department, site, group or organizational level.

The effectiveness of the review process is enhanced by:

- clearly establishing who is responsible for implementing the remedial action identified in the review process; and
- setting deadlines for the completion of remedial action.

## Annex A (informative) **Integration (of a BS OHSAS 18001 management system)**

Many organizations are finding benefit from integrating their OH&S management system requirements within their overall business risk management system. The absence of such an approach can lead to an OH&S management system not being fully embedded in the organization's operations. Potential benefits of integration are that:

- OH&S becomes an integral part of the organization's operational arrangements;
- there is less risk of conflict between management systems;
- there is reduced duplication and bureaucracy; and
- internal and external audits are more effective and efficient.

Apart from the difficulty of trying to manage a single discipline as a separate entity within multiple systems, the arrangements are not very efficient, particularly where the common requirements found in management system standards are handled independently.

The common requirements of management system standards can be grouped and embedded within the overall management system, and thereby avoid many of the problems identified. One approach for integrating systems is given in PAS 99, which was produced for those organizations which have adopted multiple management system standards. It provides a framework for those requirements that are commonly found in ISO and BS specifications, including BS OHSAS 18001. The specific requirements of the individual standards still have to be addressed but, in terms of requirements, these are a small proportion of the whole. The common requirements are grouped within the following elements.

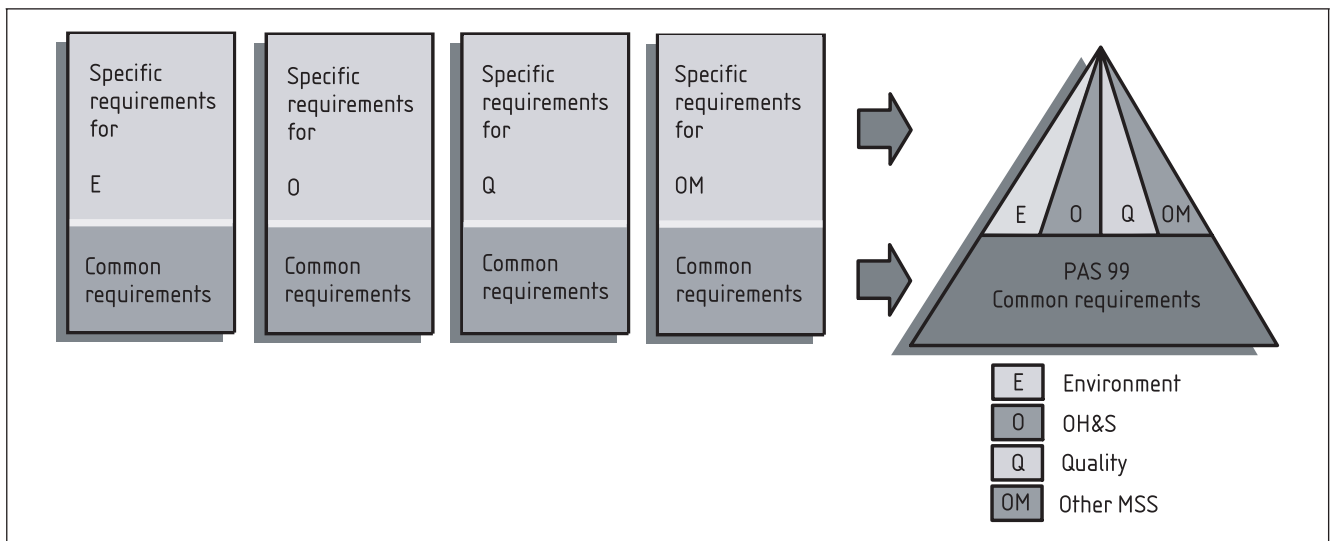
- Policy.
- Planning.
- Implementation and operation.
- Performance assessment.
- Improvement.
- Management review.

By configuring the requirements in the specifications in this common manner, it is possible to identify the overlaps and redundancy. This then allows the systems to be interfaced or integrated more readily. The approach is shown in Figure A.1.

The approach provided is compatible with both the process approach specified in BS EN ISO 9001 and the Plan Do Check Act (PDCA) approach of BS EN ISO 14001 and BS OHSAS 18001. It allows other management system requirements, including those arising from total quality management (TQM) systems, to be incorporated in one overall system.

By configuring the existing management systems to follow the PAS 99 framework it is possible to integrate the common requirements to whatever extent the organization so wishes. The specific requirements, such as customer focus, environmental aspects, occupational health and safety risks, and food safety critical control points, might need to be dealt with separately depending on the complexity of the organization.

Figure A.1 Process for integrating systems



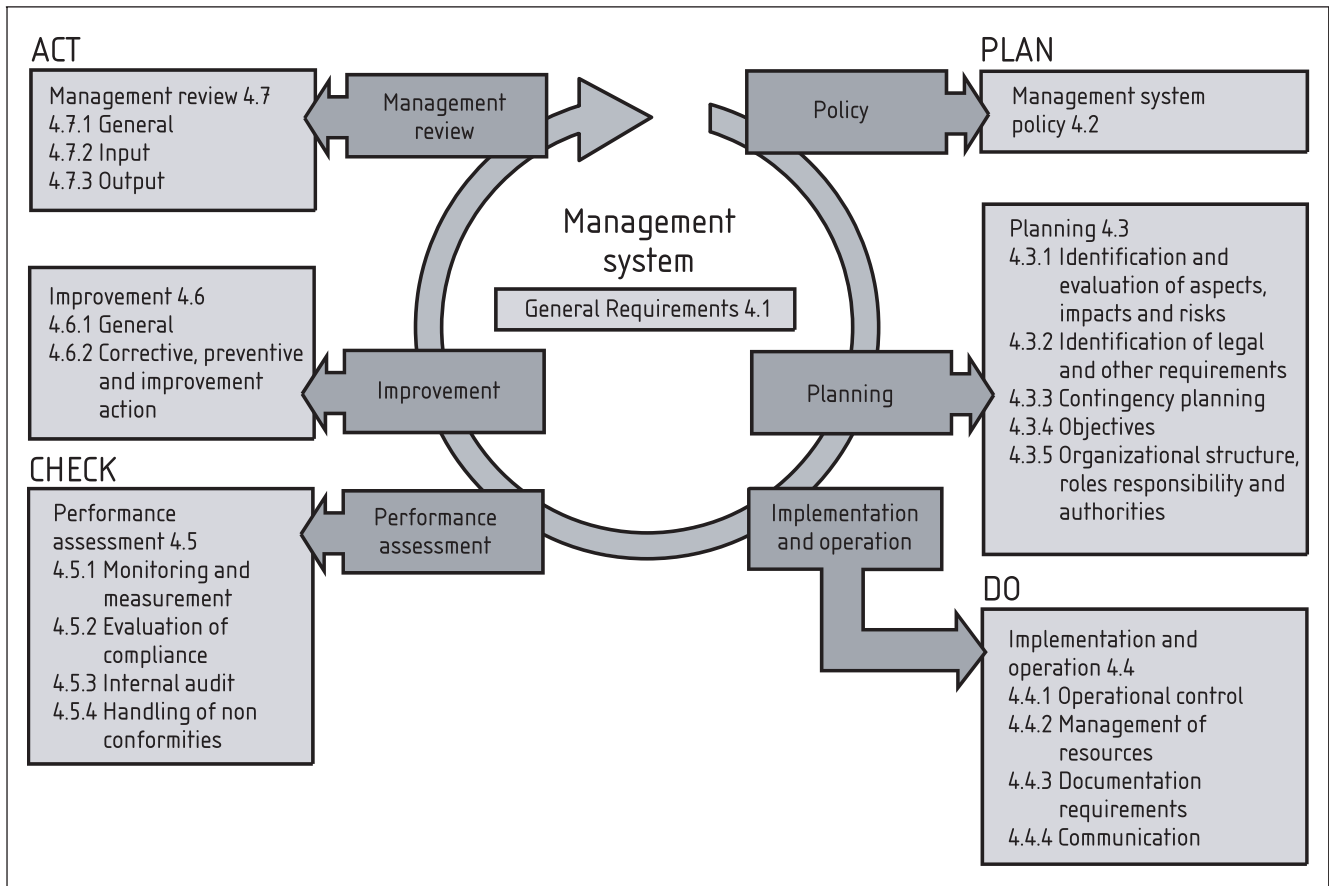
An organization with an environmental management system that satisfies the requirements of BS EN ISO 14001 will find that BS OHSAS 18001 has many similarities in structure and content with that of BS EN ISO 14001. All the main clause headings and requirements are similar and this means that the common OHSAS requirements can be incorporated within the same framework used for managing environmental issues. It is only the specific needs of each discipline (particularly 4.3.1) that differ and might need separate treatment, depending on the nature, size and complexity of the organization.

For an organization with fairly low-risk operations it is possible to combine many of the components and even to undertake a common evaluation of the "risks" associated with delivery of the product (quality), and the impacts associated with environmental issues, as well as OH&S. Although such a simplistic approach cannot be universally applied, it has many merits in enabling an organization to rank certain risks, albeit crudely, before it embarks on more elaborate risk evaluation processes. This simple approach might appeal to low-risk small enterprises where the responsibility for quality, environmental and safety and health (QUENSH) is vested in one person.

The framework shown in Figure A.2 can be used as a structure for the implementation of an integrated business management system.

For any organization adopting this approach, it might be preferable, in the first stage of the implementation programme, to incorporate just one of the established management system's set of requirements within the PAS 99 framework (such as an established BS EN ISO 9001 or BS EN ISO 14001 system). The new system can then be assessed for its effectiveness and efficiency, and allowed to mature before the new requirements of the OH&S system are migrated into the same framework.

Figure A.2 PAS 99 framework



**Annex B (informative) Guidance on implementation and operation****B.1 General**

The OH&S policy (see 3.21) sets the direction for health and safety, but in order to deliver improved performance, organizations need to create a robust framework for management activity. This should detail the responsibilities and relationships that lead to improved performance. This annex provides guidance on the allocation of responsibilities and the organization of people, resources and communications to define and implement policy and effectively manage OH&S.

**B.2 Integration and cooperation**

Organizations vary greatly in their complexity and the terms used to describe different activities, all of which have an active part to play within the overall OH&S management system. However, significant differences often exist between the different parts of an organization in terms of:

- a) work carried out;
- b) management system;
- c) technology used;
- d) hazards encountered;
- e) staff competence;
- f) resources;
- g) past experience of OH&S issues;
- h) OH&S expertise;
- i) attitudes to risk;
- j) attitudes to OH&S cooperation with other functions.

As a result of these potential differences top management should ensure OH&S activity, in its broadest sense, is embraced both within and between functions so that:

- 1) common OH&S needs are addressed;
- 2) wide variations in OH&S performance are avoided;
- 3) duplication of effort and waste of resources are avoided;
- 4) OH&S responsibilities are appropriate, clear and agreed, e.g. for shared equipment, workplaces and staff;
- 5) different employers sharing a workplace cooperate;
- 6) artificial barriers and unnecessary conflicts are avoided;
- 7) any decisions made take into account the resulting OH&S effects on other activities;
- 8) OH&S objectives, plans and performance for each activity are consistent with those relating to its business.

This integration of activities requires the commitment of employees, which is best achieved by actively encouraging their participation and cooperation.

Approaches and techniques that encourage cooperation include:

- i) an effective process for consultation on OH&S issues;
- ii) employee involvement in areas such as risk assessment, writing operating procedures, accident investigation and measuring performance;
- iii) OH&S project teams/task groups comprising employees from and working with different parts of the organization;
- iv) managers, OH&S specialists, safety representatives and safety committees addressing problems common to different parts of the organization;
- v) OH&S audits and reviews.

### **B.3 Worker involvement**

Effective management of OH&S requires the support and commitment of the employees, and their knowledge and experience is a valuable resource which should be utilized in the development and operation of the OH&S management system.

In many organizations, OH&S consultation and representation can be successfully accommodated within the existing general management framework. Some organizations might need to formalize their arrangements to achieve this. OH&S committees provide one method of involving the workforce, but the aim should be to promote their active involvement in all aspects of the OH&S management system.

### **B.4 Competency and training**

#### **B.4.1 OH&S management system training**

The training arrangements of the OH&S management system should include:

- a) systematic identification of the competencies necessary of each member of the workforce (including, for example owners, directors and managers at all levels) and the training needed to remedy any shortfalls;
- b) systematic identification of the competencies necessary for effective team working, e.g. emergency response teams;
- c) provision of any training identified as being necessary in a timely and systematic manner;
- d) assessment of individuals to ensure that they have acquired and maintained the necessary level of competence;
- e) the maintenance of appropriate training/skills records.

### **B.5 Communications**

Organizations should ensure that they have effective communication arrangements for:

- a) identifying and receiving relevant OH&S information from outside the organization, including:
  - 1) new amendments or pending changes to legislation;

- 2) information necessary for the identification of hazards and evaluation and control of risks;
  - 3) information and developments in health and safety management practice;
- b) ensuring that pertinent OH&S information is communicated to all employees in the organization who need it, which involves arrangements to:
- 1) determine information needs and ensure that these needs are met, bearing in mind that relevant information should be provided in a form and manner that is comprehensible to the person receiving it;
  - 2) ensure that information flows up, down and across the various parts of the organization;
  - 3) avoid restricting OH&S items to dedicated OH&S meetings by including them on the agenda of a variety of meetings wherever appropriate;
  - 4) report hazards and shortcomings in OH&S arrangements;
  - 5) ensure that lessons are learned from accidents and incidents to avoid recurrence;
- c) ensuring that relevant information is communicated to people outside the organization who require it;
- d) ensuring that top management make it clear that they are keen to hear the bad news as well as good news and that they will take action on the information they receive.

## B.6 Specialist advice and services

Organizations should have access to sufficient knowledge, skills or experience to identify and manage OH&S risks effectively, meet the health needs at work of individuals and to set appropriate OH&S objectives. This can be achieved by one or more of the following:

- a) training managers to a sufficient level of competence to be able to manage their activities safely and keep up-to-date with developments in OH&S;
- b) employing appropriate OH&S professionals as part of the management team;
- c) engaging external specialist support where in-house expertise and/or resources are insufficient to meet the organization's needs.

Whichever method or combination of methods is chosen, there should be adequate provision of information, resources and cooperation to ensure specialist advisers are able to discharge their duties effectively.

Specific tasks and responsibilities of parties need to be clearly understood.

*NOTE An employer is required by law, with limited exceptions, to appoint, where necessary, one or more competent persons, from within or outside the organization, to help in applying the provisions of occupational health and safety law. However, the employment of an OH&S adviser does not relieve the management of the organization of their legal responsibilities.*



## Annex C (informative) Promoting an effective OH&S management system

### C.1 General

Some organizations' OH&S management systems appear to be satisfactory on paper, but are not followed in practice. Rules might be perceived, rightly or wrongly, as bureaucratic, unworkable and unnecessary. There might be conflicts between the need to get the work done in time, and the time required to do the work safely. Organizations thus face two challenges when designing and developing an OH&S management system: first to devise arrangements that are suitable and sufficient to control the hazards, and secondly to ensure that employees at all levels agree that the control arrangements are necessary and effective.

There are two primary approaches to improving the effectiveness of an OH&S management system:

- a) seeking to change worker attitudes (at all levels) to risks and their control; this intervention to improve the organization's health and safety culture is covered in **C.2** to **C.5**;
- b) seeking to change behaviours, usually by observing tasks and taking corrective action where nonconformities are observed; this behavioural-based safety (BBS) approach is described in **C.6**.

The two approaches attempt to achieve the same aim, namely to promote both positive attitudes and positive behaviours:

- i) the safety culture approach involves changing people's attitudes in the belief that their behaviours will also change;
- ii) the BBS approach involves changing people's behaviours in the belief that their attitudes will also change.

### C.2 Positive health and safety culture

The health and safety culture of an organization may be described as the product of individual and group values, attitudes, competencies, and patterns of behaviour that determine the commitment to, and the style and proficiency of, an organization's health and safety programmes.

Organizations with a positive safety culture are characterized by communications founded on mutual trust, by shared perceptions of the importance of safety, by confidence in the efficacy of preventive measures, and by the commitment of everyone to the overall goals of the organization.

A positive health and safety culture implies that the whole is greater than the sum of the parts. The many separate practices interact to give added effect and, in particular, all the people involved share similar perceptions and adopt the same positive attitudes to OH&S: a collective commitment.

The synergy of a positive safety culture is mirrored by the negative synergy of organizations with poor safety cultures. Here, the commitment to safety of some individuals is strangled by the cynicism of others: the whole is less than the sum of the parts.

The extent to which organizations are successful in managing OH&S is heavily influenced by the leadership of OH&S by top management,

who should regard it as a key business objective, and the active involvement of the workforce and their representatives in improving safety performance. Leadership is discussed in C.4.

*NOTE Example 1 gives characteristics of an organization with a positive safety culture.*

#### **EXAMPLE 1 — Some characteristics of positive health and safety culture**

Safety culture is usually inseparable from an organization's overall culture and can rarely be managed in isolation. Therefore, many of the characteristics are common. Some examples with particular relevance to OH&S include the following.

- a) Workers are committed to the aims of the organization, and the way the organization is managed.
- b) Top management and senior staff demonstrate visible OH&S commitment, including their personal behaviour, showing leadership by example. They make it clear that they are keen to hear the bad news as well as good news and will take action on the information they receive.
- c) Senior staff and supervisors spend time discussing and promoting OH&S in the work environment; commend safe behaviour and express concern if OH&S procedures are not being followed. They do so even when the discussions primarily concern operational matters.
- d) OH&S is managed with the same determination as other key business objectives.
- e) Health and safety representatives carry out their functions actively with the support of management.
- f) OH&S advisers have high status within the organization with direct access to top management.
- g) OH&S committees have high status, are proactive, are regularly attended by senior staff, and publicize their work throughout the organization.
- h) The motivation for high OH&S standards is driven more by internal motivators and less by external pressures.
- i) Workers at all levels are seen as a key resource of the organization, particularly in suggesting improvement, and receive the support and training they need, especially when changes are taking place.
- j) Communication methods are multi-way and are both informal and formal, and verbal and written.
- k) Training is seen as vitally important, covering underpinning knowledge for competency, on-the-job instruction and motivational training to promote compliance.
- l) Everyone participates in OH&S decision-making that affects them, for example in carrying out risk assessments and devising appropriate risk controls.
- m) The organization provides feedback on OH&S performance to all personnel (see Annex I).
- n) OH&S is a normal topic of day-to-day discussion in the workplace.
- o) Effective worker participation.

### **C.3 Barriers to a positive health and safety culture**

Indicators of weaknesses in a safety culture might include disregard for rules and procedures, risk-taking and other unsafe acts. The organization should investigate the underlying causes of these symptoms.

The organization should take account of the factors that might impair the quality of their safety culture and hence the effectiveness of their OH&S system.

*NOTE Example 2 lists factors that could impair the organization's OH&S culture.*

**EXAMPLE 2 — Some factors that could impair health and safety culture**

The following are typical examples of factors that could impair safety culture.

- a) Existing rules and safeguards have been developed in response to serious hazardous events that are perceived, probably correctly, as over-zealous (see Annex D and Annex E).
- b) Inconsistencies in rules and procedures.
- c) Rules and procedures have been developed without due consideration for their practicability.
- d) Supervisors and managers do not act upon nonconformities with OH&S rules, e.g. when there is a production emergency.
- e) There is an acceptance that nonconformities are inevitable, and that little can be done to eliminate them.
- f) Rules and safeguards required by external agencies and consultants do not take into account the complexity of the operation and the challenges of compliance.
- g) Situations that present opportunities for ego enhancement, for example, public displays of daring.
- h) Failures to communicate shortcomings in OH&S arrangements.
- i) Suggestions for improvements or changes from workers are not welcome and/or are not acted upon.
- j) There is no worker involvement in, for instance, risk assessment, developing operating procedures or carrying out accident and incident investigations
- k) A culture of blame exists.
- l) The magnitude of risk is underestimated due to one or more of the following factors:
  - 1) the consequences are delayed (for example, a long latent period between exposure and ill health);
  - 2) the consequences affect people outside the immediate work group;
  - 3) perceptions might not be adjusted sufficiently in the light of new information;
  - 4) the hazards have been encountered for long periods without apparent adverse effect;
  - 5) there is a lack of support leading to impairment of individuals' ability to act safely;
  - 6) workers are affected by life-event stressors (for example, bereavement and divorce);
  - 7) workers are stressed as a result of, for example, lack of confidence in the established procedures, lack of control and excessive demands; and
  - 8) workers believe that they have no power to influence their own destiny or that of others (fatalism).

## C.4 Leadership

The commitment of staff to OH&S is substantially influenced by their perceptions of their supervisors' commitment. Top management are the ultimate supervisors in an organization. If their commitment is genuine, sustained, and manifested in their taking a keen professional interest in OH&S, their attitudes and behaviours should cascade down the organization. A number of the factors shown in Example 1 clearly relate to the attitudes and behaviours of top management.

Top management should act as OH&S champions, but this is not a role exclusively for them. Individual members of staff who act as champions should permeate the whole organization. Senior OH&S professionals should see their primary role as champions, underpinned by good interpersonal skills, enthusiasm, and a determination to overcome setbacks.

*NOTE Example 3 lists Leadership attitudes and behaviours that promote a positive OH&S culture.*

### **EXAMPLE 3 — Leadership attitudes and behaviours that promote a positive OH&S culture**

- a) Demonstrating that OH&S is managed with the same determination as other key business objectives, e.g. as described in annual reports.
- b) Demonstrating that the OH&S implications of all the organization's key business decisions are assessed, e.g. when relocating premises, or when developing new products or services.
- c) Showing sustained interest in OH&S issues – intermittent interest, such as that after a serious accident, could promote cynicism.
- d) Recognizing that the immediate causes of incidents involving human failure could be associated with shortcomings in OH&S leadership, and management.
- e) Making clear that they are keen to hear bad news, as well as good news, and they will take action on the information they receive.
- f) Reviewing, in detail, the trends of key performance indicators (KPIs), placing weight on leading indicators (see Annex J).
- g) Knowing, on the basis of objective evidence, the attitudes of staff in the organization, and taking steps to remedy negative attitudes (see C.5).
- h) Avoiding promotion of panacea OH&S initiatives, such as a poorly-planned BBS programme (see C.6), or the setting of accident-rate targets that are perceived as unrealistic.
- i) Demonstrating an informed interest in OH&S matters in workplace visits, not just where OH&S is the reason for a visit.

## C.5 Measuring and improving health and safety culture

### C.5.1 Measurement of health and safety culture

It is possible to measure with accuracy the perceptions that influence behaviour as well as the behaviours themselves. The following methods are recommended:

- a) informal discussions, feedback from briefings/toolbox talks;
- b) semi-structured questionnaires/interviews with groups/individuals;
- c) organizational questionnaires;
- d) attitude surveys of workers within the organization, typified by the example questions shown in Example 4, which are derived from the HSE's "Climate Survey Tool" ([http://stepchangeinsafety.net/ResourceFiles/PRFS/step\\_prfs\\_ref39a\\_HSE\\_Climate\\_Survey\\_Tool.pdf](http://stepchangeinsafety.net/ResourceFiles/PRFS/step_prfs_ref39a_HSE_Climate_Survey_Tool.pdf));
- e) observations of individual and group behaviours in practice.

### C.5.2 Improving health and safety culture

In addition to taking specific steps to improve support for, and compliance with, OH&S management systems as part of system development generally, the organization should consider taking specific steps to improve their safety culture.

The interpretation of the findings of attitude surveys in particular should highlight, for example, whether a poor safety culture results from shortcomings in the way the organization is managed, or where workers are cynical of management commitment, etc. Relevant workers should be invited to discuss the findings and have an opportunity to contribute to discussions about the strengths and weaknesses of the culture and how the culture is best improved.

The planning and implementing process described in Annex D should be used to identify objectives and plans to improve the safety culture. It is not appropriate to set over-ambitious objectives; rather, a tightly focused step-by-step approach is required, where a review of the achievement of the one objective provides the starting point for further initiatives.

There are occasions that might prove particularly fruitful for the development of initiatives to improve the safety culture. These include:

- a) the arrival of a new top manager;
- b) major reorganization, including a move to new premises;
- c) the enactment of goal setting, as distinct from prescriptive legislation relevant to the organization;
- d) the aftermath of a serious hazardous incident;
- e) regulatory agency action; and
- f) failure to obtain a contract, or to be placed on an approved contractor's list as a result of a client's reservations about the organization's OH&S arrangements.

**Example 4 — Example of an attitude survey questionnaire**

*Please tick the appropriate box to show your level of agreement with each of the following statements.*

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
1. Senior management are fully committed to health and safety	1	2	3	4	5
2. Workers are blamed when they make mistakes	1	2	3	4	5
3. The company is interested in my opinions about health and safety	1	2	3	4	5
4. Management place a high priority on health and safety training	1	2	3	4	5
5. Supervisors turn a blind eye to unsafe behaviour	1	2	3	4	5
6. Health and safety procedures are much too stringent in relation to the risks	1	2	3	4	5
7. My workmates would criticize me for breaking the health and safety rules	1	2	3	4	5
8. I am given adequate health and safety training	1	2	3	4	5
9. Little is done to prevent accidents until someone gets injured	1	2	3	4	5
10. Everyone wears their protective equipment when they are supposed to	1	2	3	4	5
11. Action is rarely taken when someone breaks the health and safety rules	1	2	3	4	5
12. I fully understand the health and safety instructions that relate to my job	1	2	3	4	5
13. Time pressures for completing jobs are reasonable	1	2	3	4	5
14. I was involved in risk assessments relating to my work	1	2	3	4	5
15. Workers are praised for working safely	1	2	3	4	5
16. Action has been taken on the basis of risk assessment findings	1	2	3	4	5
17. The risk controls do not get in the way of my doing my job	1	2	3	4	5
18. Knocks and bruises are bound to happen at work no matter how careful you are	1	2	3	4	5
19. Health and safety briefings are very useful	1	2	3	4	5
20. My workmates take risks that I would not take myself	1	2	3	4	5
21. Accidents that happen here are always reported	1	2	3	4	5
22. Some health and safety rules are only there to protect management's back	1	2	3	4	5
23. The permit-to-work system leads to unnecessary delays in getting the job done	1	2	3	4	5
24. I know that if I follow the safety procedures I will not get hurt	1	2	3	4	5
25. The use of personal protective equipment is strictly enforced	1	2	3	4	5



## C.6 Behavioural-based safety (BBS)

### C.6.1 General

The primary BBS method involves observation of target behaviours in the performance of a task. When unsafe behaviours have been identified, efforts are made to improve behaviours by, for example, increasing supervision, sanctions and rewards. However, a BBS programme should also address the suitability of the designated work methods, and their possible amendment. Other BBS techniques include non-observational methods, such as those that use risk assessment and control checklists (see Annex H), to encourage workers to think through tasks before embarking upon them. "Role playing" is also used as a means of promoting behavioural change.

If, by whatever means, the required behaviour can be maintained for a sufficiently long period of time, the behaviour becomes natural and normal and adopted from choice. When this has happened, the behaviour is self-sustaining. Moreover, attitudes generally to safety procedures can be improved; thus improving the health and safety culture.

### C.6.2 Prerequisites to BBS intervention

There is substantial evidence that BBS schemes can achieve marked improvements in behaviour, but BBS is only effective if:

- there is already an OH&S management system in place, the intervention is anchored to the system, and safe work methods are fully documented;
- the OH&S is already reasonably positive: if attitudes to OH&S are poor, and if management is to any degree distrusted, BBS schemes might be counter-productive; observation of tasks could be perceived as an intrusion by those being observed, and workers might believe that they will be blamed for any problems that are revealed (the methods for assessing health and safety culture are given in C.5.1);
- management is committed to the scheme as a long-term intervention: if the scheme is perceived as a short term "panacea" that can be quickly dropped, the scheme will not have time to become embedded, and future OH&S interventions are likely to be prejudiced.

### C.6.3 Planning for BBS intervention

The organization should consider the following issues when planning a BBS programme.

- Does the organization meet the prerequisites for a BBS intervention? Preliminary work, e.g. preparation of documented safe working methods, might be necessary.
- What is the nature of the prospective or actual rule nonconformity that merits attention? For example, intentional rule violations (which can happen routinely, or in response to operational setbacks) might need a different treatment than unintended errors. Moreover, unintended errors which might involve slips or lapses on "autopilot", or mistakes (actions based on a faulty diagnosis of a situation) each need discrete consideration.



- Which type of scheme is most suitable? For example, observational methods depend of necessity on the tasks being observable, so these might be impracticable for lone workers or those working in other organizations.
- The scheme should focus as much on possible changes in work methods as behavioural changes.
- How will the scheme be rolled out? Consultation with all concerned is vital. In the absence of "buy-in" from workers affected, the scheme is likely to founder.
- What are the training needs? Observers need to know precisely what the standard work methods are, and require communication skills to ensure that their interventions with individuals are seen as supportive.
- Which tasks are to be chosen for the initiative? It is important that the tasks should not be trivial or involve very low risks.
- How will decisions be made about remedying problems: by behavioural change directly, or by improved behaviours that would follow adjustments to work methods?
- How will momentum be sustained? A key challenge of BBS schemes is that, after an initial period when everyone is enthusiastic, apathy can set in.
- What, if any, guidance from outside the organization is needed?

## Annex D (informative) **Guidance on setting objectives and planning and implementing OH&S programmes**

### **D.1 General**

In order to achieve its OH&S objectives, an organization should establish an OH&S programme(s). Some organizations might have difficulty evaluating their OH&S system, assessing risks and setting priorities for improvements. The guidance set out in this annex is designed to help overcome such difficulties.

The methods adopted to plan and implement OH&S programmes should be the same as those used to plan and implement changes in any aspect of an organization's activities (see 4.3 and 4.4). These methods can also be used to plan and implement quality, environment and other business objectives.

The planning and implementing process is critically dependent on risk assessment and control (Annex E) and also on the criteria used to monitor performance (see Annex J).

For small and medium-sized enterprises (SMEs) the general principles of planning and implementing OH&S programmes are the same as for any organization. However, managers within SMEs should note that the planning and implementing of the programmes could be carried out by a single individual or a small number of people within the organization. Larger organizations might find it useful to draw upon the experience of a number of individuals to plan and implement their OH&S improvement programmes. Large organizations could establish a number of teams working in different parts and at different levels in the organization. In this respect, the approach adopted should be tailored to the organization's needs and circumstances.

### **D.2 Establishing objectives**

#### **D.2.1 Identifying potential objectives**

An organization should use initial status reviews and risk assessments to compare their existing arrangements and risk controls with:

- a) good practice in relevant employment sectors;
- b) existing guidance on OH&S management and risk controls within the organization; and
- c) the requirements of OH&S law,

taking into account the efficiency and effectiveness of existing OH&S management processes and risk control.

A helpful technique is to compile a list of objectives from a variety of sources, e.g. audit reports, risk assessment, accident and incident data, and legislative requirements. The following guide words can be used to produce the list of objectives. The guide words relate to matters that the organization wishes to:

- 1) *increase/improve*, e.g. near-miss reporting, machinery safeguards, training, usage of PPE, communications, employees' perceptions of risks;
- 2) *maintain/continue*, e.g. workplace inspections, supervisor training, accident reporting;

- 3) *reduce*, e.g. hazardous events; specific hazardous events relating to slips, trips and falls; exposure to hazardous substances, levels of stress that could lead to ill health;
- 4) *introduce*, e.g. risk assessment, an emergency plan, a system for active monitoring, strategic OH&S training for top managers, permit-to-work systems for specified tasks;
- 5) *eliminate*, e.g. all hazardous events, use of specified hazardous substances, use of damaged equipment.

### D.2.2 Selecting objectives

A list of prospective objectives should be selected to form the basis for decisions about improvements in an organization's OH&S management system and in specific risk controls. Wherever possible, objectives should be SMART:

- specific;
- measurable;
- achievable;
- relevant;
- timely.

### D.2.3 Prioritizing objectives

The list of prospective objectives should be reduced to the point where primary objectives emerge that match the organization's needs. Early attention should be given to objectives that can be achieved relatively easily and cheaply, and ideally those that maximize worker participation. Priority objectives to begin with are likely to relate to:

- a) ensuring legal compliance;
- b) information gathering;
- c) risk assessment (see Annex E);
- d) maintenance of existing risk controls;
- e) remedies to specific and obvious shortcomings in existing controls, such as the failure of employees to use protective equipment.

Figure D.1 illustrates the stages to fulfil each objective. Planning to achieve secondary or consequential objectives should follow the same process.

## D.3 Determining how achievement of an objective is measured

It is important to select an objective whose achievement can be measured. It is first necessary to define more precisely each objective in a way that facilitates measurement of leading and/or lagging performance indicators. Objectives can be defined in the following ways.

- a) Objectives to increase or reduce something should specify a numerical figure (e.g. reduce handling accidents by 20%) and a date for the achievement of the objective.
- b) Objectives to introduce or eliminate something should be achieved by a specified date.

- c) Objectives to maintain or continue something should specify the existing level of activity (e.g. supervisors will continue to inspect their sections once per week).

In many cases it is easy to define the objective with precision and to select relevant performance indicator data. For example, an objective to increase usage of hearing protection from the existing level of 20% to 100% (by a specified date) is tested simply by observing the usage level: a leading performance indicator. But an objective to introduce an effective risk assessment and control programme can only fully be tested with a range of leading and lagging performance indicators.

Where relevant, it is important to measure the baseline. For example, if an objective is to reduce the time taken to take action on workers' OH&S suggestions, the organization should find out how long it takes at present.

#### **D.4 Overall process for planning and implementing programmes to achieve objectives**

*NOTE 1 Example 5 shows how the process can be used to plan a programme to increase usage of hearing protection. Example 6 applies the process to the control of site transport risks at warehouse premises.*

*NOTE 2 Some objectives can be simply implemented, and their effectiveness is self-evident, making the formal use of this process unnecessary.*

For simplicity, the planning and implementing process is explained in the context of a team seeking to achieve one primary objective. In practice, organizations are likely to develop and simultaneously implement a number of programmes in order to attain several objectives at the same time.

The various steps in the process might need to be revisited several times before the primary objective, the programme itself or the performance indicators are finalized.

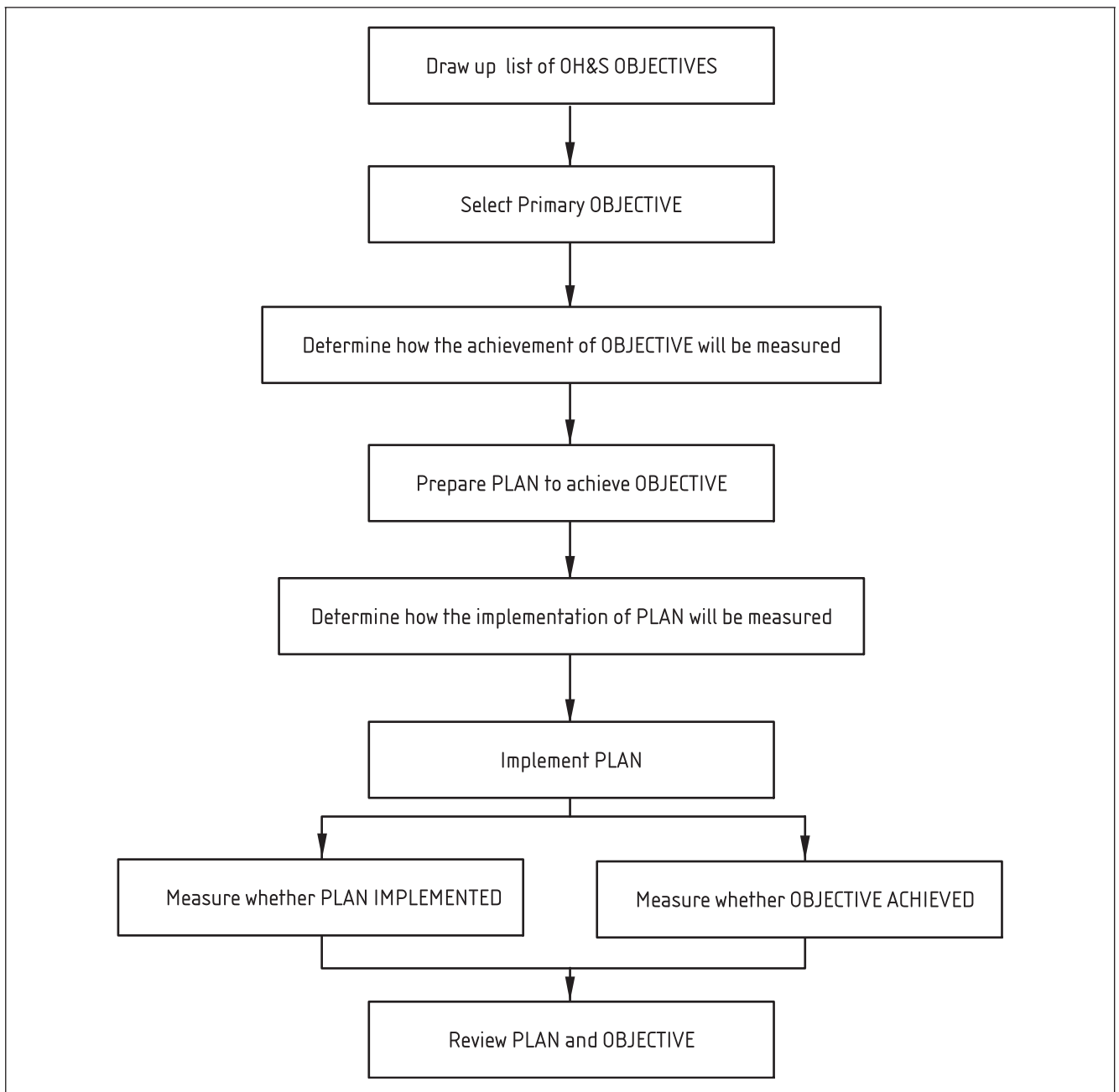
Moreover, many programmes are ongoing, for example to maintain specific controls for particular risks such as housekeeping to control slips and trips, guards for dangerous parts of machines and control of work of contractors. Here there is no formal end point to the implementation process shown in Figure D.1. Measurement and review would occur at defined intervals, leading to a re-evaluation of the primary objective and the programme itself.

#### **D.5 Assigning responsibilities and allocating resources**

Assigning responsibly and allocating resources first involves developing the broad content of the OH&S programme.

Detailed performance requirements should be specified for designated persons or teams in order to implement the programme. The programme should specify who is to do what, by when. For example, in a hearing protection programme (see Figure D.2), a person should be designated to rewrite conditions of service on the basis of appropriate consultations with workers and their representatives.

Figure D.1 Process for planning and implementing OH&amp;S programmes



Performance requirements should be clearly drafted so that designated persons/teams know exactly what they have to do. Workers who are allocated tasks should be:

- consulted about their practicality;
- competent to undertake them; and
- accountable for their achievement (e.g. at periodic staff appraisals).

The implementation of the performance requirements can be measured with proactive monitoring and the data used as leading performance indicators. The performance requirements can be listed as a series of questions (see Figure D.2).

The resource implications of the programme should also be considered. The programme should have the full support of top management.

## D.6 Moving from planning to implementing

The programme should be implemented in accordance with the performance requirements. However, the programme should be flexible. Adjustments might be necessary in response to early evidence of failures to meet the programme's requirements, or information that performance indicators relating to the objective are not moving in the desired direction.

## D.7 Measuring and reviewing progress

### D.7.1 Measuring the implementation of the programme

The implementation of the performance requirements should be continually monitored throughout the period of the programme's lifetime. Evidence in the form of leading performance indicators should be used to determine the organization's success in fully implementing the programme.

### D.7.2 Testing whether an objective has been achieved

Trends in the leading and lagging indicators should be continually monitored throughout the period of the programme's lifetime, and beyond if necessary.

These performance indicators should be used to test the organization's success in achieving an objective.

### D.7.3 Programme review

At the review stage, the organization should consider if the programme has been implemented and if so:

- a) was it the right plan?
- b) is the programme relevant to the organization's changing circumstances?
- c) for a continuing programme, are the objective and plan still relevant?

Figure D.2 draws attention to the possibility that an objective can be achieved despite a failure to implement the programme. This might occur typically when the objective is to reduce accidents. For example, a reduction in the number of accidents could be a statistical fluke or result from a reduction in workplace activity.

Figure D.2 illustrates total success and total failure. In practice, programmes can be partially effective, in which case consideration should be given to the need to revise the plan.

The organization should also review the cost-effectiveness of its objectives and programmes. It might be that not all the elements of the programme contributed to its success. For example, in the hearing protection case (see Example 5), it might not have been necessary to make hearing protection a condition of employment.

Finally, the organization should consider whether the objective is still relevant. For example, the use of personal hearing protection might no longer be necessary following the introduction of new, quieter machinery.

The review should be carried out, not only to improve the outcome of the specific programme under review, but also to improve the quality of organizational planning and implementation generally.

Figure D.2 Programme review

		PROGRAMME IMPLEMENTED?	
		YES	NO
OBJECTIVE ACHIEVED?	YES	No corrective action required, but continue to monitor.	Programme was not relevant. Find out what has led to the achievement of objective.
	NO	Programme is not effective, therefore prepare a new plan.	Make renewed effort to implement programme; continue to measure performance indicators. Consider whether the method proposed for implementing the programme should be revised.

#### EXAMPLE 5 — Planning improved usage of hearing protection

##### 1. Primary objective

Increase usage rate of hearing protection in designated hearing protection zones from the present (baseline) value of 20% to 100% within one year.

##### 2. Performance indicator

Records of hearing protector usage observed in designated zones.

##### 3. Prepare plans to achieve objective

The broad elements of a programme to improve usage of hearing protection might involve:

- a) gaining top management commitment;
- b) giving workers choice in the protection they wear;
- c) training to demonstrate effects of occupational deafness and importance of wearing protection at all times in designated areas;
- d) review terms of employment;
- e) periodic checks that hearing protection is being worn;
- f) ensuring that hearing protection is cleaned, maintained and replaced as necessary.

##### 4. Prepare performance requirements

Performance requirements should be prepared to deal with each of the broad elements of the programme. For example, the requirements for changing conditions of employment might be listed as follows.

- 1) Have all workers affected been consulted?
- 2) Has the organization's disciplinary process been amended to take account of the intention to enforce wearing of hearing protection?
- 3) Has a date been set for making any amendments to the terms of employment should it be necessary?
- 4) Have all employees affected signed a statement that they understand what is expected of them and what the consequences might be should they fail to follow company procedures?



**EXAMPLE 6 — Planning and implementing site transport risk controls in a cash-and-carry warehouse****1. Findings of risk assessment**

Risk assessment revealed that controls of site transport were inadequate. The main problems that led to the unfavourable assessment were:

- a) customers, suppliers and company vehicles were required to manoeuvre in congested areas;
- b) warehouse racking systems were not protected from lift truck impact;
- c) warehouse vehicle routes were narrow with blind corners;
- d) pedestrians had access to vehicle manoeuvring areas and warehouse vehicle routes;
- e) rider-operated lift truck drivers were not trained; and
- f) lift trucks were not inspected and maintained on a regular basis.

**2. Primary objective**

The organization's primary objective is to plan and implement a programme to reduce site transport risks to a level that is as low as reasonably practicable within six months.

The programme specified improvements in performance indicators that would demonstrate a site transport risk that was as low as reasonably practicable and that could be sustained over time.

**3. Performance indicators (leading and lagging)**

Performance indicators identified are:

- a) compliance with relevant regulations;
- b) numbers of transport-related unsafe acts and conditions observed by planned observations;
- c) relevant comments by workers, customers and drivers of suppliers' vehicles;
- d) evidence of lift truck impacts with storage racks/protective bollards;
- e) reported near-misses; and
- f) transport accidents.

Baseline information was obtained as part of risk assessment.

**4. Prepare plans to achieve objective**

The broad content of the programme to achieve the primary objective within an agreed budget was finalized after consultation with relevant parties and a review of the programme's adequacy:

- a) introduce one-way traffic systems and speed limits;
- b) segregate, where possible, pedestrians and vehicles using, as appropriate, road markings and barriers;
- c) install pedestrian crossings;
- d) install bollards to protect storage racks;
- e) fit mirrors to improve vision at blind corners in warehouse;
- f) introduce daily, weekly and annual inspections of lift trucks;
- g) train all drivers of lift trucks to meet the requirements of the current Approved Code of Practice;
- h) introduce on-site training and a driver's competency test.

**EXAMPLE 6 — Planning and implementing site transport risk controls in a cash-and-carry warehouse (continued)****5. Prepare performance requirements**

A detailed plan showing who would do what and by when was prepared as a set of requirements for each part of the programme. For example, the training requirements were:

Has [a designated person] within defined time-scales:

- a) prepared a schedule for releasing drivers to attend training that ensures that sufficient drivers are still at work?
- b) booked places for all drivers on training?
- c) consulted approved guidance on site training and competency certification?
- d) prepared an on-site training and testing schedule?
- e) completed on-site training and certification?
- f) made arrangements, as appropriate, for training and certification of new drivers?

**6. Is the programme fully implemented?**

The performance requirements prepared for each of the parts of the programme provided a monitoring checklist that was used to determine whether the programme was implemented.

**7. Has the objective been achieved?**

Following implementation of the programme, the performance indicators are used to test whether the programme had been effective.

**8. Review**

The review revealed that the programme was fully implemented and the objective achieved. The organization made arrangements to continue monitoring site transport safety, and to review the continuing success of the programme in a year's time.

*NOTE The purpose of this case study is to illustrate the methodology and is not meant to be comprehensive or to be used as a guide to risk control in warehouse activities.*

## Annex E (informative) **Guidance on risk assessment and control**

### **E.1 Hazard identification, risk assessment and determining controls**

An organization will need to apply the process of hazard identification (see 3.9) and risk assessment (see 3.27) to determine the controls that are necessary to reduce the risks of injury and ill health. The overall purpose of the risk assessment process is to understand the hazards (see 3.8) that might arise in the course of the organization's activities and ensure that the risks (see 3.26) to people arising from these hazards are assessed, prioritized and controlled to a level that is acceptable (see 3.1).

This is achieved by:

- developing a methodology for hazard identification and risk assessment (see E.2);
- identifying hazards (see E.3);
- estimating the associated risk levels, taking into account the adequacy of any existing controls (it might be necessary to obtain additional data and perform further analysis in order to achieve a reasonable estimation of the risk) (see E.4);
- determining whether these risks are acceptable (see E.5);
- determining the appropriate risk controls, where these are found to be necessary (see E.6);
- recording and documenting the results of the risk assessment (see E.7); and
- ongoing review of hazard identification and risk assessment (see E.8).

The results of risk assessments enable the organization to compare risk reduction options and prioritize resources for effective risk management.

The outputs from the hazard identification, risk assessment and determining control processes should also be used in the implementation and development of other parts of the OH&S management system such as training (see 4.4.3.3), operational control (see 4.4.7) and measuring and monitoring (see 4.5.1).

Figure 2 provides an overview of the risk assessment process.

This annex describes formal, documented hazard identification and risk assessment processes. For some organizations there is also a need for the process which is often referred to as "dynamic risk assessment". Dynamic risk assessment, as the name suggests, involves managers and employees being trained to make a judgement before work begins, or as a response to changing circumstances, as to whether there are appropriate risk controls in place. This is likely to complement formal "generic" risk assessments for the activities in question, with the role of the dynamic assessment being to assess the particular situation at the time, and to adjust controls or avoid the activity where appropriate. It is particularly appropriate where there is a large variability in the circumstances which might be encountered during the activity, due for example to:

- factors outside the organization's control, as might be the case when activities take place in workplaces managed by other organizations;
- the activity being one of emergency response, where the full range of circumstances likely to be encountered cannot easily be predicted in advance;
- there being potential risks from unpredictable human behaviour, such as the threat of violence.

The principles of dynamic risk assessment are the same as those of formal documented assessment, as the underlying purpose is the same. It differs from the processes described in the remainder of this annex only to the extent that it is carried out informally, and is not documented. Where circumstances such as those described above cause the organization to rely upon dynamic assessment, as a key component of its overall risk assessment process, there should be a feedback mechanism through which the organization can monitor its effectiveness. Similarly, where dynamic risk assessment is required, the organization should ensure that those carrying out the process are competent to do so. Dynamic risk assessment is not a substitute for formal, documented, risk assessment, and should be used alongside, rather than instead of, it.

## **E.2 Developing a methodology and procedures for hazard identification and risk assessment**

### **E.2.1 Planning the overall process**

Hazard identification and risk assessment need to be planned and prioritized in order to be effective. Without planning, organizations can waste time and effort producing assessments that are of little practical value, or can get bogged down in unnecessary detail. Hazard identification and risk assessment should form a practical basis for decisions about which actions (controls) to take to reduce or control risk.

Preliminary consideration of where the risks are most likely to be high should be given when planning risk assessment. Where such consideration is not given, potentially high-risk activities might not necessarily be assessed urgently. Prioritization can be of enormous practical value and the most significant risks should be assessed first. The output from an initial status review (see 4.1.2) can help with the identification of these and other significant risks.

The level of detail in a risk assessment should be related to the magnitude of the risk. It is counterproductive to apply elaborate assessment methods to risks that are manifestly trivial. Small, low-risk organizations in particular should be highly selective about the risks that they assess in detail.

Provided that no changes in circumstances have occurred, it is not necessary or cost-effective to create new risk assessments when a previous assessment has shown that existing or planned controls:

- conform to well-established legal requirements or standards;
- are appropriate for the tasks;
- are understood and used by everyone concerned; and
- are effective (i.e. result in an acceptable risk).

In such cases, no further action is required, other than to record the fact that the assessment has been reviewed and is still deemed to be applicable, and to ensure, where appropriate, that controls continue to be used.

### **E.2.2 Selecting the people**

Hazard identification and risk assessment should be carried out by people competent in relevant hazard identification and risk assessment methodologies and techniques and with appropriate knowledge of the work activities, using an open, questioning approach. A useful method, whenever possible, is to train small teams to coordinate assessments in order to combine the inputs of those who work in the affected area with the perspective of colleagues from another part of the organization who might have greater objectivity. Specialist advice might be required.

Risk assessment based on a participative approach provides an opportunity for management, safety representatives and the workers to agree that an organization's OH&S procedures:

- are based on shared perceptions of hazards and risks;
- are necessary and workable; and
- will succeed in preventing harm.

This can contribute to the promotion of the positive safety culture (see Annex C and Annex H).

Ideally, everyone should be able to contribute to assessments that relate to them. For example, they should be encouraged to tell assessors what they think about the need for, and practicality of, particular risk controls.

### **E.2.3 Selecting the hazard identification and risk assessment method**

There is no single methodology for hazard identification and risk assessment that will suit all organizations. Hazard identification and risk assessment methodologies vary greatly across industries, ranging from simple assessments to complex quantitative analyses with extensive documentation. Individual hazards might require that different methods be used, e.g. an assessment of long term exposure to chemicals might need a different method from that taken for equipment safety or for assessing an office workstation. Each organization should choose approaches that are appropriate to its scope, nature and size, and which meet its needs in terms of detail, complexity, time, cost and availability of reliable data. Taken together, the chosen approaches should result in a comprehensive methodology for the ongoing evaluation of the organization's risks.

To be effective, the organization's procedures for hazard identification and risk assessment should take account of the following:

- hazards;
- risks;
- controls;
- management of change;

- documentation; and
- on-going review.

To ensure consistency of application, it is recommended that these procedure(s) be documented.

The risk assessment method should take into account legal and other requirements. In many countries, sector-specific legislation for major hazard activities specifies where the more complex methods of assessment are required. Regulatory agency advice should be taken into account where applicable.

A particular challenge for organizations which carry out major hazard activities is to achieve a balance between the management of obvious personal injury risks at one end of the scale, and low-probability/high-consequence events on the other. High consequence events merit a precautionary approach, as they generally involve societal and business risk.

Whereas complex numerical methods are required for the assessment of some major hazards activities, in many circumstances OH&S risk can be addressed using simpler methods, which are either qualitative or semi-quantified (see E.4.3). These approaches typically involve a greater degree of judgement, since they place less reliance on hard numerical data. In some cases such methods will serve only as initial screening tools, to identify where more detailed assessment is needed, or where measurements are needed. For example, risk assessments to evaluate the harm from continuing exposure to toxic dusts might require sampling dust concentrations with appropriate instruments, and comparing these concentrations with given limits or standards.

One common approach to risk assessment, based on a risk matrix, is illustrated in E.4.7.

#### **E.2.4 Planning the coverage of hazard identification and risk assessment**

It is important to decide the scope and coverage of each assessment that is to be undertaken. Assessments may be focused on individual work activities, but there could be factors associated with particular work locations (e.g. lone working) which can be considered more generically. In addition to everyday activities it is vital to include, for example, infrequent maintenance tasks and foreseeable emergencies, as well as day-to-day production work. Information is then gathered about the risks from these activities.

Possible ways of classifying assessments, which can be used separately or in combination, include:

- geographical areas within/outside the organization's premises;
- stages in the production process, or in the provision of a service;
- planned and reactive work;
- defined tasks (e.g. driving);
- phases in the lifecycle of work equipment: design, installation, normal operation, maintenance, repair, decommissioning and disposal;



- different operational states of plant and equipment to allow for transient states, such as start-up and shut-down where controls might be different to those in normal operation;
- risks arising from the particular layout of equipment or buildings (or changes to layout) involving issues such as escape routes and siting of hazardous equipment, e.g. furnaces and chemical stores;
- tasks carried out by contractors; and
- risks arising from plant on the site provided or maintained by others, e.g. a gas supplier's bulk storage compound.

For some activities, depending on the risks involved and its own competence in such matters, the organization might rely upon risk assessments carried out by others, for example, requesting a construction contractor to carry out the risk assessments for on-site construction activities.

Information needed for assessments should include, but might not be limited to, items from the following:

- tasks being carried out, their duration and frequency;
  - location(s) where the work is carried out;
  - proximity to and scope for hazardous interaction with other activities in the workplace;
  - those who normally/occasionally carry out the tasks;
  - others who might be affected by the work (e.g. cleaners, visitors, contractors and the public);
  - training that personnel receive about the tasks;
  - any existing written systems of work and/or permit-to-work procedures prepared for the tasks;
  - manufacturers' or suppliers' instructions for operation and maintenance of plant;
  - machinery and powered hand tools that are used;
  - size, shape, surface character and weight of materials that might be handled;
  - distances and heights that materials have to be moved by hand;
  - services used (e.g. compressed air);
  - substances used or encountered during the work, including their physical form (fume, gas, vapour, liquid, dust/powder and solid);
  - content and recommendations of safety data sheets relating to substances used or encountered;
- NOTE In some countries these are referred to as "Material Safety Data Sheets" (MSDS).*
- relevant legislation and standards applicable to the work being done, the plant and machinery used, and the substances used or encountered;
  - controls believed to be in place;



- access to, and adequacy/condition of, emergency equipment, emergency escape routes, emergency communication facilities, and external emergency support, etc.;
- reactive monitoring data: incident, accident and ill health experience associated with the work being done, equipment and substances used and gained as a result of information from within and outside the organization; and
- findings of any existing assessments relating to the work activity.

It is important that the scope of each individual risk assessment is clearly communicated among the assessment team, and clearly recorded, to ensure the correct scope and coverage is achieved. For example, it should be apparent whether the risk assessment of a particular plant area includes machinery cleaning and maintenance activities, as well as normal operation, or whether cleaning and maintenance is subject to separate risk assessment.

### E.3 Hazard identification

Hazard identification involves identifying sources, situations or acts with a potential for harm in terms of human injury or ill health, or a combination of these (see 3.9).

There are three questions to be asked during hazard identification.

- Is there a source of harm?
- Who (or what) could be harmed?
- How could harm occur?

Hazards that clearly possess negligible potential for harm need not be documented or given further consideration.

Hazard identification should consider different types of hazards, including physical, chemical, biological and psychosocial (see Table E.7 for examples of hazards).

The organization should establish specific hazard identification tools and techniques that are relevant to the scope of its OH&S management system.

The following sources of information or inputs should be considered during the hazard identification process:

- OH&S legal and other requirements (see 4.3.3), e.g. those that prescribe how hazards should be identified;
- OH&S policy (see 4.2);
- records of incidents (including ill health and accidents);
- reports from previous audits, assessments or reviews;
- input from workers and other interested parties (see 4.4.4);
- information from other management systems (e.g. quality management or environmental management);
- information from worker OH&S consultations;
- process review and improvement activities in the workplace;

- information on typical hazards in similar organizations;
- reports of incidents and accidents that have occurred in similar organizations; and
- information on the facilities, processes and activities of the organization, including the following:
  - workplace design, traffic plans and site plan(s);
  - process flowcharts, operations manuals and product plans;
  - inventories of hazardous materials (raw materials, chemicals, wastes, products, sub-products);
  - equipment specifications;
  - product specifications, safety data sheets, toxicology and other OH&S data;
  - monitoring data (see 4.5.1); and
  - occupational exposure and health assessments.

Hazard identification processes should be applied to both routine and to non-routine (e.g. periodic, occasional or emergency) activities and situations. Examples of types of non-routine activities and situations that should be considered during the hazard identification process include:

- plant cleaning;
- maintenance;
- plant start-ups/shut-downs;
- off-site visits and field trips;
- refurbishment;
- extreme weather conditions;
- temporary arrangements; and
- emergency situations.

Hazard identification should consider all persons having access to the workplace (e.g. customers, visitors, service contractors, delivery personnel, as well as workers), particularly:

- the hazards and risks arising from their activities;
- the hazards arising from the use of products or services supplied to the organization by them;
- their lack of familiarity with the workplace; and
- their varying behaviour.

Human factors relate the application of technology and understanding to make the workplace compatible with human capabilities. In considering human factors, the organization's hazard identification process should cover the following and their interactions:

- the nature of the job (workplace layout and operator information);
- the environment (heat, lighting and noise);
- human behaviour (absenteeism, fatigue and injury);

- psychological capabilities (cognition and attention); and
- physiological capabilities (biomechanical and physical variation of people).

For hazards originating outside the workplace, there is a practical limitation on the ability of the organization to take account of such issues in its hazard identification; however, where it is clear that there is a hazard due to an activity taking place in the vicinity of the organization's workplace then this should be addressed. Very often these activities are unplanned and require assessment as soon as they occur.

The organization could be obliged to give consideration to hazards created beyond the boundary of the workplace, particularly where there is a legal obligation or duty of care concerning such hazards. In some legal jurisdictions such hazards are instead addressed through the organization's environmental management system.

For the hazard identification to be effective the organization should use a comprehensive approach that includes information from a variety of sources, especially inputs from people who have knowledge of its processes, tasks or systems.

Hazard identification techniques can include the following:

- benchmarking;
- walkabouts;
- interviews;
- detailed inspections;
- incident reviews and subsequent analyses;
- monitoring and assessment of hazardous exposures (chemical and physical agents); and
- workflow and process analysis, including their potential for creating unsafe behaviour.

Checklists can be used as a reminder of what types of hazards to consider and to record the initial hazard identification.

An example checklist is provided in Table E.7. This is not necessarily exhaustive, but many organizations will not encounter all the hazards shown. The checklist also includes some examples of consequences and factors that influence the size of the hazard. For example, the hazard from a drum of acid varies due to factors, such as the quantity and strength of the acid.

When using checklists, assessors still need to be observant and use a questioning approach to help recognize any hazards that are not on the list. Checklists should be specific to the work area, process or equipment being evaluated.

## **E.4 Risk assessment**

### **E.4.1 General**

Risk is the combination of the likelihood of an occurrence of a hazardous event or exposure(s) and the severity of injury or ill health (3.12) that can be caused by the event or exposure(s).

Risk assessment is a process of evaluating the risk(s) arising from a hazard(s), taking into account the adequacy of any existing controls, and deciding whether the level of risk(s) is acceptable (see 3.27 and 3.1).

An acceptable risk is a risk that has been reduced to a level that can be tolerated by the organization having regard to its legal obligations and its OH&S policy.

*NOTE* Some reference documents use the term "risk assessment" to encompass the entire process of hazard identification, determination of risk, and the selection of appropriate risk reduction or risk controls, risk assessment and determining controls.

#### E.4.2 Risk assessment inputs

Inputs to the risk assessment processes may include, but are not limited to, information or data on the following:

- details of location(s) where work is carried out;
- the proximity and scope for hazardous interaction between activities in the workplace;
- security arrangements;
- the human capabilities, behaviour, competence, training and experience of those who normally and/or occasionally carry out tasks which expose them to risks;
- toxicological data, epidemiological data and other health-related information;
- the proximity of other personnel (e.g. cleaners, visitors, contractors and the public) who might be exposed to risk arising from a work activity;
- details of any existing written systems of work and/or permit-to-work procedures prepared for tasks which expose workers to risks;
- manufacturers' or suppliers' instructions for the operation and maintenance of equipment and facilities;
- the availability and use of controls (e.g. for ventilation, guarding and personal protective equipment);
- abnormal conditions, e.g. the potential interruption of utility services, such as electricity and water or other process failures;
- environmental conditions, both external and within the workplace;
- the potential for failure of plant and machinery components and safety devices or for their degradation from exposure to the elements or process materials;
- details of access to, and adequacy/condition of, emergency procedures, emergency escape plans, emergency equipment, emergency escape routes (including signage), emergency communication facilities, and external emergency support, etc.;
- monitoring data related to incidents, accident and ill health experience associated with specific work activities;

- the findings of any existing assessments relating to work activities which expose workers to risks;
- details of previous unsafe acts, either by the individuals performing the activity or by others (e.g. adjacent personnel, visitors, contractors, etc.);
- the potential for a failure to induce associated failures or disabling of controls;
- the duration and frequency at which tasks are carried out;
- the accuracy and reliability of the data available for the risk assessment; and
- any legal and other requirements (see 4.3.3) which prescribe how the risk assessment has to be performed or what constitutes an acceptable risk, e.g. sampling methods to determine exposure, use of specific risk assessment methods, or permissible exposure levels.

Risk assessment should be conducted by a person(s) with competence in relevant risk assessment methodologies and techniques (see 4.3.2) and appropriate knowledge of the work activity.

### E.4.3 Risk assessment methodologies

An organization can use different risk assessment methods as part of an overall strategy for addressing different areas or activities. When seeking to establish the likelihood of harm, the adequacy of existing controls should be taken into account. A risk assessment should be detailed enough to determine appropriate controls.

Some risk assessment methods are complex and appropriate to special or particularly hazardous activities. For example, risk assessment of a chemical process plant might require complex mathematical calculations of the probabilities of events that could lead to a major release of agents that might affect individuals in the workplace or the public.

In many circumstances, OH&S risk can be addressed using simpler methods and can be qualitative. These approaches typically involve a greater degree of judgment, since they place less reliance on quantifiable data. In some cases, these methods will serve as initial screening tools, to determine where a more detailed assessment is needed.

The organization should consider limitations in the quality and accuracy of the data used in the risk assessments and the possible effect these could have on the resulting determination of risk. The higher the level of uncertainty in the data, the greater is the need for caution in determining whether the risk is acceptable.

*NOTE* See Table E.1 for a comparison of risk assessment tools and methodologies.

Table E.1 Comparisons of some examples of risk assessment tools and methodologies

Tool	Strengths	Weaknesses
Checklists/ Questionnaires	<ul style="list-style-type: none"> <li>• Easy to use</li> <li>• Use can prevent “missing something” in initial evaluations</li> </ul>	<ul style="list-style-type: none"> <li>• Often limited to yes/no answers</li> <li>• Only as good as the checklist used – it might not take into account unique situations</li> </ul>
Risk matrices	<ul style="list-style-type: none"> <li>• Relatively easy to use</li> <li>• Provides visual representation</li> <li>• Does not require use of numbers</li> </ul>	<ul style="list-style-type: none"> <li>• Only 2-dimensional – cannot take into account multiple factors impacting risk</li> <li>• Predetermined answer might not be appropriate to the situation</li> </ul>
Ranking/ Voting tables	<ul style="list-style-type: none"> <li>• Relatively easy to use</li> <li>• Good for capturing expert opinion</li> <li>• Allows for consideration of multiple risk factors (e.g. severity, probability, detectability and data uncertainty)</li> </ul>	<ul style="list-style-type: none"> <li>• Requires use of numbers</li> <li>• If the quality of the data is not good, the results will be poor</li> <li>• Can result in comparison of incomparable risks</li> </ul>
Failure modes and effects analysis (FMEA); Hazard and operability studies (HAZOP)	<ul style="list-style-type: none"> <li>• Good for detailed analysis of processes</li> <li>• Allows input of technical data</li> </ul>	<ul style="list-style-type: none"> <li>• Needs expertise to use</li> <li>• Needs numerical data to input into analysis</li> <li>• Takes resources (time and money)</li> <li>• Better for risks associated with equipment than those associated with human factors</li> </ul>
Exposure assessment strategy	<ul style="list-style-type: none"> <li>• Good for analysis of data associated with hazardous materials and environments</li> </ul>	<ul style="list-style-type: none"> <li>• Needs expertise to use</li> <li>• Needs numerical data to input</li> </ul>
Computer modelling	<ul style="list-style-type: none"> <li>• If relevant and sufficient data are available, computer modelling can give good answers</li> <li>• Generally uses numerical inputs and is less subjective</li> </ul>	<ul style="list-style-type: none"> <li>• Significant time and money needed to develop and validate</li> <li>• Potential for over-reliance on the results, without questioning their validity</li> </ul>
Pareto analysis	<ul style="list-style-type: none"> <li>• A simple technique that can assist in determining the most important changes to make</li> </ul>	<ul style="list-style-type: none"> <li>• Only useful for comparing similar items, i.e. is unidimensional</li> </ul>

#### E.4.4 Other considerations for risk assessment

Some organizations develop generic risk assessments for typical activities that can occur in several different sites or locations. Such generic assessments can be useful as a starting point for more specific assessments, but need to be customized to be appropriate to the particular situation. This approach can improve the speed and efficiency of the risk assessment process and improve the consistency of risk assessments for similar tasks.

When the organization’s risk assessment method uses descriptive categories for assessing severity or likelihood of harm, they should be clearly defined, e.g. clear definitions of terms such as “likely” and



“unlikely” are needed to ensure that different individuals interpret them consistently (see Table E.3).

The organization should consider risks to sensitive populations (e.g. pregnant workers) and vulnerable groups (e.g. inexperienced workers) as well as any particular susceptibilities of the individuals involved in performing particular tasks (e.g. the ability of an individual to read instructions or to allow for colour-blindness).

The vulnerability of individuals to various hazards can vary. The most appropriate way to take account of this is to perform the risk assessment in relation to one or more hypothetical or representative persons, e.g. the person most exposed to it, or a person living at some fixed point or with some assumed pattern of life. For example, occupational exposure to substances hazardous to health is usually assessed by considering the exposure to the hazard of a hypothetical person who is in good health and works a normal working week. When the controls determined via risk assessment are applied in practice, consideration should be given to the particular susceptibilities of the persons actually involved to consider whether the controls need to be adapted.

Risk assessments should take into account the number of people exposed to a hazard. Clearly, a given hazard is more serious if it affects a greater number of people.

In cases where, either a single hazardous event would cause harm to more than one individual or a number of people carry out an activity (e.g. at different times or at different locations within the workplace) and all are exposed to the same individual risk, it is first necessary to assess whether that level of risk is acceptable for individuals. In judging whether any further risk control measures are reasonably practicable, account should be taken of the fact that the greater the number of individuals who are exposed to that risk, the greater the benefit that will be achieved by controlling it. The greater benefit affects how much it is reasonable to spend on controls, i.e. for a given reduction in individual risk, the greater the benefit, the more it is reasonable to spend.

Where the hazardous activity could also cause severe harm to large numbers of people in one incident, e.g. multiple fatalities, as well as considering individual risk, there is a further factor to consider: public aversion to such incidents. This societal risk factor also affects how much it is reasonable to spend on controls and should be added to the effect of benefiting a greater number of individuals.

A risk assessment to evaluate the harm from exposure to chemical, biological and physical agents might require measurement of exposure concentrations with appropriate instruments and sampling methods. Comparison of these concentrations should be made to applicable occupational exposure limits or standards. The organization should ensure that the risk assessment considers both the short-term and long-term consequences of exposure and the additive or synergistic effects of multiple agents and exposures.

In some cases risk assessments are performed using sampling to cover a variety of situations and locations. Care should be taken to ensure that the sample data used are sufficient and adequately represent all the situations and locations being assessed.



### E.4.5 Severity of harm

When seeking to establish the potential severity of harm, the following should be considered.

- How is the person likely to be affected?
- What harm will result?

Care should be taken to ensure harm category definitions reflect both (short term) health and safety consequences and (longer term) health effects, e.g. hearing loss. Procedural prompts and/or training might be necessary to reinforce to assessors the need to consider both these types of harm, as there can be a tendency to focus exclusively on short term risks.

A possible categorization of severity of harm levels based on a basic three-band categorization is shown in Table E.2.

Table E.2 Examples of harm categories

Harm category <sup>A)</sup> (examples)	Slight harm	Moderate harm	Extreme harm
Health	Nuisance and irritation (e.g. headaches); temporary ill health leading to discomfort (e.g. diarrhoea).	Partial hearing loss; dermatitis; asthma; work-related upper limb disorders; ill health leading to permanent minor disability.	Acute fatal diseases; severe life shortening diseases; permanent substantial disability.
Safety	Superficial injuries; minor cuts and bruises; eye irritation from dust.	Lacerations; burns; concussion; serious sprains; minor fractures.	Fatal injuries; amputations; multiple injuries; major fractures.

<sup>A)</sup> The health and safety harm categories are effectively defined by quoting examples and these lists are not exhaustive.

An organization should adapt such a categorization to reflect its objectives. For example, the structure illustrated in Table E.2 could be expanded to four bands by separating the "extreme harm" category into two categories, such as "severe harm" (e.g. major fractures) and "extreme harm" (e.g. fatal). However, Table E.2 illustrates an approach that could be suitable for an organization carrying out low-risk activities where very serious consequences are less likely.

### E.4.6 Likelihood of harm

When seeking to establish the likelihood of harm, the adequacy of existing controls should be taken into account. When carrying out risk assessment for new activities, the initial assessment should be based on the intended controls. In both cases, these measures should be clearly documented so that the basis of the assessment will be clear when the assessment is revisited at a later date. Legal requirements, codes of practice and guidance published by regulatory agencies indicate appropriate controls for specific hazards. The following issues should typically be considered in addition to the work activity information given in E.4.4:

- a) frequency and duration of an individual's exposure to the hazard;
- b) vulnerability of the individual or group (e.g. young or inexperienced personnel, pregnant mothers and those working alone);

- c) potential failure of services, e.g. electricity and water;
- d) potential failure of plant and machinery components and safety devices;
- e) exposure to the elements;
- f) protection afforded by personal protective equipment (PPE) and whether this is correctly worn when required;
- g) unsafe acts (unintended errors or intentional violations of procedures), either by the individual carrying out the activity or by others (e.g. adjacent personnel, visitors and contractors) who:
  - might not know what the hazards are;
  - might not have the knowledge, physical capacity, resources, skills or motivation to work safely;
  - underestimate risks to which they are exposed;
  - underestimate the practicality and utility of safe working methods;
  - might be influenced in their behaviour by organizational culture (e.g. a perception that the organization tolerates risk-taking in the interests of productivity); and

*NOTE This includes considering people's behaviour during abnormal and emergency situations as well as during routine tasks.*

- h) the potential for common-cause failures to increase the likelihood of harm occurring, e.g. via failures which could simultaneously disable a number of the controls in place for a given hazard.

In assessing the likelihood of harm, an organization should not place sole reliance on historical data, as the data might not reflect current plant and equipment or current ways of working which were adopted after the period covered by the data. However, in the case of ill health data, an analysis can provide useful information on patterns of absence that could inform risk priorities.

*NOTE Likelihood of harm is equivalent to the likelihood that a hazardous event actually results in harm. An approach which can also be taken here is to assess the likelihood of a hazardous event occurring and then assessing the likelihood that harm arises from that event. In practice this leads to an approach where a full assessment is made only where harm is reasonably foreseeable.*

A simple categorization of likelihood of harm based on a four band structure is illustrated in Table E.3.

An organization should use categories for likelihood that suit its circumstances, ensuring that the range is appropriate both to one-off safety-related incidents and to health effects that might manifest themselves after prolonged exposure to the hazard or some time after exposure to the hazard has occurred. Similarly, an organization can use different definitions for categories of likelihood.

Some organizations might prefer to further subdivide the categories, but a system with too many bands could give a spurious impression of accuracy and make consistent assignment to the correct band more difficult. Whatever the structure, the examples in Table E.3 illustrate the need for organizations to define terms such as "frequent" and

“unlikely”, to enable assessments to be carried out consistently and with repeatability by different assessors and at different times.

Table E.3 Examples of categories for likelihood of harm

Categories for likelihood of harm	Very likely	Likely	Unlikely	Very unlikely
Typical occurrence	Typically experienced at least once every six months by an individual	Typically experienced once every five years by an individual	Typically experienced once during the working lifetime of an individual	Less than 1% chance of being experienced by an individual during their working lifetime

Care should be taken to ensure that the scheme is designed to ask questions that the workers and managers can reasonably be expected to answer. For example, most people find it far easier to judge the typical frequency of a hazardous event (e.g. once or twice a year) than judge the probability that an incident will occur during a particular operation (e.g. between one in a hundred and one in a thousand). Assessors also need to be aware of the limitations in the quality and accuracy of data used in risk assessments, and the possible effect these could have on the resulting true risk level. There are instances where sensitivity assessment is necessary to establish whether the overall conclusions of the risk assessment are robust in the light of data uncertainties. The greater the uncertainty, the greater the need for an adequate margin of safety.

Where there is a range of possible ways in which a hazardous scenario might develop, it is appropriate to select a representative sample for risk assessment. Care should be taken, however, to ensure that the selected sample is indeed representative and that controls which are suitable and sufficient for the sample cases, are also suitable and sufficient in the other cases.

For complex scenarios, modelling techniques such as Fault Tree Analysis or Event Tree Analysis can assist in building up a picture of the combinations of events, or failures in controls, that would be required for harm to occur. These can be quantified or used simply as qualitative tools. However, some expertise is needed to use these techniques correctly without which potentially misleading errors could arise.

## E.4.7 Estimating risk

### E.4.7.1 General

Table E.4 shows a simple method for estimating risks. Risks are estimated according to their likelihood and potential severity of harm, combining the severity and likelihood categories shown in E.4.5 and E.4.6.

Some organizations might wish to develop more sophisticated approaches. For example, an organization with high risks might use a matrix with a larger or smaller number of “likelihood” or “harm” categories, for example, to discriminate between very harmful and extremely harmful consequences. For a low-risk organization a smaller matrix might suffice.

Throughout the risk assessment particular attention should be given to risks associated with very harmful and extremely harmful consequences. In these cases it is also useful to estimate the risk ratings with and without controls in place. This emphasizes the critical importance of maintaining the controls. For example, in relation to health working near a very noisy machine with an effective acoustic enclosure would be a low risk, but if the enclosure is frequently removed, there would be a very high risk of deafness. In terms of safety a fall on a scaffold with full edge protection would normally be a low or perhaps a medium risk, but in the absence of edge protection the risk would be very high.

Table E.4 A simple risk estimator

Likelihood of harm (see Table E.3)	Severity of harm		
	Slight harm	Moderate harm	Extreme harm
Very unlikely	Very low risk	Very low risk	High risk
Unlikely	Very low risk	Medium risk	Very high risk
Likely	Low risk	High risk	Very high risk
Very likely	Low risk	Very high risk	Very high risk

*NOTE* These categories and the resulting asymmetry of the matrix arise from the examples of harm and likelihood categories in Table E.2 and Table E.3. Organizations should adjust the design and use of the matrix to suit their needs.

#### E.4.7.2 Management of change

The management of change addresses changes that the organization introduces to the organization itself, its OH&S management system, or its activities. Changes created or introduced by external factors are required to be evaluated through ongoing hazard identification and risk assessment (see 4.3.2).

The organization should consider hazards and potential risks associated with new processes or operations at the design stage, as well as changes in the organization, existing operations, products, services or suppliers. The following are examples of conditions that should initiate a management of change process:

- new or modified technology (including software), equipment, facilities, or work environment;
- new or revised procedures, work practices, design specification or standards;
- different types or grades of raw materials;
- significant changes to the site's organizational structure and staffing, including the use of contractors;
- modifications of health and safety devices and equipment or controls; and
- an activity taking place in the vicinity of the organization's workplace.

The management of change process should include consideration of the following questions to ensure that any new or changed risks are acceptable.

- Have new hazards been created (see 4.3.2)?
- What are the risks associated with the new hazards?
- Have the risks from other hazards changed?
- Could the changes adversely affect existing risk controls?
- Have the most appropriate controls been chosen, bearing in mind usability, acceptability and both the immediate and long-term costs?

**E.5 Deciding on the level of risk that is acceptable**

In a fully quantified assessment, it is possible to evaluate the risk before deciding on the level of risk that is deemed to be acceptable. However, with semi-quantified methods such as the risk matrix, the acceptability or otherwise of risks in the various categories or bands need to be considered as part of the process of selecting appropriate categories or bands. In making decisions as to whether the risk is acceptable, the workers should be consulted.

To do this, the organization should first establish acceptability criteria to provide a basis for consistency in all its risk assessments. This should involve consultation with workers’ representatives and other stakeholders and should take account of legislation and regulatory agency guidance, where applicable.

A simple evaluation of risk acceptability based on a five band structure could be developed as illustrated in Table E.5, which reflects the ALARP principle mandated in a number of countries (including the UK). Other approaches may be adopted where there is no obligation to apply ALARP, for example a simple threshold between acceptable and unacceptable risk.

Table E.5 **A simple risk categorization**

Category of risk	Evaluation of acceptability
Very low	Acceptable
Low <sup>A)</sup>	Risks that should be reduced as far as it is cost-effective to do so to (i.e. to as low as reasonably practicable)
Medium	
High <sup>A)</sup>	Unacceptable
Very high	

<sup>A)</sup> In this example these categories are used to allow for different types actions or different timescales for action that might need to be applied according to the level of risk.

In deciding the acceptability of risks from particular hazards, account should be taken of individuals’ total exposure to risk, allowing for the fact that they could be exposed to risks associated with a number of different hazards, or to different attributes of the same hazard. The individual risk exposure of members of special groups should also be considered, for example, vulnerable groups such as new or inexperienced workers, or those most directly involved in the highest risk activities, i.e. the most exposed group of workers.

## E.6 Determining appropriate controls

### E.6.1 Deciding on action to control or reduce risks

Having completed a risk assessment and having taken account of existing controls, the organization should be able to determine whether existing controls are adequate or need improving, or if new controls are required.

Legal requirements, standards and codes of practice can specify appropriate controls for specific hazards. In some cases, controls will need to be capable of attaining ALARP (as low as reasonably practicable) levels of risk.

Table E.6 shows an example of the general rules that might be established to control risks in the various categories of acceptability, and the priority that should be given to such actions. Individual organizations will determine their own levels of risk and could choose to use greater detail than that shown in Table E.6. For example, an organization might specify timescales for the implementation of additional risk controls.

Dividing the time spent on a hazardous activity between several individuals, however, should not be considered a valid risk reduction control measure. Risk from individual hazards should be acceptable irrespective of individual exposure to the hazard; an unacceptable risk does not become acceptable if exposure is limited to a short time.

Table E.6 A simple risk-based control plan

Risk level	Acceptability: Guidance on necessary action and timescale
Very low	These risks are considered acceptable. No further action is necessary other than to ensure that the controls are maintained.
Low	No additional controls are required unless they can be implemented at very low cost (in terms of time, money and effort). Actions to further reduce these risks are assigned low priority. Arrangements should be made to ensure that the controls are maintained.
Medium	Consideration should be given as to whether the risks can be lowered, but the costs of additional risk reduction measures should be taken into account. The risk reduction measures should be implemented within a defined time period. Arrangements should be made to ensure that the controls are maintained, particularly if the risk levels are associated with harmful consequences.
High	Substantial efforts should be made to reduce the risk. Risk reduction measures should be implemented urgently within a defined time period and it might be necessary to consider suspending or restricting the activity, or to apply interim risk controls, until this has been completed. Considerable resources might have to be allocated to additional controls. Arrangements should be made to ensure that the controls are maintained, particularly if the risk levels are associated with extremely harmful consequences and very harmful consequences.
Very high	These risks are unacceptable. Substantial improvements in risk controls are necessary, so that the risk is reduced to an acceptable level. The work activity should be halted until risk controls are implemented that reduce the risk so that it is no longer very high. If it is not possible to reduce risk the work should remain prohibited.

*NOTE* Where the risk is associated with extremely harmful consequences, further assessment is necessary to increase confidence in the actual likelihood of harm.



## E.6.2 Preparing a risk control action plan

Risk levels as shown in Table E.4 form the basis for deciding whether improved controls are required, and the timescale for action. Table E.6 indicates that control effort and urgency should be proportional to risk. As discussed in E.6.1 it might also be appropriate to take account of the number of individuals exposed to the risk, when setting priorities and timescales. Detailed guidance on the selection of appropriate risk controls is given in E.6.3 and Annex F.

The outcome of a risk assessment should be an inventory of prioritized actions to devise, maintain or improve controls.

## E.6.3 Risk control

### E.6.3.1 Controls

While identifying hazards and risks is an essential element of the risk assessment process, only the application of suitable controls reduces risks. In many cases, this will require no more than comparing the controls in place against what is required by established, authoritative good practice.

A risk assessment should be detailed enough to identify hazards and the required controls to reduce the risk of harm, including those planned or in place. For example, in an environment where several hazardous chemicals are in use that require the use of a number of different types of PPE, defining the hazard broadly as "Chemical exposure" and the corresponding controls as "PPE" and "Training" is unlikely to be of value. If the risk assessment is to be meaningful and effective it should:

- specify the chemical exposure paths associated with groups of workplace tasks, e.g. inhalation versus absorption through the skin;
- describe the type of harm (a general description could be enough);
- relate these to the particular types of PPE required for these tasks; and
- identify which particular (mandatory or recommended) training course or other controls are appropriate for personnel carrying out these tasks.

This creates an assessment, which specifically relates the adequacy of controls to the individual hazards. The risk assessment process should also form the basis for identifying the situations and scenarios that require emergency and evacuation plans, and for which emergency equipment or assistance is necessary.

Experience also shows the value of checking the existence of the controls, as part of the risk assessment process, rather than making assumptions. For example, where a training course is cited as a control measure, particularly where course content evolves over time, it is worthwhile checking that the course still addresses the particular hazards, risk or risk controls relevant to the area being assessed.

### E.6.3.2 Risk control systems

As well as identifying the necessary controls for particular risks, the risk assessment process should consider the arrangements to ensure



that these controls are implemented and kept in place or amended as needed. Such arrangements, sometimes called risk control systems, provide the method of management control for individual controls, or types of control. Taking a permit-to-work (PTW) system as an example, this would include defining aspects such as:

- the scope (range of activities) for which PTW is needed;
- responsibility for the design of the PTW system and the responsibilities of those involved in its operation;
- training and competency of those who design or operate the PTW system;
- communication and consultation needed in the design and operation of the system;
- arrangements for inspections and audits of the system and its implementation; and
- arrangements to review the performance of the PTW system and determine whether improvements are needed.

If new or improved controls are required, their selection should be by the principle of the hierarchy of controls, i.e. the elimination of hazards where practicable, followed in turn by risk reduction (either by reducing the likelihood of occurrence or potential severity of injury or harm), with the adoption of PPE as a last resort.

The following provides examples of implementing the hierarchy of controls:

- Elimination: modify a design to eliminate the hazard, e.g. mechanized instead of manual packaging;
- Substitution: substitute a less hazardous material or reduce the system energy (e.g. lower the force, amperage, pressure and temperature);
- Engineering controls: install ventilation systems, machine guarding, interlocks, sound enclosures, etc.;
- Signs, warnings, and/or administrative controls: safety signs, hazardous area marking, photo-luminescent signs, markings for pedestrian walkways, warning sirens/lights, alarms, safety procedures, equipment inspections, access controls, etc.;
- Personal protective equipment (PPE): safety glasses, hearing protection, face shields, safety harnesses, respirators and gloves.

In applying this hierarchy consideration should be given to the relative costs, risk reduction benefits and reliability of the available options.

An organization should also take into account:

- the need for a combination of engineering and administrative controls (combining elements from the hierarchy of controls);
- established good practice in the control of the particular hazard under consideration; risk assessment should not be used to attempt to justify applying weaker controls, or tolerating higher levels of risk, than are achieved via established good practice;
- adapting work to the individual (e.g. to take account of individual mental and physical capabilities);
- taking advantage of technical progress to improve controls;

- using measures that protect everyone [e.g. by selecting engineering controls that protect everyone in the vicinity of a hazard in preference to personal protective equipment (PPE)];
- human behaviour and whether a particular control measure will be accepted and can be effectively implemented;
- typical basic types of human failure (e.g. simple failure of a frequently repeated action, lapses of memory or attention, lack of understanding or error of judgement, and breach of rules or procedures) and ways of preventing them;
- the need to introduce planned maintenance of, for example, machinery safeguards;
- the possible need for multiple controls;
- the possible need for emergency/contingency arrangements where risk controls fail; and
- the potential lack of familiarity with the workplace and existing controls of those not in the direct employment of the organization, e.g. visitors and contractor personnel.

Once the controls have been determined the organization can prioritize its actions to implement them. In the prioritization of actions the organization should take into account the potential for risk reduction of the planned controls. It is preferable that actions addressing a high-risk activity or offering a substantial reduction of risk take priority over actions that have only limited risk reduction benefit.

In some cases, it is necessary to modify work activities until risk controls are in place or to apply temporary risk controls until more effective actions are completed. For example, the use of hearing protection as an interim measure until the source of noise can be eliminated, or the work activity segregated to reduce the noise exposure. Temporary controls should not be regarded as a long-term substitute for more effective risk controls.

Prioritizing actions needs a pragmatic approach. For example, there could be both high and lower priority actions that need to be undertaken together in the interests of efficiency. Consideration should also be given to low-cost solutions that enable quick actions to partially address a particular risk; such approaches can be effective in providing an early demonstration of management commitment to the risk assessment and control process. However, interim measures should not be regarded as a long term substitute for more effective risk controls.

Table E.6 provides an example of how control effort and urgency might be prioritized in relation to risk, based on the risk categories and their acceptability as defined in Table E.5.

The process for planning and implementing changes, described in Annex D, could be applied to actions arising from risk assessment.

The organization should conduct ongoing monitoring to ensure that the adequacy of the controls is being maintained (see 4.5.1).

*NOTE* The term "residual risk" is often used to describe the risk that remains after controls have been implemented.

## E.7 Recording and documenting the results

Risk assessment records should enable the organization to demonstrate that it has systematically identified all significant hazards, evaluated the associated risks, and determined the adequacy of its controls.

The following types of information should be recorded:

- work activity/area under assessment;
- identification of hazards;
- determination of the risks associated with the identified hazards, including:
  - employees at risk;
  - likelihood of harm; and
  - severity of harm;
- indication of the level of the risks related to each hazard;
- description of, or reference to, the measures to be taken to control the risks;
- determination of the competency requirements for implementing the controls (see 4.4.2);
- action to be taken following the assessment, or to initiate additional data gathering (e.g. air sampling), including the action owner, target date for completion and/or prioritization category for the action;
- risk levels that result from those actions which involve changes to risk controls, and the acceptability of the resulting risks;
- any significant assumptions made in the assessment; and
- administrative details, e.g. name of assessor, other people consulted during the assessment, reviewers, endorsement by accountable manager, date of the assessment, and date by which the assessment should be reviewed.

When existing or intended controls are used in determining OH&S risks, these measures should be clearly documented so that the basis of the assessment will be clear when it is reviewed at a later date.

Where risk assessments result in a programme of actions to improve controls, records should demonstrate the tracking of these actions to completion.

The description of measures to monitor and control risks can be included within operational control procedures (see 4.4.7). The determination of competency requirements can be included within training procedures (see 4.4.3).

More complex hazard identification, risk assessments and risk control processes could require additional documentation.

## E.8 On-going review

Hazard identification and risk assessment should be subject to periodic review. This requires the organization to consider the timing and frequency of such reviews, as affected by the following types of issues:

- the need to determine whether existing risk controls are effective and adequate;

- the need to respond to the emergence of new hazards;
- the need to respond to changes that the organization itself has made (see 4.3.2);
- the need to respond to feedback from monitoring activities, incident investigation (see 4.5.3), emergency situations or the results of testing of emergency procedures (see 4.4.8);
- changes in legislation;
- external factors, e.g. emerging occupational health issues;
- advances in control technologies;
- changing diversity in the workforce, including contractors; and
- changes proposed by corrective and preventive action (see 4.5.3.3).

Periodic reviews can help ensure consistency across risk assessments carried out by different people at different times. Where conditions have changed and/or better risk management technologies have become available, improvements should be made as necessary.

It is not necessary to perform new risk assessments when a review shows that the existing or planned controls remain valid.

Internal audits (see 4.5.5) can provide an opportunity to check that hazard identifications, risk assessments and controls are in place and up-to-date. Internal audits can also be a useful opportunity to check whether the assessment reflects actual workplace conditions and practice.

Experience suggests that a competent auditor can often provide a useful independent check by examining:

- whether a risk assessment exists for a particular task;
- when it was last revised;
- whether it includes any hazards and/or risks that are obvious from observation, or from discussion with personnel carrying out the task;
- whether relevant controls cited in the risk assessment are in evidence at the work location (including guards, tools, PPE, etc.);
- whether personnel carrying out the task are familiar with the risks and controls (including whether they have received the stated training); and
- whether actions arising from risk assessments have been completed, or are being progressed.

Hazardous event investigations provide an important opportunity to review the effectiveness of:

- a) the overall risk assessment process; and
- b) the validity of the risk assessment for the particular activity affected by the hazardous event.

Since risk assessment is intended to reduce the occurrence of hazardous incidents, such occurrences might indicate weaknesses in the way risks have been assessed or in the way controls have been designed, implemented, or monitored.

Table E.7 Hazard checklist

- 
- a) Physical hazards:
- slippery or uneven ground leading to slips/falls;
  - work at heights, leading to falls (linked to factors, such as the distance of the fall);
  - objects, such as tools or materials, falling from height onto passers-by;
  - inadequate space to work, such as low headroom, leading to head impacts;
  - poor ergonomics (e.g. workplace design that does not take account of human factors), leading to acute or chronic health effects;
  - manual lifting/handling of materials, etc., with the potential for back, hand and foot injuries (linked to factors such as the characteristics of the load);
  - trappings, entanglement, burns and other hazards arising from equipment;
  - transport hazards, either on the road or on premises/sites, while travelling or as a pedestrian (linked to the speed and external features of vehicles and the road environment);
  - fire and explosion (linked to the amount and nature of flammable material);
  - harmful energy sources such as electricity and radiation (linked to the amount of energy involved);
  - noise or vibration;
  - stored energy, which can be released quickly and cause physical harm to the body (linked to the amount of energy);
  - frequently repeated tasks, which can lead to upper limb disorders (linked to the duration of the tasks);
  - unsuitable thermal environment, which can lead to hypothermia or heat stress;
  - violence to staff, leading to physical harm;
  - ionizing radiation (from x- or gamma-ray machines or radioactive substances); and
  - non-ionizing radiation (e.g. light, magnetic, radio-waves).
- b) Chemical hazards:
- inhalation of vapours, gases or particles [e.g. carbon monoxide (CO): the hazard would be linked to the amount of CO];
  - contact with, or absorption through, the body, such as acids: the hazard would be linked to the strength and amount of the acid;
  - ingestion (i.e. entering the body via the mouth), such as lead paint;
  - stored materials that degrade over time (such as oxidizers); and
  - lack of oxygen.
- c) Biological hazards:
- biological agents, allergens or pathogens (such as bacteria or viruses) that might be:
    - i) inhaled;
    - ii) transmitted via contact with bodily fluids (including needle-stick injuries): the hazard would be linked to the nature of the pathogen; and
    - iii) ingested (e.g. via contaminated food products).
- d) Psychological hazards:
- lack of communication or management control;
  - workplace physical environment, leading to stress (linked to the magnitude and duration of stressors);
  - threat of physical violence;
  - bullying or intimidation within the workplace, leading to stress; and
  - involvement in a major incident, leading to post traumatic stress: the hazard would depend on the nature of the incident.
- 

*NOTE Psychosocial hazards can arise from issues external to the workplace.*

---

## Annex F (informative) **Operational control**

### F.1 **General**

This annex is reproduced from BS OHSAS 18002:2008, **4.4.6.1** to **4.4.6.4**, and provides additional information to that given in Annex E to facilitate the introduction and maintenance of operational risk controls.

As indicated in **4.4.7**, once it has gained an understanding of its OH&S hazards (**4.3.2**), the organization should implement the operational controls that are necessary to manage the associated risks and comply with applicable OH&S legal and other requirements. The overall objective of OH&S operational controls is to manage the OH&S risks to fulfil the OH&S policy.

Information to be considered when establishing and implementing operational controls includes:

- OH&S policy and objectives;
- results of hazard identification, risk assessment, evaluation of existing controls and determination of new controls (see **4.3.2**);
- management of change processes (see **E.4.7.2**);
- internal specifications (e.g. for materials, equipment, facilities layout);
- information on existing operating procedures;
- legal and other requirements to which the organization subscribes (see **4.3.3**);
- product supply chain controls related to purchased goods, equipment and services;
- feedback from participation and consultation (see **4.4.4**);
- the nature of, and extent to which, tasks are to be performed by contractors and other external personnel; and
- access to the workplace by visitors, delivery personnel, service contractors, etc.

When developing operational controls, priority should be given to control options with higher reliability in preventing injury or ill health, consistent with the hierarchy of controls, i.e. this should start with redesign of equipment or processes to eliminate or reduce hazard(s), improved signage/warnings for hazard avoidance, improved administrative procedures and training to reduce the frequency and duration of the exposure of persons to inadequately controlled hazards, and lastly the use of personal protective equipment (PPE) to reduce the severity of injury or exposure (see **E.6.3.2**).

The operational controls need to be implemented, evaluated on an ongoing basis (**E.8**) to verify their effectiveness, and integrated into the overall OH&S management system.

### F.2 **Establishing and implementing operational controls**

Operational controls should be established and implemented as necessary to manage the OH&S risks to an acceptable level, for operational areas and activities, e.g. purchasing, research and development, sales, services, offices, off-site work, home-based working, manufacturing, transportation and maintenance.



Operational controls can use a variety of different methods e.g. physical devices (such as barriers, access controls), procedures, work instructions, pictograms, alarms and signage.

The organization should establish operational controls to eliminate, or reduce and control, the OH&S risks that could be introduced into the workplace by employees, contractors, other external personnel, members of the public and/or visitors. Operational controls can also need to take into account situations where OH&S risks extend into public areas or areas controlled by other parties (e.g. when employees of the organization are working at a client's site). It is sometimes necessary to consult with external parties in such circumstances.

Examples of areas in which OH&S risks typically arise, and examples of their associated control measures, include:

- a) general control measures
  - regular maintenance and repair of facilities, machinery and equipment to prevent unsafe conditions from developing,
  - housekeeping and maintenance of clear walkways,
  - traffic management (e.g. the management of the separation of vehicle and pedestrian movements),
  - provision and maintenance of workstations,
  - maintenance of the thermal environment (temperature, air quality),
  - maintenance of the ventilation systems and electrical safety systems,
  - maintenance of emergency plans,
  - policies related to travel, bullying, sexual harassment, drug and alcohol abuse, etc.,
  - health programmes (medical surveillance programmes),
  - training and awareness programmes relating to the use of particular controls (e.g. permit-to-work systems),
  - access controls;
- b) performance of hazardous tasks
  - use of procedures, work instructions, or approved working methods,
  - use of appropriate equipment,
  - pre-qualification and/or training of personnel or contractors for hazardous tasks,
  - use of permit-to-work systems, pre-approvals, or authorizations,
  - procedures controlling the entry and exit of personnel to hazardous work sites,
  - controls to prevent ill health;
- c) use of hazardous materials
  - established inventory levels, storage locations and storage conditions,
  - conditions of use for hazardous materials,
  - limitations of areas where hazardous materials can be used,



- secure and safe storage provisions and control of access,
  - provision of and access to material safety data and other relevant information,
  - shielding of radiation sources,
  - isolation of biological contaminants,
  - knowledge in the use of and availability of emergency equipment (4.4.8);
- d) facilities and equipment
- regular maintenance and repair of facilities, machinery and equipment to prevent unsafe conditions from developing,
  - housekeeping and maintenance of clear walkways, and traffic management,
  - provision, control and maintenance of personal protective equipment (PPE),
  - inspection and testing of OH&S equipment such as guarding, fall arrest systems, shutdown systems, rescue equipment for confined spaces, lock-out systems, fire detection and suppression equipment, exposure monitoring devices, ventilation systems and electrical safety systems,
  - inspection and testing of material handling equipment (cranes, forklifts, hoists and other lifting devices);
- e) purchase of goods, equipment and services
- establishment of OH&S requirements for goods, equipment and services to be purchased,
  - communication of the organization's own OH&S requirements to suppliers,
  - pre-approval requirements for the purchase or transport/transfer of hazardous chemicals, materials and substances,
  - pre-approval requirements and specifications for the purchase of new machinery and equipment,
  - pre-approval of procedures for the safe operation of machinery, equipment, and/or the safe handling of materials prior to their use,
  - selection and monitoring of suppliers,
  - inspection of received goods, equipment and services, and (periodic) verification of their OH&S performance,
  - approval of the design of OH&S provisions for new facilities;
- f) contractors
- establish criteria for the selection of contractors,
  - communication of the organization's own OH&S requirements to contractors,
  - evaluation, monitoring and periodic re-evaluation, of the OH&S performance of contractors;

g) other external personnel or visitors in the workplace.

As the knowledge and capabilities of visitors or other external personnel vary greatly, this should be considered when developing controls. Examples can include:

- entry controls;
- establishing their knowledge and capabilities prior to permitting the use of equipment;
- provision of advice and training as necessary;
- warning signage/administrative controls;
- methods for monitoring visitor behaviour and supervising their activities.

### F.3 Stipulating operating criteria

The organization should stipulate operating criteria where they are necessary for the prevention of injury or ill health. Operating criteria should be specific to the organization, its operations and activities, and be related to its own OH&S risks, where their absence could lead to deviation from the OH&S policy and objectives.

Examples of operating criteria can include:

- a) for hazardous tasks:
  - use of specified equipment, and procedures/work instructions for its use,
  - competency requirements,
  - use of specified entry control processes and equipment,
  - authorities/guidelines/instructions/procedures for individual risk assessment prior to immediate commencement of the task;
- b) for hazardous chemicals:
  - approved chemical lists,
  - exposure limits,
  - specific inventory limits,
  - specified storage locations and conditions;
- c) for tasks involving entry into hazardous areas:
  - specification of personal protective equipment (PPE) requirements,
  - specified conditions for entry,
  - health and fitness conditions;
- d) for tasks involving work performed by contractors:
  - specification of OH&S performance criteria,
  - specification of competency and/or training requirements for contractor personnel,
  - specification/inspection of contractor provided equipment;

- e) for OH&S hazards to visitors:
  - entry controls (sign-in/sign-out, access limitations),
  - personal protective equipment (PPE) requirements,
  - site safety briefings,
  - emergency requirements.

#### **F.4 Maintaining operational controls**

Operational controls should be reviewed on a periodic basis to evaluate their ongoing suitability and effectiveness. Changes that are determined to be necessary should be implemented (see **4.3.2**).

In addition, procedures should be in place to determine circumstances where new controls and/or modifications of existing operational controls are needed. Proposed changes to existing operations should be evaluated for OH&S hazards and risks before they are implemented. When there are changes to operational controls, the organization should consider whether there are new or modified training needs (see **4.4.3**).

## Annex G (informative) Occupational health

### G.1 Introduction

Occupational health is an integral part of the management system, but it is often overlooked or is not given the full attention it deserves. Each year in the UK it is estimated that 2 million people suffer from ill health caused by or made worse by work. Some 20 million working days are lost each year in the UK as a result of occupational ill health. Workers are often exposed to harmful agents, such as substances, environments and energies that can lead to occupational ill health.

The overall role of occupational health is the promotion and maintenance of the highest degree of physical, mental and social wellbeing of workers in all occupations. In other words, it is the prevention of occupational ill health.

### G.2 Types of occupational health hazards

Occupational ill health is caused by exposure to chemical, physical, biological, psychosocial and ergonomic hazards.

- a) Chemical hazards include organic solvents, welding fumes, heavy metals, isocyanates, asbestos, silica, dusts and a wide range of other substances.
- b) Physical hazards include noise, vibration, extremes of temperature, extremes of pressure, ionizing radiations and non-ionizing radiations.
- c) Biological hazards include bacteria, viruses, fungal spores, enzymes, animal proteins and genetic material.
- d) Ergonomic hazards include handling operations (for example, lifting, lowering, pulling and pushing), posture and repetitive operations.
- e) Psychosocial hazards include the interactions of individuals, social and work organization factors, for example excessive work demands beyond a person's ability to cope.

In any workplace all of the occupational health hazards should be identified and subject to competent and systematic risk assessment, and appropriate risk control measures should be implemented (see Annex E and Annex F).

### G.3 Occupational health support

Occupational health support and provision can involve a wide range of personnel, including managers, supervisors and those with specific formal qualifications. For many smaller, "lower" risk organizations formal provision might be unlikely or might not be necessary for compliance with BS OHSAS 18001. In such circumstances, organizations can develop the occupational health knowledge of their managers and supervisors so that they can take responsibility for the prevention of occupational ill health. Management can then identify where there is a need to seek additional support or formal provision. For larger, "higher" risk organizations management can have either in-house or external support from specialist occupational health personnel.

## **G.4 Occupational health personnel**

Occupational health support involves a multi-discipline approach to prevent people becoming ill because of their work. A wide range of specialist disciplines are involved, including occupational health physicians, occupational health nurses, occupational hygienists, toxicologists, psychologists, epidemiologists, ergonomists, radiation protection specialists, physiotherapists, engineers and health and safety practitioners. These specialists each have well defined roles within occupational health and can be usefully involved in hazard identification, risk assessment and risk control processes. Besides health and safety practitioners, the most frequently encountered specialists are occupational physicians and occupational nurses.

## **G.5 The role of occupational health physicians and nurses**

### **G.5.1 Health surveillance**

Occupational health physicians and occupational health nurses should hold appropriate occupational health qualifications. Their role is to ensure that workers' state of health is such that they are fit and able to undertake their work in a safe, healthy and efficient manner. In order to achieve this requirement a three-tier system of health surveillance should be in place.

### **G.5.2 Pre-employment medical screening**

The first tier is pre-employment medical screening, which is generally undertaken by an occupational health physician. This usually involves a pre-employment health questionnaire and a medical examination; depending on the work hazards exposed a specific medical surveillance and/or biological monitoring might be required to ensure that workers are capable of undertaking the work they are expected to perform and that the work will not aggravate existing or past health conditions.

### **G.5.3 Health surveillance**

The second tier is routine health surveillance, including medical surveillance where relevant. The purpose of health surveillance is to identify at an early stage any adverse health effects that are associated with the work activities of workers. It also establishes whether workers remain fit to continue their employment in their designated tasks, or whether some temporary or permanent suspension from tasks which expose workers to particular hazards is required. The frequency and nature of such examinations should be determined by the potential hazards/risks to which workers are exposed. Periodic health surveillance can include:

- keeping records of exposure to hazardous agents;
- self-inspection or inspection by a trained person, for example skin inspection;
- examination by an occupational health physician or occupational health nurse, for example eyesight tests, the assessment of hearing (audiometry) and the assessment of respiratory function (lung function tests); and

- biological/biological effects monitoring via blood or urine samples to quantitatively determine the absorption or intake of hazardous substances.

Other types of tests or examinations can be undertaken for workers exposed to specific risks. Health surveillance is also a method for monitoring the effectiveness of existing control measures and the continuing adequacy of the risk assessments.

#### **G.5.4 Post-employment medicals**

The third tier includes exit medicals and post-employment health screening. The main purpose is to determine a worker's state of health when retiring or moving to a new job. The examination would therefore generally identify whether or not the worker had suffered occupational ill health as a result of current employment activities and the extent of any such ill health. In some cases periodic medicals can be offered to former workers on an on-going basis if they have been exposed to some agent that could cause ill health for which there is a long latency period before symptoms of the condition or disease are detectable.

#### **G.5.5 Other services**

##### **G.5.5.1 Worker support**

As an outcome of the three-tier system of health surveillance, or as part of a wider role to ensure the health of workers, occupational health physicians and nurses are often involved in providing support to workers suffering from occupational ill health by means of return to work and rehabilitation schemes, advice and counselling, absence monitoring and health promotion.

The need for intervention or treatment of workers suffering occupational ill health is identified either through health surveillance or a worker consulting the occupational health physician or nurse or General Practitioner. In some cases, there can be sufficient expertise available to give appropriate support. In other cases where treatment or a particular expertise is required, the worker can be referred to a consultant, a physiotherapist, counsellor or other specialist.

Workers should be encouraged to consult occupational health physicians and nurses if they have any concerns about their health, whether or not these concerns are occupationally related. Physicians and nurses can discuss problems confidentially in order to give advice and reassurance to workers and, if necessary, to refer them to other specialists. In some cases physicians and nurses have had special training in counselling and might be able to give practical help immediately. Worker consultations are a valuable method of identifying occupational health problems in the workplace at an early stage and allow remedial action to be taken without delay.

##### **G.5.5.2 Absence monitoring**

Following absence from work for long periods due to ill health or injury the state of workers' health should be reviewed to ensure that they are capable of undertaking the work they are expected to perform when they return to work and that the work will not

aggravate existing or past health conditions. A phased return with restricted hours of working might be necessary to rehabilitate a worker and to enable them to gradually get used to the demands of the work activity.

Sickness absence is a major concern to employers. Managers need to maintain accurate records relating to sickness absence and undertake regular analysis of these to identify the trends and underlying problems which could cause serious damage to corporate performance or result in accidents or long-term illness. Occupational health physicians and nurses can assist managers in the analysis of absence records relating to occupational health problems in order to allow appropriate medical treatment to be given. Where appropriate, home visits can be undertaken to gather further information about a worker's state of health and the reasons for absence.

Workers who are expected to be absent from work for a protracted period due to ill health or injury can also be offered rehabilitation in the form of early medical intervention or other specialist treatment to enable them to make an early recovery and return to work so soon as possible.

### **G.5.5.3 Health promotion**

Organizations should establish policies to promote well being at work. Managers, occupational health physicians and nurses should also be actively involved in health promotion. The primary role is about giving workers advice about healthy lifestyles and general fitness. This can include the promotion of healthy diets and regular exercise, helping workers to stop smoking and providing information about drugs and alcohol. Many occupational health physicians and nurses are involved in national health campaigns that are coordinated through the Department of Health. In addition, in-house campaigns are often held, which focus on the occupational hazards encountered on particular sites and include topics such as occupational asthma, dermatitis, noise, muscular skeletal disorders, including work-related upper limb disorders, vibration white finger, and work-related stress (see HSE guidance on stress management [2], [3], [4], [5] and [6]).

The provision of good standards of occupational health, including health promotion, is beneficial to both employers and workers. The early detection of occupational ill health is essential to enable effective medical treatment to be given to workers and to identify potentially harmful activities before the health consequences are too serious.



## Annex H (informative) **Worker involvement**

### H.1 **General**

Subclause 4.4.4.3 sets out the situations where participation and consultation are necessary and should be included in the procedure.

There is strong evidence to suggest that involving the workers in health and safety matters has a positive effect on health and safety performance. Active engagement of workers ensures that all those involved with a work activity are participating in managing the risks.

“Worker involvement” is an umbrella term for the various ways in which workers are encouraged to take part in making decisions about managing health and safety at work. Involvement means relationships between workers and employers based on collaboration and trust, and nurtured as part of the management of health and safety.

Worker involvement can make a significant contribution to:

- developing a positive health and safety culture;
- reducing accidents and ill health and their associated costs;
- risk assessment and development of action plans;
- increased team commitment to health and safety;
- better worker satisfaction and retention;
- improved communication with workers;
- meeting customer demands and maintaining credibility; and
- complying with legal requirements.

When it is most developed and effective, worker involvement goes beyond simply giving information or consulting on management proposals. Instead, it creates a genuine partnership between managers and workers (either directly or through their representatives) for managing health and safety risks.

Effective and sustainable worker involvement requires careful planning and implementation.

Every organization is different and so there is no single model of worker involvement that can be applied in all circumstances. There is no “one size fits all” model for involving workers, and involvement will have to be flexible to the organization’s needs and culture.

It is important to promote involvement at each stage of the health and safety management plan and to monitor and review progress.

Leadership and management commitment to worker involvement and related initiatives are essential in ensuring the organization has a positive health and safety culture.

### H.2 **The three stages of worker involvement**

#### H.2.1 **Provision of information**

- Sharing information with workers by the provision and exchange of information and instructions that enable the organization to function efficiently.

- Ensuring workers are properly informed about developments, and provided with training to allow them to understand the information and instruction.

### H.2.2 Consultation

Worker consultation is the method by which management and workers or their representatives jointly consider and discuss issues of mutual concern. It involves seeking acceptable solutions to problems through a genuine exchange of views and information. Consultation is not negotiation and it is not just giving information or telling workers what the employer has already decided to do. Consultation does not remove the right of managers to manage – they can still make the final decision – and does not require managers and workers to agree. It does, however, oblige managers to seek and listen to the views of workers before decisions are taken.

### H.2.3 Involvement and participation in joint problem solving

Fully effective consultation often leads to joint problem solving, which offers employers and workers an even greater level of involvement, and has the greatest potential for improvements to health and safety. Effective worker involvement is not just the effective provision of information and consultation.

### H.2.4 Developing worker involvement

To encourage effective worker involvement, the organization needs to make sure that its health and safety policy statement specifies that everyone has a positive role to play. It should give a clear commitment by top management to actively involving the workers, including part-time and agency workers, as part of a developing health and safety culture.

Examples of ways to develop involvement include:

- using a worker/management team to develop core safety values that are championed in the workplace;
- using team-building approaches to develop common aims and joint commitment;
- ensuring a senior manager is championing worker involvement;
- ensuring effective involvement of trade unions and worker representatives;
- ensuring that the organization changes to provide support for the involvement of workers;
- ensuring operational and personnel procedure barriers are removed;
- ensuring that positive involvement is celebrated and rewarded in the organization;
- promoting cooperation in the workplace;
- ensuring worker involvement in OH&S management review and that the findings are fed back to, and reviewed by, workers;

- providing assistance and training to support the representational role of workers and ensuring that reporting lines and roles are understood and that time and resources are available to workers; and
- encouraging workers to share their knowledge by, for example, getting involved in induction training for new starters or advising on how best to train workers in risk management in their specialist area, build their confidence, ensure that learning is retained and promote team working.

### H.2.5 Systems for involving workers

Using a range of systems increases the success of worker involvement. Examples include:

#### a) Health and safety committees

Many workplaces use health and safety committees to discuss and make proposals for health and safety at work. Health and safety committees give an opportunity for organizations to demonstrate their commitment to actively engaging with the workers. By including worker representatives, trade union safety representatives, safety professionals and management and by communicating effectively the results of meetings the effectiveness of the health and safety committee can be improved, and the likelihood of workers getting involved in other schemes increased.

#### b) Workgroups/health and safety teams/improvement teams

Setting up small workgroups to deal with specific health and safety issues can be an effective way of establishing worker involvement. Workgroups should include workers who are directly involved with the issues that they are exploring and should be given clear objectives and a level of autonomy to develop and implement their findings.

#### c) Worker attitude surveys

Using regular attitude surveys to highlight and monitor health and safety issues (see also C 5.1).

#### d) Reporting schemes

Developing specific processes for workers to report incidents, near-misses and risks, or to feed back more general health and safety suggestions and concerns is a very effective way of encouraging worker participation. Such schemes highlight management commitment to listening to the workers and give a simple, structured way for all workers to make suggestions.

These can be enhanced by permitting anonymous reports and by providing incentives and recognition schemes to contributors to the scheme.

#### e) Risk assessments/preparation of safe systems of work

Workers who carry out the tasks being assessed should be involved in the risk assessment process. They know how the job is actually done and the scope for dangerous shortcuts. When they are involved in risk assessments workers are likely to be more committed to processes incorporating health and safety controls because, having been involved in their creation, they know why the controls are being imposed.

**f) Safety checks/inspections/audits**

Workers are more likely to know how work is actually carried out and are in a good position to be able to check that OH&S controls are in place, and make an informed contribution to improvements in safety performance.

**g) Behavioural based initiatives**

Workers are involved in observing and giving behaviour-based feedback informally, with feedback to work teams to develop intervention strategies to eliminate barriers to safe work practices.

This is generally more appropriate for an organization with a mature and effective health and safety management system where the observation process is an accepted part of the safety culture.

**h) Toolbox talks**

Short talks focused around specific health and safety issues, such as lifting, slips and trips, injuries from workplace vehicles and work-related stress, allow workers, safety professionals and managers to explore risks and develop strategies for dealing with them. Toolbox talks help to explain health and safety and to show the relevance of specific topics to particular jobs.

**i) Away days and social events**

Using team-building exercises like away days and social events is a good way to get workers involved in health and safety away from their usual work environment and to build cooperation between workers and departments.

**H.3 Implementing worker involvement**

Health and safety is just one aspect of the involvement of the workers in organizational decision-making. Where wider involvement exists it can be usefully extended to include health and safety.

Worker involvement depends on establishing a real partnership across the organization. Where managers are not seen to be committed, worker involvement is likely to fail. Managers should take care to support workers and their representatives by, for example, arranging workgroups and other meetings at times and places that are suitable for all parties (e.g. temporary, agency and shift workers) and maximize participation so that it reflects the diversity of the workers.

Particular attention should be given to disability and equality issues and engaging with, for example, workers whose first language is not English and those with a disability. Hard-to-reach and potentially vulnerable groups of workers should be identified and particular efforts made to encourage their involvement.

Where there are language or literacy issues, schemes including extensive reading and writing should be avoided. The use of signs and pictograms could be helpful.

It is important that when setting up arrangements for involving workers the organization thinks about how committed workers are likely to be. Involving workers in specific health and safety issues is likely to work best when those who work directly with the risks are asked to get involved. Trade union safety representatives and elected representatives can help get wider support. Workers will become

more involved and committed as they see the results of worker involvement and the enthusiasm of managers and colleagues.

For implementation to work well, the organization should:

- keep it relevant and fun;
- ensure responses and actions are timely;
- use varied communication methods and make them appropriate;
- say “thank you” and recognize health and safety worker input is just one application of a broader involvement of the workers in organizational decision-making;
- make it possible for everyone to get involved;
- ensure that all workers have the opportunity to participate;
- look beyond the immediate workplace;
- get workers involved in health and safety links outside the organization; sharing experiences with people outside the organization can help workers gain confidence and expertise that can improve their effectiveness at work, and by applying their newly developed skills in other environments and in partnerships with similar workplaces or the community, workers can help build the success of worker involvement schemes.

#### H.4 Reviewing worker involvement

Worker involvement should be reviewed as part of wider health and safety auditing, using such indicators as:

- management are supportive;
- workers are given time and encouragement to get involved;
- organizational arrangements enable worker involvement;
- individual appraisal and training-needs analysis outcomes;
- problems monitored, data collected and ideas for improvement are used;
- unplanned benefits that have become apparent as worker involvement has developed are recorded; and
- impact on other business indicators, such as productivity, are recognized.

##### Example self-assessment questions

- a) Have workers been involved in determining the organization’s safety policy?
- b) Does the organization have representatives of worker safety?
- c) Does the organization have a health and safety committee?
- d) Is the health and safety committee dealing with strategic matters?
- e) Is the health and safety committee burdened with day-to-day problems that are better resolved elsewhere?
- f) Are all health and safety committee members equal partners?
- g) Have representatives of worker safety, supervisors and other workers been trained to enable them to play an equal role in the health and safety committee?

- h) Can workers set the health and safety agenda during meetings?
- i) Is there a system for workers to make a positive input to improve health and safety performance?
- j) Do ideas for health and safety initiatives come from the workers?
- k) Are workers involved in long-term health and safety initiatives?
- l) Does the organization provide cover for workers to enable attendance at safety meetings and training courses?
- m) Are the people who carry out particular tasks involved in the risk assessment of those tasks?
- n) Are workers involved in writing safe working procedures?
- o) When changes are planned are workers fully involved?
- p) When accidents are investigated are representatives of worker safety fully involved?
- q) Do health and safety audits actively include representatives of worker safety?

**Annex I (informative) Emergency preparedness and response****I.1 General****I.1.1 Background**

An emergency is an incident that necessitates a rapid and coordinated response in order to minimize the potential harm to the health and safety of all persons within and/or in the immediate vicinity of workplaces controlled by the organization. Every organization faces the risk of an emergency. Large or small, simple or complex, low-hazard or high-hazard the risk is ever present; the differences lie in the potential frequency of occurrence and the likely consequences. Because of this fact of business life, every organization should establish, implement and maintain a procedure or procedures:

- a) to identify the potential for emergency situations; and
- b) to respond to such emergency situations.

The response should be proportionate to the risks and the complexity of the organization.

The organization should respond to actual emergency situations and prevent or mitigate associated adverse OH&S consequences.

In planning its emergency response the organization should take account of the needs of relevant interested parties, e.g. emergency services and neighbours.

The organization should also periodically test its procedure(s) to respond to emergency situations, where practicable, involving relevant interested parties as appropriate.

The organization should periodically review and, where necessary, revise its emergency preparedness and response procedure(s), in particular, after periodical testing and after the occurrence of emergency situations (see 4.5.3).

Emergencies differ from incidents in that they usually result in consequences that overload the basic emergency procedures of the organization. Examples of such consequences include multiple injuries or a large fire. Most emergencies arise from the activities of the organization. However, some arise from incidents that have occurred in a nearby establishment, such as a major fire or explosion, or from natural events such as flooding or hurricane force winds.

Examples of emergencies include:

- incidents leading to serious injuries or ill health;
- fires and explosions;
- release of hazardous materials/gases;
- natural disasters, bad weather;
- loss of utility supply (e.g. loss of electric power);
- pandemics/epidemics/outbreaks of communicable disease;
- civil disturbance, terrorism, sabotage, workplace violence;
- failure of critical equipment;
- traffic accidents.



### I.1.2 Emergency preparedness and response

Emergency preparedness and response is set within the context of hazard identification, risk assessment and control (see 4.3.2). This essential OH&S activity is intended to minimize both the frequency of occurrence and the severity of incidents by implementing the appropriate corrective and preventive action. One of the essential activities following an incident is to improve the risk control in the workplace. In contrast, emergency preparedness and response is concerned with minimizing the severity of the consequences.

From the point of view of emergency preparedness and response, organizations lie along a spectrum ranging from the low-hazard, simple organization, for example an office-based organization occupying a single storey building, to the high-hazard organization, for example a petrochemical complex. In the former, the emergency preparedness and response will probably be no more than their first aid and fire precautions procedure. In the latter it will be complex but still incorporating their first aid and fire precautions procedure. Some organizations have both low- and high-hazard areas necessitating both a simple response and a more complex response in the appropriate process or activity.

It is essential that organizations identify the potential for emergency situations, prepare plans and procedures and identify the necessary resources for minimizing the consequences of the emergencies to which they are exposed and for aiding subsequent recovery. These plans and procedures will require routine testing. Where necessary, they should be integrated with the relevant response of the emergency services, and relevant local and national emergency response. The emergency preparedness and response plans and procedures should be subject to regular management review and, where necessary, revision. The plans and procedures should also be integrated with business continuity plans.

Just as emergencies vary in nature and scope so do emergency preparedness and response. These can range from simple rules and minimal resources to complex, but not necessarily elaborate, plans, procedures and resources designed to deal with a major and long-term emergency. Whether simple or complex, the plans and procedures have to be clearly stated and well understood by all concerned, and they need to be documented (see 4.4.4 and 4.4.5). In all cases, organizations should take into account:

- the results of hazard identification and risk assessment activities performed during the OH&S planning process (see 4.3.1);
- legal requirements;
- the organization's previous incident (including accident) and emergency experience;
- emergency situations that have occurred in similar organizations;
- information related to accident and/or incident investigations posted on the websites of regulators or emergency response agencies.

## **1.2 Establishing and implementing emergency response procedures**

### **1.2.1 General**

Establishing and implementing emergency response procedures is an integral part of occupational health and safety risk management; therefore due regard should be given to the requirements of Annex D and Annex E.

The emergency procedure(s) should be clear and concise to facilitate their use in emergency situations. They should also be readily available for use by emergency services. Emergency procedure(s) that are stored on a computer or by other electronic means might not be readily available in the event of a power failure, so paper copies of emergency procedure(s) should be maintained in readily accessible locations.

The first step is the identification of the potential for an emergency; this is equivalent to the identification of hazards of the "normal" risk assessment process. The next step is the assessment of the risk the emergency presents to the organization and its activities, taking into account existing control measures. In the case of emergency preparedness, the existing control measures are those intended to mitigate the effects of the risk and to aid recovery. Where these are considered to be adequate then no further measures are required but where they are inadequate then further emergency response measures are required.

The organization should be considered as a whole and not just in terms of its workers and activities. The impact of the emergency on all persons within and/or in the immediate vicinity of workplaces controlled by the organization should be taken into account. This should include employees, temporary workers, contract employees, visitors, neighbours or other members of the public and should take into consideration those with special needs, e.g. people with limited mobility, vision and hearing. The potential impacts on the emergency services, public transport and other services should also be considered.

In all cases, the emergency response procedure has to be compliant with the relevant legal requirements.

### **1.2.2 Identification of potential emergency situations**

The starting point for the identification of potential emergency situations is the hazard identification and risk assessment process carried out as part of the occupational health and safety management process (see Annex E). Other sources of information lie in the organization's accident and incident record, the emergencies that have been reported in similar organizations and in legal requirements.

In identifying potential emergency situations consideration should be given to emergencies that could occur during both normal operations and abnormal conditions, such as start-up, shut-down, and also those that could occur during modification, construction and demolition. The impact on the organization of emergencies in nearby locations should be considered, for example a fire in an adjacent factory.

A list should be drawn up of the potential emergency situations. This list should be under regular management review and, where necessary, revised. The review should take into account the impact of changes in:

- the organization and its personnel;
- equipment;
- method of working; and
- physical layout.

### **1.2.3 Risk assessment and emergency response**

Using the list drawn up of the potential emergency situations, the risk to people and the activities of the organization presented by each situation should be assessed. A judgement is then made of the acceptability of each risk and those that are judged to be unacceptable should be considered for risk reduction measures. For emergency preparedness and response, attention is focused on mitigating the consequences of the harm and aiding the recovery both of the people affected and of the organization.

### **1.2.4 Emergency response procedures**

An emergency response procedure is required for each of the identified emergency situations. The procedure should specify what is to be achieved and how.

Consideration should be given to the existence and/or capability of the following, in developing emergency response procedure(s):

- inventory and location of hazardous materials storage;
- numbers and locations of people;
- critical systems that can impact on OH&S;
- the provision of emergency training;
- detection and emergency control measures;
- medical equipment, first aid kits, etc.;
- primary and secondary control systems;
- monitoring systems for hazardous materials;
- fire detection and suppression systems;
- emergency power sources;
- availability of local emergency services and details of any emergency response arrangements currently in place;
- legal and other requirements;
- previous emergency response experience.

Essential to the success of the procedure is a team of people acting together as a coordinated whole. Therefore, the procedure should contain a description of the roles, responsibilities and authorities of those with specified duties and these persons should be identified; ideally, by current job role, rather than by name, to avoid having to revise the emergency response procedure every time there are changes in personnel. Consideration should be given to the need to identify alternate persons in case it is impossible or impracticable for the identified person to fulfil their duties. The procedures should also

contain the names, addresses and contact details of all those with specified duties and their alternates. It should be borne in mind that in an emergency the "normal" control procedures of the organization might not be operative and so reliance cannot be put on them.

Broadly speaking, five key roles can be identified in the team that is to be assembled for the management of the emergency:

- 1) a team leader to take overall charge and make strategic decisions;
- 2) a resource person to bring into effect any physical resources that are needed;
- 3) specialist members, such as health and safety advisor, medical staff and personnel officers;
- 4) a communications officer to take charge of all communications both on-site and off-site; and
- 5) an administration officer to maintain a record of all decisions taken.

It is recognized that small high-risk organizations and remote high-risk "out stations" of larger organizations might not be able to provide the above resources on site. Under these circumstances a number of workers should be trained to undertake the role of emergency controller with the objective that in the event of an emergency one worker takes the team leader role supported by the other trained workers, one of whom acts as a scribe.

Consideration should be given to who does what in the immediate phases of the emergency. The procedure should clearly specify the following:

- a) what constitutes an emergency;
- b) who will make this decision; and
- c) how the decision will be communicated to:
  - on-site emergency personnel;
  - the management;
  - the workers and others who may be affected; and
  - the emergency services.

Effective communications are essential in an emergency and this extends beyond communication and liaison with the emergency services. Anxious relatives, the media and other interested parties need accurate and truthful information and, if it is not given to them by the organization, they will obtain it from whatever other sources are available. Some emergencies need help from specialist contractors, such as suppliers of heavy lifting equipment and spillage removal contractors. The procedure should contain a list of these and their contact details. If such specialist contractors are required, suitable contracts should be drawn up.

The procedure should contain the actions that should be taken in the emergency by all those affected such as workers, contractors and visitors. This should include evacuation procedures and the locations of safe places.

The procedure should contain information on the location of emergency response equipment, the identification, location and quantities of hazardous substances, and the location (and operation)

of utility isolation points. They should contain up-to-date plant and premises drawings.

In high-hazard organizations two emergency response procedures are required, one dealing with the on-site aspects of the emergency and the other dealing with the off-site aspects. In such organizations it is advantageous to structure the response team on three levels; the top level dealing with strategic control, the second dealing with tactical control and the third with control matters at the location of the emergency. Small high-risk organizations will probably need to combine the tactical control with the location control and senior management will need to establish the strategic control either on- or off-site, as appropriate. There will also be very close liaison with the emergency services and the local authority.

In the case of a major emergency, such as a major fire, explosion or release of a hazardous substance, consideration should be given to the setting up of a control centre in a location that is unlikely to be affected by the emergency.

### **1.2.5 Emergency response equipment**

Emergency response equipment includes such items as personal protective equipment, first aid boxes and portable fire extinguishers. Self-contained breathing equipment, chemical spill cleaning equipment, chemical/biological/radiological monitoring equipment and communication equipment are further examples of emergency response equipment.

Using the list drawn up of the potential emergency situations, the items of emergency response equipment and supplies needed to mitigate the consequences of the event should be identified and the necessary quantities determined. The equipment and supplies should be located in readily accessible places, protected from damage and secure. The locations and quantities of the equipment and supplies should be described in the emergency response procedures.

The equipment should be subject to a regular testing routine to ensure that it is usable in an emergency. People who are designated to use the emergency equipment should be competent and, where necessary, should have regular refresher training.

### **1.2.6 Emergency response training**

Every person with specific roles and responsibilities for emergency response should be competent at all times to fulfil the requirements. Every worker should know and understand the procedures that directly affect them. This requires training and where necessary, refresher training.

On the basis of the emergency response procedure, the competence needs of all who have specified roles and responsibilities should be identified. Where necessary, the required training should be provided.

### **1.2.7 Periodic testing of emergency procedures**

It is not possible to create an emergency in order to test the effectiveness of the emergency procedure. Therefore, an emergency procedure can only be tested by simulation and/or "desk-top" exercises. Nevertheless, where it is reasonably practicable, the testing should be carried out under simulated emergency conditions.

Periodic testing of emergency procedures is necessary to ensure that the organization, its workers and, where necessary, the emergency services can appropriately respond to the emergency situation. It is essential that those with specific roles and responsibilities are fully involved in testing the procedures. For some testing, such as fire drills, it is essential that all personnel are involved in the routine testing of the procedure. The outcome of a test of an emergency procedure is not only to provide an exercise for those with specific roles and responsibilities, but also to identify, and therefore correct, any deficiencies in the procedure.

Where the procedure involves the emergency services they should be involved in the testing of the procedure.

Records should be kept of the routine testing of emergency procedures and of the action taken to correct any deficiencies. The type of information that should be recorded includes a description of the situation and scope of the drill, a timeline of events and actions and observations of any significant achievements or problems. This information should be reviewed with the drill planners and participants to share feedback and recommendations for improvement.

### **1.2.8 Reviewing and revising emergency procedures**

Periodic review of emergency preparedness and response procedures should be carried out and any changes required implemented. The review should be an integral part of the review of the management of occupational health and safety at a frequency specified by the organization. In addition, the review should be carried out following:

- organizational and/or personnel changes;
- an emergency or a test of an emergency procedure;
- changes in the emergency service provision; and
- changes in legal requirements.

The results of the review should be documented and, where necessary, communicated to all relevant personnel.

### **1.2.9 Documentation**

It is good practice to document every aspect of emergency preparedness and response (see **4.4.4** and **4.4.5**)

The urge to have a single emergency preparedness and response procedure for every emergency that could involve the organization should be resisted. Each type of emergency should have its own written procedure. Although aspects of a given procedure may be similar or, in some cases, identical to another procedure, it is more effective for the implementation of the procedure that one relatively small document is followed rather than having to make use of a folder containing many procedures. However, there are advantages from an organizational point of view for all the emergency procedures to be collated into a single document. Although it is advantageous to have an electronic record as well as a written record, the electronic record might not be available in the event of a power failure.

Documentation should not be so detailed as to constrain response to a developing emergency and should not be seen as a substitute for adequate training in emergency response.



Every person who has specified roles and responsibilities should have their own copy of the emergency procedure in which they are involved. In general, the emergency procedures should be made readily available to all personnel. Emergency procedures that require evacuation, for example fire, should be made available to all concerned and not just workers. The emergency procedure for obtaining first aid has to be known by all workers.



## Annex J (informative) **Measuring performance**

### **J.1 General**

#### **J.1.1 Responsibilities and competence**

Line management plays a key role in measuring OH&S performance and audit. Those responsible for carrying out performance measurement in OH&S should be competent to do so.

#### **J.1.2 Purposes of performance measurement**

Performance measurement is an essential part of an OH&S management system. The main purposes of performance measurement are to:

- a) determine whether OH&S plans have been implemented and objectives achieved;
- b) check that risk controls have been implemented;
- c) learn from OH&S management system failures, including nonconformity with risk controls, hazardous events, and cases of ill health;
- d) promote implementation of plans and risk controls by providing feedback to all parties;
- e) provide information that can be used to review and, where necessary, improve aspects of an OH&S management system;
- f) demonstrate the effectiveness of the organization's OH&S to stakeholders; and
- g) evaluate compliance with statutory duties.

#### **J.1.3 Explanation of key terms**

For the purpose of this annex the following key terms apply:

- a) proactive monitoring;
- b) reactive monitoring;
- c) leading performance indicator;
- d) lagging performance indicator.

Proactive and reactive monitoring are the two ways of obtaining OH&S performance information. Leading performance indicators are measures of compliance; lagging performance indicators are measures of the undesired consequences (accidents, etc.) of inadequate OH&S arrangements.

The adoption of these four terms is necessary to allow a coherent explanation of performance measurement methods and, separately, an explanation of the nature of the data that can be obtained.

Some organizations over-simplify these terms by referring only to proactive and reactive performance indicators. While these terms (or variants of them) lack precision, their inclusion in OH&S management system documentation is unlikely to lead to any diminution of the effectiveness of the system in practice.

**a) proactive monitoring**

timely routine and periodic checks:

- i) that OH&S plans have been implemented;
- ii) to determine the level of conformity with OH&S management systems; and
- iii) that seek evidence of harm that has not otherwise come to the attention of the organization via reactive monitoring.

**b) reactive monitoring**

structured responses to OH&S management system failures, including hazardous events and cases of ill health

**c) leading performance indicator**

data on conformity or nonconformity with the performance requirements of OH&S plans and the organization's OH&S management system generally

*NOTE The data result mainly from proactive monitoring.*

**d) lagging performance indicator**

exclusive data on the prevalence of hazardous events, i.e. incidents and accidents, and of occupational ill health

*NOTE The data result mainly from reactive monitoring.*

**e) key performance indicator**

leading and lagging performance indicators that have been selected as the principal indicators to be used by an organization in reviews of the OH&S management system

**J.1.4 Monitoring**

In a fully effective OH&S management system, proactive monitoring provides reassurance that the system is operating as intended, for example confirming that workers have received relevant training and that safe systems of work are being followed. In a less than fully effective system proactive monitoring provides timely evidence of problems that need to be remedied, for example, work being carried out without a risk assessment, or that not all accidents are being reported.

Reactive monitoring is exclusively concerned with systematic responses to nonconformities in the OH&S system and the investigation of hazardous events and the causes of ill health. These problems could have been brought to the attention of the organization, for example, by a statutory inspector or by complaints from workers or members of the public or, in the case of hazardous events or adverse health effects, by the people who have experienced or witnessed near-misses or harm.

In summary, an important distinction between the two methods of monitoring is the way that non-conformities are detected by an organization routinely seeking out evidence of short-comings (proactive monitoring), or by others, often when it is too late (reactive monitoring).

An exclusive reliance on reactive monitoring might lead to complacency, regulatory agency action, complaints by the public that could adversely affect corporate image, and, above all, the organization's OH&S management system lying dormant until harm occurs.

It is wrong to assume that full conformity with risk controls, confirmed by proactive monitoring, means that risks are in fact fully controlled. For example, a safe system of work might not cater for all eventualities.

Thus, reactive monitoring should be combined with proactive monitoring. Reactive hazardous event investigations might reveal that, while risk controls were fully implemented and this was confirmed by proactive monitoring, they were nonetheless ineffective in preventing harm.

Proactive monitoring of OH&S performance in many cases (for example where routine checks are carried out by supervisors) leads to immediate corrective action and the information about the findings might not be formally recorded. But the organization should, where practicable, record the findings of proactive monitoring and always document the findings of reactive monitoring. The data thus obtained should be used as indicators of OH&S performance (see J.2.1 and J.4).

Hazardous events and cases of ill health are usually monitored reactively, so it is common to refer to the findings of these investigations as the exclusive source of reactive monitoring data (see J.1.3). However, this is not necessarily the case.

It is necessary to refer to data on the prevalence of hazardous events and ill health as lagging performance indicators, and management system successes and failures, such as the possession or absence of an up-to-date OH&S policy, or conformity or nonconformity with a safe system of work, as leading performance indicators. These are considered further in J.2.

When choosing performance indicators for low-probability/high-consequence situations, such as those in the major hazard industries, care should be taken to ensure that the indicators are suitable to provide information on the control of the event under consideration. In most cases, indicators such as accident incidence rate have proved to be poor indicators of performance in this area.

## **J.2 Leading and lagging performance indicators, data types, and key performance indicators**

### **J.2.1 Leading and lagging performance indicators**

Typical examples of both kinds of indicator, and the reasons why both kinds should be used for performance measurement, are included in J.3. Information on both kinds of indicator should be communicated to workers and, where appropriate, to, for example, contractors and the public. They should be primary inputs to management reviews.

### **J.2.2 Selecting performance indicators and key performance indicators (KPIs) relevant to the organization**

Information needs vary at different levels and in different parts of an organization. Top management need KPIs to determine whether

or not the OH&S system is working effectively. At operational level many performance indicators might be necessary to monitor implementation and effectiveness of risk controls.

A large organization should make arrangements to aggregate OH&S data that can form the basis for selecting appropriate KPIs. Appropriate KPIs for the organization's industry sector should be identified.

The careful selection of relevant KPIs is vital: too few could result in an incomplete picture of the robustness of the system; too many might swamp senior staff with extraneous detail. Moreover, KPI data could be distorted by their use: managers might be reluctant to report accidents in their area of responsibility if accident rates are a KPI used in their performance appraisal. The leading and lagging indicators selected as KPIs should therefore be reviewed to ensure that they continue to be valid.

### **J.2.3 Limitations of leading performance indicators as the exclusive measure of OH&S performance**

Leading performance indicators (for example, house-keeping standards and use of PPE) should predict the prevalence of lagging indicators in the months and years ahead. Such indicators are useful in that they provide early evidence of success or failure, although their link with long-term performance might not be perfect. For example, an increase in the indicator, e.g. number of persons trained in the safe operation of internal transport, might not in itself result in a reduction in site transport accidents.

For these reasons, leading performance indicators should not be used as the only measurements of OH&S performance.

### **J.2.4 Limitations of lagging performance indicators as the exclusive measure of OH&S performance**

Lagging indicators, such as accident and ill health data, are vital as they are the final check on the effectiveness of an OH&S management system. However, there are cautions relating to their use, of which the following are examples.

- a) Most organizations have too few injury accidents to distinguish real trends from random effects.
- b) If more work is done by the same number of people in the same time, increased workload alone might account for an increase in accident rates.
- c) The length of absence from work attributed to injury or ill health could be influenced by factors other than the seriousness of injury or ill health, such as poor morale, monotonous work and poor management and worker relations.
- d) Accidents are often under-reported (and occasionally over-reported). Levels of reporting can change. They might improve as a result of increased worker awareness and better reporting and recording systems.
- e) Accident rates are influenced by the proportion of workers carrying out high-risk work. If additional workers are recruited for low-risk work, the accident rate (e.g. per person employed) will

go down, although the risk to the actual operators is not reduced. On the other hand, an organization's accident rate might appear to improve when high-risk tasks are taken over by contractors.

- f) A substantial time delay can occur between OH&S management failures and any harmful effects. Moreover, many occupational diseases have long latent periods. It is not desirable to wait for harm to occur before judging whether OH&S systems are working.

For these reasons, lagging performance indicators should not be the only measurements of OH&S performance used. Moreover, lagging data need careful interpretation to ensure that, for example, confounding factors do not mislead.

### J.2.5 **Leading and lagging performance indicators, and indicators that might be leading or lagging**

Selecting appropriate performance indicators depends on the organization's plans. Examples of leading and lagging performance indicators relevant to a range of objectives are listed in Examples 7 and 8. The lists include examples of both objective/subjective and quantitative/qualitative monitoring and data (see Annex J).

Leading performance indicator data relating to an organization's OH&S plans are evidence that the performance requirements of the plan have, or have not, been implemented (see Annex J).

Most performance indicators are clearly either leading or lagging indicators, but some could be either leading or lagging depending on the context. For example, an organization might be prosecuted for a continuing failure to provide adequate OH&S training (leading indicator) or following an accident (lagging indicator). Examples of these are given in Example 9.

### J.3 **Performance measures: Objective and subjective; quantitative and qualitative data types**

The organization should adopt a well-formulated combination of all four data type combinations, namely: objective-quantitative, objective-qualitative, subjective-quantitative and subjective-qualitative, in measuring the success of an OH&S programme. This allows a much better overall assessment of OH&S performance than reliance on any single measure.

The following are examples of performance measurement data types, with cautions associated with their use.

- a) *Objective data*: data which are detached from an assessor's personal judgement, e.g. reading a calibrated noise meter; number of workers using hearing protection; and whether an OH&S specialist is in post.
- b) *Subjective data*: data which could have been influenced by those doing the measuring. Examples are measures of the adequacy of housekeeping or a safe system of work where no defined standard has been laid down. These measures can be very useful but need to be treated with care. For example, two people might report different findings about the adequacy of workplace controls.

- c) *Quantitative data*: data which describe numbers and are recorded on a scale, e.g. the numbers of accidents reported. Where possible, it is desirable to quantify performance measures so that comparisons can be made over time. However, such data might give an unjustified impression of precision.
- d) *Qualitative data*: data which describe conditions or situations that cannot be recorded numerically, for example, a commentary on the deliberations of an OH&S committee. While qualitative data are very important it might be difficult to relate to other performance measures.

Attention should be given to the level of competence required of those responsible for devising, carrying out and analysing data from all performance measures.

#### **EXAMPLE 7 — Leading performance indicator data**

The following are examples of leading performance indicators:

- a) an appropriate safety policy has been written;
- b) a safety policy has been communicated;
- c) a director with health and safety responsibilities has been appointed;
- d) OH&S specialist workers have been appointed;
- e) the extent of influence of OH&S specialists;
- f) the extent to which plans have been implemented;
- g) worker perceptions of management commitment to OH&S, (see Annex C);
- h) number of top managers' OH&S inspection tours;
- i) frequency and effectiveness of OH&S committee meetings;
- j) frequency and effectiveness of worker OH&S briefings;
- k) number of worker suggestions for OH&S improvements;
- l) time to implement action on suggestions;
- m) number of personnel trained in OH&S;
- n) workers' understanding of risks and risk controls;
- o) number of risk assessments completed as a proportion of those required;
- p) extent of compliance with risk controls;
- q) extent of compliance with statutory requirements;
- r) workers' attitudes to risks and risk controls (see Annex C);
- s) house-keeping standards;
- t) personal exposure sampling reports;
- u) workplace exposure levels (e.g. noise and dust, fumes);
- v) use of PPE;
- w) worker safety representatives and representatives of worker safety have been appointed and are able to exercise their powers.



**EXAMPLE 8 — Lagging performance indicator data**

The following are examples of lagging performance indicators:

- a) health surveillance reports;
- b) worker absences due to illness (occupationally-related or non-occupationally-related);
- c) cases of occupational diseases or conditions, such as dermatitis, deafness, work-related upper limb disorders; stress, asbestosis, occupationally-induced cancers;
- d) near-misses;
- e) damage only accidents;
- f) reportable dangerous occurrences;
- g) lost-time accidents, when at least one work shift (or other time period) is lost by a person as a result of an accident injury;
- h) reportable accidents involving absence from work for more than three days;
- i) reportable major injuries;
- j) fatal accidents.

**EXAMPLE 9 — Data that can be either leading or lagging**

The following are examples of performance indicators that might be leading or lagging, depending on the context:

- a) complaints made by the workers;
- b) indicators demonstrating that the organization's OH&S objectives have been achieved;
- c) criticisms made by regulatory agency staff;
- d) regulatory agency enforcement action;
- e) complaints made by workers who are not direct employees of the organization or by members of the public.

#### J.4 Monitoring techniques

The organization should decide how often monitoring takes place on the basis of the level of risk and the likely rate of change.

The following are examples of methods that can be used to measure OH&S performance:

- a) examination of documents, for example, policies, plans, risk assessment pro formas, inspection checklist pro formas and permit-to-work pro formas;
- b) examination of records, for example, completed risk assessment pro formas and maintenance records;
- c) informal workplace inspections;
- d) systematic workplace inspections using checklists;



- e) work activity inspections;
- f) safety tours, for example on a walk-through basis;
- g) workplace environmental monitoring, measuring exposure to substances or energies and comparison with recognized standards;
- h) inspections of specific machinery and plant to check that safety-related parts are fitted and in good condition;
- i) behaviour sampling, assessing workers' behaviour to identify unsafe work practices that might require correction by, for example, work design improvements or through training;
- j) attitude surveys of personnel at all levels (see Annex C); and
- k) benchmarking against good OH&S practices in other organizations.

## Annex K (informative) Incident investigation

### K.1 Reasons for investigating incidents

An incident investigation provides a unique opportunity for an “in-depth” exploration of the actual OH&S management system of the organization, as opposed to the one that is described or believed to be in operation.

Based upon the facts that are discovered, the investigation should establish the immediate and root causes of the incident, the deficiencies and/or inadequacies in the relevant risk assessments and control procedures, and the need for preventive measures and any necessary improvements in the OH&S management system.

There are also legal, moral, societal and business reasons for carrying out an investigation.

### K.2 Establishing the causes

Although it is common practice to refer to the cause of an incident, almost all incidents have multiple causes as the factors involved range over job, management and personal factors:

- a) management and organizational factors, e.g. shortfalls in an organization’s OH&S policy, resources and arrangements, resulting in ineffective management of risk;
- b) job factors, e.g. unsuitable working environment, plant, equipment, substances, precautions, procedures and systems of work;
- c) personal factors, e.g. lack of appropriate decision making, behaviour, skill, knowledge, experience and aptitude to carry out duties safely.

Where personal factors appear to be of significance, e.g. errors and violations, it is important to explore the job and management factors that might have led to the errors and violations.

### K.3 Pre-investigation preparations

Incidents can range in severity, from those with minor harm potential or outcome to those with catastrophic potential or outcome. The level of investigation, in terms of resource allocation, depth and overall approach, should be proportional to the health and safety significance of the incident and its potential for enhancing organizational learning. To facilitate this it is advisable to have plans in place for dealing with varying types of incident, so that predetermined investigators or teams can be called upon. In addition to ensuring sufficient workers are adequately trained in investigation and/or that the organization has access to such expertise, appropriate investigative equipment should also be readily available, e.g. camera/video, portable tape recorder, tape measure, writing materials, personal protective equipment, sealable sample containers, portable detection equipment and torches. It can also be beneficial to have use of a mobile phone containing useful contact numbers, and a laptop computer.

## **K.4 Pre-investigation actions**

### **K.4.1 Reasons for investigating hazardous incidents**

Incidents should be reported to a designated person in the organization, who will:

- a) assess risk (see **K.4.2**);
- b) make safe (see **K.4.3**);
- c) make secure (see **K.4.4**);
- d) report (see **K.4.5**).

### **K.4.2 Assess risk**

Where the incident occurs on a worksite, a pre-investigation risk assessment should be conducted by a competent person(s) and any risk control measures implemented. This is necessary in order to identify, assess and control hazards that could have arisen as a result of, or been caused by/contributed to, the hazardous incident. Sometimes referred to as dynamic risk assessment (see Annex E), this process should be reviewed as frequently as changing circumstances demand and should embrace all those potentially exposed to risk. This can include internal investigators, facility engineers, first-aiders, etc., and also external bodies, such as police, enforcement officers, insurers, emergency services, forensic and other specialists, utility engineers and contractors.

### **K.4.3 Make safe**

The scene of the hazardous incident should, so far as possible, be made safe, and casualties treated/rescued. This might involve using the organization's emergency procedures or disaster recovery plan, depending on the seriousness of the situation and the assembly of a disaster recovery team. Making safe requires controlling any hazardous situations, e.g. by isolating sources of energy as necessary, preventing further leakage or spillage, neutralizing harmful substances, extinguishing fires, or purging the atmosphere of smoke or gases. Care should be taken, however, to ensure that vital forensic data are not unnecessarily disturbed or degraded. Should it become essential for safety reasons to remove anything or alter its location, then its position should be recorded as accurately as possible, e.g. by photography, video, a scaled sketch, written description or marking its position in situ, before it is moved.

### **K.4.4 Make secure**

Where the incident has occurred on a worksite, the primary scene (the actual location of the hazardous incident) should be secured at the earliest possible stage following the incident, in order to preserve relevant information. This might involve cordoning-off; erecting solid barriers; or locking doors/gates to the area; and posting appropriate warning signs. It is also advisable to keep a record of all visitors to the scene, including names, reasons for visit and contact details. Secondary scenes, i.e. those scenes away from the incident that might contain pertinent data, need to be identified and either secured or the relevant information obtained. Where an incident occurs in another domain, for example, on a road or in domestic premises,

options for securing the primary scene and gathering facts might be more limited. However, secondary scene information, such as at work road risk policies, training and maintenance records and risk assessments, can be important in helping to establish the root cause.

*NOTE At work road risk policies are policies related to the management of occupational road risk associated with workers driving during the course of their work.*

#### **K.4.5 Report**

The hazardous incident should be reported and recorded internally and also reported externally to relevant enforcing authorities by the prescribed means, as appropriate. The enforcing authorities are likely to investigate major hazardous incidents and, in these situations, investigators might be required to cooperate and work with the enforcers. It is good practice for minor hazardous incidents to be reported internally and investigated, even if only informally, to prevent recurrence and help build a culture of trust and cooperation when dealing with more serious incidents. It is often easier in practice to learn from incidents not giving rise to injury, because there are fewer barriers to the investigation process, such as those associated with possible prosecution, common law claims, disciplinary action or trauma to witnesses.

### **K.5 Investigation**

#### **K.5.1 Team approach**

Consultation is necessary between managers and worker representatives to agree the level of investigation required and its terms of reference. Wherever possible, a team approach is recommended, as this enables all the relevant competences to be harnessed; supports learning about health and safety management; enhances team building; and increases numbers of individual champions for investigation recommendations. The investigation team should be led by a line manager or supervisor and include as a minimum a competent health and safety practitioner and a worker representative. Depending on the incident, additional team members might include a process or operations specialist or a maintenance engineer. Ideally, for serious and high-potential incidents, the team leader should be a senior line manager from another area of the organization, and team members should not have been personally involved in planning or managing the tasks associated with the incident. Investigators need sufficient competence in investigative techniques, occupational safety and health, and the activity and organization concerned, to undertake the level of investigation required. It is vital for investigators to be open-minded and objective, and to avoid a blame or defence approach.

#### **K.5.2 Level and scope**

Once the terms of reference of the investigation have been decided, it is essential that an appropriate investigator or team is engaged as quickly as possible. Among the first tasks of the investigator(s) are to carry out a preliminary review to confirm the level and scope of investigation required (and to amend the terms of reference, if

necessary), and determine the composition of the team, the roles and responsibilities, and working methods.

### **K.5.3 Information gathering**

It is important that data are collected and recorded as soon as practicable and safe following an incident, so that they reflect as closely as possible the circumstances that pertained at the time. Information can be gathered by making observations, examining documentation and interviewing witnesses. The investigation should be based close to the scene, in a lockable room allocated exclusively for its duration.

### **K.5.4 Observations**

Inspection of the scene allows investigators to make and record initial observations regarding the physical condition and relative locations of premises, plant/equipment, substances and also the work environment, e.g. weather, temperature, humidity, light, noises and odours, including sampling and testing. All observations should be made and recorded using appropriate investigative equipment and kept securely. Even where a scene is unlikely to be disturbed, it is advisable to make a video/photographic record for subsequent reference and inclusion in the report.

### **K.5.5 Documents**

Essential information can also be obtained from documents, such as policies; procedures and method statements; risk assessments; incident investigation, inspection, examination, survey or audit reports; test certificates and licences; maintenance descriptions; training records, permits-to-work, and site plans and equipment drawings. All relevant documents should be retained or copied, referenced and kept securely, together with a log of all documentation examined.

### **K.5.6 Witnesses and interviews**

The primary objective of the investigation is to establish the cause. Witnesses should be identified and interviewed as early in the investigation as possible because their recollection of events will degrade with the passage of time or become unwittingly altered. Priority should be given to interviewing the key witnesses first, i.e. those involved or present at the time of the incident (though this will possibly need to be delayed until people recover sufficiently if they are injured, ill or psychologically traumatized). Other witnesses include those in the vicinity who might have seen, heard, felt or smelt something relevant; those with knowledge of the incident or surrounding circumstances; and those who can corroborate the actions of others and/or validity of data gathered.

It should be explained to witnesses prior to commencing interviews that the objective is to establish the cause of the incident and determine how future incidents can be avoided, and not to attribute blame. The interview should make use of open questions on topic areas, inviting the witness to, for example, give their personal details, background, experience and training, and outline normal activities, organizational arrangements and systems of work. Witnesses should be asked to describe what happened and what they actually saw,

heard, felt or smelt. The interviewer should only take brief notes while a witness is speaking. Although it is important to ensure witness interviews are as relaxed and open as possible, it is often helpful to have two interviewers; one to lead, the other to take notes. Similarly, the witness might wish to have someone present to provide moral support. The interview should be conducted in a private area or room free from distractions. If necessary, the witness should be taken to the scene of the incident, making it easier for them to point out what happened, and perhaps concluded in a quiet room, where a witness statement can be prepared.

#### **K.5.7 Hazardous incident file**

All relevant information should be catalogued and kept or referenced in a hazardous incident file. This will provide the investigator(s) with a comprehensive information resource about the incident on which cause analysis will be based and a final report produced. This file should be kept securely, but be readily accessible to the investigator(s).

#### **K.5.8 Structured approach**

It is helpful to approach an investigation in a systematic way. A recommended technique for helping to structure an investigation is Events and Causal Factors Analysis (ECFA). This process requires deductive reasoning to determine which events and/or conditions (causal factors) contributed to the hazardous incident, and involves producing a sequential diagram depicting the contributory factors. An initial Events and Causal Factors (ECF) chart should be commenced as soon as facts emerge about possible causative factors. These are stated and positioned as primary events, secondary events or conditions, for example, by placing adhesive notes in chronological order on a bare wall, whiteboard or flipchart, to form a hazardous incident sequence or chain, using the following conventions:

- a) an event (supported by evidence) is described in a solid-line rectangle;
- b) a presumed event (not supported by evidence) is described in a broken-line rectangle;
- c) a condition (supported by evidence) is described in a solid-line oval;
- d) a presumed condition (not supported by evidence) is described in a broken-line oval;
- e) both events and conditions are linked together by arrows;
- f) each event or condition should be precisely described and quantified if possible, e.g. "the roofer fell 10 m from the roof" rather than "the roofer fell from the roof" and dates and times can also be included;
- g) events and conditions are clearly distinguished from one another; events are discrete occurrences, e.g. "the windscreen shattered" rather than "the windscreen was cracked";
- h) short sentences are used with one subject and one active verb, e.g. "the roofer fell 10 m from the roof" rather than "the roofer slipped on moss and fell 10 m from the roof";
- i) each event should follow logically from the one before; if not, one or more sequential steps might be missing;



- j) secondary events or conditions should be above or below the primary sequence;
- k) events should be shown chronologically from left to right.

Although incomplete, the initial ECF chart helps to identify gaps in events, conditions and relevant information, and can guide the investigation in certain directions, for example, to seek further data. The chart will develop in the light of new information and be re-ordered as appropriate, helping to:

- 1) confirm the sequence of events;
- 2) establish contributing factors;
- 3) structure the investigation report; and
- 4) illustrate the event sequence from beginning to end, providing a useful communication aid both during and after the investigation.

It is essential that the investigator considers each event in the sequence and judge whether, had it been absent, the hazardous incident would still have occurred. This will allow the investigator to identify the critical events and conditions in the sequence.

### K.5.9 Analysis

Having established the facts and possible causes, it is necessary to construct and test theories to help determine not only what happened but also why the critical events and conditions contributing to the incident were not prevented. In determining such root causes, simple checklists can be used to prompt thought and examination of previously unconsidered areas and to categorize the types of failure, helping to identify trends. An example checklist of possible areas to consider is as follows:

- a) risk controls selected on the basis of an unsuitable or insufficient risk assessment;
- b) poor implementation of controls;
- c) failures of proactive monitoring to detect poor implementation of controls;
- d) controls implemented but ineffective;
- e) failures of reactive monitoring to detect near-misses that would have revealed ineffective controls;
- f) controls not reviewed or improved in the light of information of proactive and/or reactive monitoring; and
- g) failure to manage change effectively.

Consideration should also be given to root causes that can be associated with the following factors.

- 1) *Design*, e.g. failure to apply ergonomic principles, creating problems for users.
- 2) *Tools and equipment*, e.g. poor quality/condition or not fit-for-purpose.
- 3) *Maintenance*, e.g. only reactive and/or inadequate.
- 4) *Housekeeping*, e.g. lacking or inadequate, causing trip hazards.
- 5) *Error enforcing conditions*, e.g. environmental or other stressors.
- 6) *Procedures*, e.g. inadequate, unavailable or not followed.



- 7) *Training*, e.g. lacking or inadequate for gaining competence (see B.4).
- 8) *Communication*, e.g. lacking or inadequate at organizational, group or individual level (see B.5).
- 9) *Incompatible goals*, e.g. production rates having precedence over health and safety.
- 10) *Organization*, e.g. weaknesses in policy, structure or arrangements and deficiencies in resources and management (see Annex B).
- 11) *Defences*, e.g. lack of or inadequate alarms, sensors, barriers, sprinklers, protective equipment.

*NOTE* [Adapted from Groeneweg 1998 (7)].

For larger scale investigations, it might be appropriate to use more complex techniques involving the use of risk trees, such as Management and Oversight Risk Tree (MORT) or Fault Tree Analysis (FTA), which require training and experience for effective application.

#### **K.5.10 Conclusions and recommendations**

The investigating team should ensure that the findings, conclusions and recommendations reflect the evidence base and professional judgement available during the investigation. The analysis of the incident should have identified all the immediate and root causes. It is at this level that recommendations are made and those made to address the root causes will be the most effective in the long term. Each of the root causes given in K.5.9 should be examined and, where relevant and appropriate, recommendations made to improve matters. All recommendations should be specific, appropriate, proportionate, prioritized and timescaled. Although it is not part of the role of the investigating team to identify the costs of implementing the recommendations, some indication of the costs involved might be useful to management.

#### **K.5.11 Investigation report**

The investigation report is addressed to the manager who initiated the investigation. It is his or her responsibility to implement the recommendation, monitor and review. This manager may accept, modify or reject the recommendation; he or she may also change the timescales. The manager should explain to the investigating team the reason for any changes made.

In a free-form report, the investigator(s) can use the sequence charts to help organize the information. In addition to the basic information listed earlier, the report might also have an executive summary and, possibly, appendices containing copies of significant documents, including sequence charts; sketches; photographs; details of costs; forensic reports; witness statements; and other evidence of failures, e.g. deficient risk assessments, procedures and maintenance records. If the report makes reference to, or bases conclusions on, presumed events or conditions (i.e. those not supported by evidence), the investigator(s) should justify the inclusion and use of these.

It is good management practice to implement recommendations as quickly as possible, not least because implementing recommendations is a sure and visible sign that management are concerned about

occupational health and safety. In order to achieve effective implementation the workforce, and their representatives where appropriate, should be consulted and their commitment and cooperation gained.

Top managers should always review investigation reports. Action should be taken to implement recommendations, including improvements to the OH&S management system.

## **K.6 Post-investigation**

### **K.6.1 Risk assessment**

A risk assessment for the area or activity should be conducted in light of the investigation findings to ensure that there is adequate risk control (see **E.6.3**) in place before the scene is released (see **K.6.2**).

### **K.6.2 Releasing the scene**

Once all relevant information is gathered and it is safe to resume operation, a formal handover of the scene from the investigator(s) to the appropriate line manager should take place. This should happen as early as is practicable, without compromising either health and safety or the investigation. There might be unavoidable delays in this process, for example, external authorities might be involved and the scene might not be made available to internal investigators until the authorities have concluded their investigations. Where recovery of normal operations requires significant planning and resource, it is appropriate for recovery teams (see **K.5.1**) and investigation teams to liaise, with large incident scenes possibly being released in stages.

### **K.6.3 Implementing recommendations**

It is incumbent on the line management of the area or activity affected to plan and implement the agreed remedial actions within the prescribed timescales. These actions should be monitored and tracked to ensure timely closure and efficacy. In order to achieve effective implementation, workers and their representatives, where appropriate (see also **K.5.1**), should be consulted and their commitment and cooperation gained (see **B.2** and **B.3**). The reasons for any changes should be explained to those who will be affected and who might need retraining, etc. Implementation of changes arising from investigations should be included in subsequent monitoring and review.

### **K.6.4 Learning lessons**

In order for lessons to become embedded in the corporate memory and survive personnel changes, they should be incorporated into policy (see **3.21**), systems, procedures and training (see **B.4**). It is essential that lessons learned from any hazardous incident, including elements that went well, are shared as widely as possible across the organization concerned and, ideally, wider still. This is possible if the organization is a member of a trade association, federation or other such body, as lessons can be shared (anonymously if necessary) with those in the wider community who might have similar hazards.

It is important, while preserving individual confidentiality, that significant findings and recommendations from the report are widely

communicated to all who might benefit from the lessons, for example, by using briefings/tool-box talks and the organization's intranet. The communication should include all those directly or indirectly involved in the incident and also those engaged in activities with similar hazards.

#### **K.6.5 Investigating occupational ill health cases**

As soon as an occupational health issue is raised by a worker (or their representative), or indicated by adverse environmental monitoring or health surveillance reports, absence trends, or a relevant doctor's note, the situation should be investigated. The investigative team should include or consult occupational health professionals and/or other specialists, e.g. a physician, nurse, hygienist, or ergonomist when appropriate. The investigator(s) should establish whether the conditions suspected to have caused the ill health still exist and, if so, whether the affected individual or others are currently being exposed. If this is the case, the process might have to be halted until it is made safe. Documentary information, such as personal medical records, are not accessible to the investigators without consent because of patient confidentiality. However, other health surveillance records, air-sampling results, maintenance records for local exhaust ventilation, personal dosimeter readings and risk assessment results should all be accessible.

*NOTE* Certain occupational diseases with long latency, e.g. noise induced hearing loss, occupational cancers and asbestosis, can be difficult to investigate, as exposure might have occurred many years prior to the onset of disease and witnesses, documentation, etc. are not always readily available. Also, as the process concerned might have ceased operation, investigation with a view to remediation can be inappropriate. On the other hand, where ill health effects arise more rapidly, e.g. work-related upper-limb disorders, asthma and dermatitis, many of the approaches to investigation indicated in this annex are applicable.

## Annex L (informative) Internal audit

### L.1 General

Internal audit is a proactive management tool, used periodically for reviewing and evaluating the performance and effectiveness of the organization's OH&S management system. It also identifies areas where improvements can be made. Internal audits of the OH&S management system should be conducted at planned intervals and be proportionate to the nature of the organization's hazards and risks.

As stated in 4.5.5, "At different times and for different reasons audits need to determine:

- a) whether the established OH&S management system is understood and implemented;
- b) whether the organization's overall OH&S management system is capable of achieving the required standards of OH&S performance;
- c) whether the organization is fulfilling all its obligations with regard to OH&S;
- d) the strengths and weaknesses of the OH&S management system;
- e) whether the organization is actually doing and achieving what it claims."

BS EN ISO 19011 gives guidance on management system auditing for quality and environment. The methodology is generally applicable to OH&S and has been utilized in the development of this annex.

### L.2 Planning

Auditing should be a structured activity and requires careful planning. It needs to be accepted by the workers as a positive step for maintaining and improving OH&S arrangements in the workplace. It should not be perceived as a process for just identifying faults and apportioning blame. To ensure that the audit process is effective, top management should:

- 1) demonstrate their commitment to it;
- 2) authorize the internal audit programme;
- 3) ensure adequate resources are available;
- 4) encourage all personnel to be positive toward the internal audit activity;
- 5) accept the audit outputs in a positive manner (both positive and negative findings);
- 6) review the outputs at the management review.

### L.3 Objectives

The general principles and methodology described in BS EN ISO 19011:2002, 5.2, are appropriate to OH&S management system auditing.

*"Objectives should be established for an audit programme, to direct the planning and conduct of audits.*

*These objectives can be based on consideration of:*

- a) management priorities;*
- b) commercial intentions;*
- c) management system requirements;*
- d) statutory, regulatory and contractual requirements;*
- e) need for supplier evaluation;*
- f) customer requirements;*
- g) needs of other interested parties; and*
- h) risks to the organization."*

#### **L.4 Extent of audit**

In order to plan an audit, the following issues should be considered.

- a) Will the audit look at the whole or just part of the organization, or focus on a specific activity, location or issue?
- b) Will the audit look solely at the OH&S management system or will it involve technical matters concerning plant, equipment and processes?
- c) Is the audit intended to establish the effectiveness or otherwise of the OH&S management system (validation audit), or to verify whether the organization is complying with its own standards and procedures (compliance audit), or both?
- d) Will the audit only assess some elements of the management system?
- e) Will the audit, as proposed, require any special skills of the auditors?
- f) Should the audit be carried out by internal or external auditors or a combination of both? (Top management might wish to have some independent party present to assure itself of the objectiveness of the audit.)
- g) When is the audit to be carried out and in what time frame?
- h) Frequency of the audit.
- i) Concerns of interested parties.
- j) Outcome of previous audits.
- k) Areas where there have been significant changes in the organization or its operation.

This information should ensure that the audit is focused and allows careful preparation of the audit programme.

#### **L.5 Establishing an audit programme**

##### **L.5.1 General**

The audit programme for the organization needs to be determined with respect to frequency, the criteria (OH&S policy requirements, BS OHSAS 18001, stakeholder specification, etc.) and the depth of the audit. An audit is a snapshot of the arrangements and practices

at a particular time. Some areas could have significant risk where top management needs to be assured on a frequent basis that everything is under control.

BS EN ISO 19011:2002, 5.3.1, states:

*“The responsibility for managing an audit programme should be assigned to one or more individuals with a general understanding of audit principles, of the competence of auditors and the application of audit techniques. They should have management skills as well as technical and business understanding relevant to the activities to be audited”*

Having established the objectives and the extent of the audit programme, those responsible for managing the audit programme should:

- establish the procedures;
- secure the resources and implement the audit programme; and
- ensure it is maintained, monitored, reviewed and improved.

### L.5.2 Audit programme resources

The audit programme needs to be adequately resourced, both with competent auditors and an adequate time frame for them to undertake the audit, the management and worker time for those being audited and any costs incurred for travelling, materials, etc. There might also be costs incurred in training auditors or securing external resources to assist which need to be accounted for in establishing the resources needed for an effective programme.

### L.5.3 Audit programme procedures

A procedure(s) should be established for the programme, taking into account:

- a) schedule;
- b) auditor competence;
- c) audit team availability;
- d) conducting the audit and follow-up where necessary;
- e) records and reporting the output; and
- f) monitoring the performance of the programme.

This procedure needs to take into account the objectivity and competency of the auditors for the area/operation that is to be audited. In some cases there might be a need to ensure that auditors are acceptable to the auditee and/or manager being audited as there could be particular sensitivities that need to be observed.

### L.5.4 Audit programme implementation

The implementation of an internal audit programme should address the following.

- a) Communication of the audit programme to relevant parties.
- b) Establishing and maintaining a process for the selection of auditors and audit teams.

- c) Providing the resources necessary for the audit programme.
- d) Planning, coordinating and scheduling audits.
- e) Ensuring that audit procedures are established, implemented and maintained.
- f) Ensuring the control of records of audit activities.
- g) Ensuring the reporting of audit results and their follow-up.

*NOTE Text adapted from BS EN ISO 19011:2002, 5.4*

The audit programme should be based on the results of risk assessments of the organization's activities and the results of previous audits. The results of the risk assessments (see 4.6) should guide the organization in determining the frequency of audits of particular activities, areas or functions and what parts of the management system should be given attention.

The OH&S management system audits should cover all areas and activities within the scope of the OH&S management system (see 4.1.3).

The frequency and coverage of OH&S management system audits should be related to the risks associated with the failure of the various elements of the OH&S management system, available data on the performance of the OH&S management system, the output from management reviews, and the extent to which the OH&S management system or the organizational activities are subject to change.

#### **L.5.5 Audit records**

Arrangements need to be established for recording the various elements of the audit programme to demonstrate conformity with audit requirements. These need to record the plans, schedules, audit team and the outputs of individual audits, nonconformity reports and the actions taken.

#### **L.6 Audit activities**

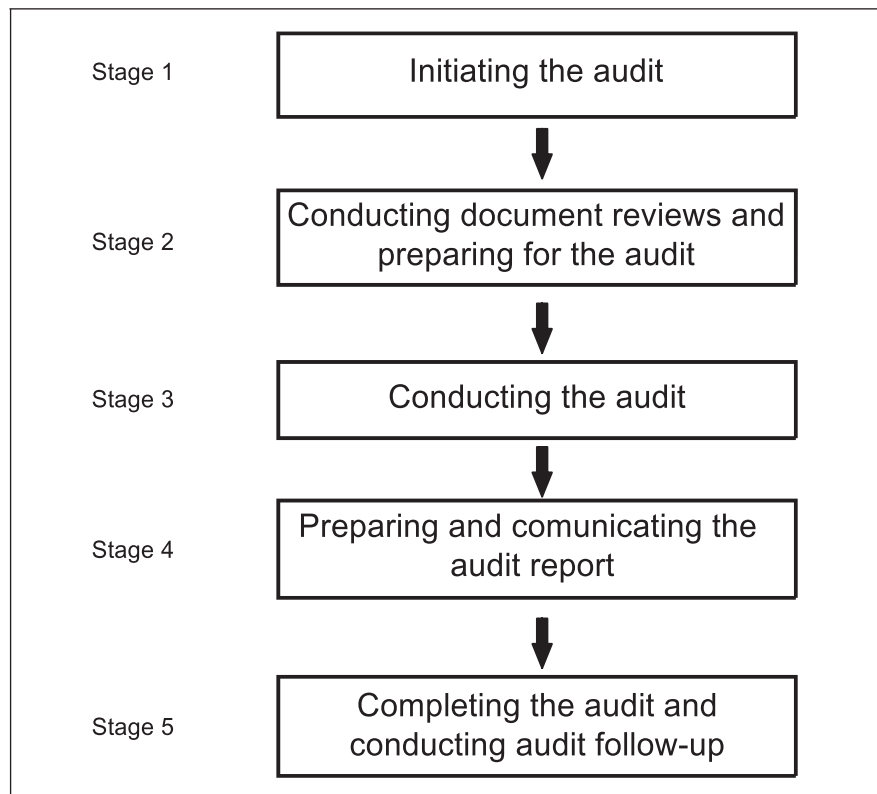
##### **L.6.1 Internal audit activities**

OH&S management system audits should be conducted according to the audit programme. For a number of reasons, other audits might be necessary:

- as changes occur in the hazards, or risk assessment;
- when the results of previous audits indicate an increased frequency of audit is necessary;
- when circumstances indicate that they are necessary;
- organizational changes occur;
- new operations or new processes are introduced;
- there are incidents or increased incidents in a particular area and there might be an immediate need to audit the affected activities or work area to ascertain why the system failed or needs improvement.

One way of planning the audit process is proposed in Figure L.1.



Figure L.1 **Audit process**

*NOTE* Text adapted from BS EN ISO 19011:2002, 6.1.

Often there is a team approach to auditing and the team leader (commonly called the lead auditor) needs to be assigned in order to prepare for the audit.

The lead auditor needs to determine the following.

- What essential information is needed for the audit in terms of measurement criteria (specification, regulatory requirements, etc.) and any essential internal documentation?
- Agreements with local managers as to timescale and arrangements.
- What elements of the management system are to be assessed if the scope is to be limited?
- What competency skills are needed for the audit team?
- Whether there is a need for briefing the workers.
- Whether there needs to be any special precautions and/or whether PPE is required.
- Determining what representative sample of activities are to be included.
- The need for auditing aids, e.g. checklists, aides-mémoire and inspection procedures.

#### **Stage 1 Initiating an audit**

Planned OH&S management system audits should be carried out by personnel from within the organization and/or by external personnel selected by the organization to establish whether the OH&S management system has been properly implemented and maintained.

Individuals selected to conduct the OH&S management system audits should be competent and be selected in a manner to ensure objectivity and impartiality in the audit process.

The following activities are typically done to initiate an audit:

- defining the audit objectives, scope and criteria for the audit;  
*NOTE Audit criteria are the references against which audit evidence is compared, e.g. BS OHSAS 18001, OH&S policy and procedures.*
- selection of appropriate auditors and audit team members for the audit, taking into account the need for objectivity and impartiality;
- determining the audit methodology; and
- confirming audit arrangements with the auditee and other individuals who will take part in the audit.

Determination of any applicable workplace OH&S rules is an important part of this process. In some cases, auditors might need additional training and/or be required to comply with additional requirements (e.g. the wearing of specialized personal protective equipment).

## **Stage 2 Conducting document reviews and preparing for an audit**

The auditors should collect evidence from interviews, documents and worksite visits, and check for consistency.

Prior to conducting an audit, the auditors should review relevant OH&S management system documents and records, and the results of prior audits. This information should be used by the organization in making its plans for an audit.

The documentation that can be reviewed includes:

- information on roles, responsibilities and authorities (e.g. an organization chart);
- OH&S policy statement;
- OH&S objectives and programme(s);
- OH&S management system audit procedures;
- OH&S procedures and work instructions;
- hazard identification, risk assessment and risk control results;
- applicable legal and other requirements; and
- incident, nonconformity and corrective action reports.

The amount of documentation to be reviewed and the detail provided in the plans for the audit should reflect the scope and complexity of the audit. The plans for the audit should cover the following:

- audit objectives;
- audit criteria;
- audit methodology;
- audit scope and/or location;
- audit schedule; and
- roles and responsibilities of the various audit parties.

The audit planning information can be contained in more than one document. The focus should be on providing adequate information to implement the audit.

If other parties need to be included in the audit process (e.g. worker representatives), this should be included in the plans for the audit.

A common approach to auditing is to devise a set of questions that can be used to check compliance with an OH&S management system, or to test the OH&S management system against a standard or good practice; effectively benchmarking. Care should be taken with such a structured approach, particularly where it is used time and time again.

An alternative approach is to start with very general open questions, which might allow the auditor to identify areas that merit further exploration.

Questions should preferably encourage those being questioned to explain in their own words what their understanding is, what they are doing, and any concerns they have about the current arrangements.

### **Stage 3 Conducting an audit**

The lead auditor should explain to the auditee (the manager of the department or function being audited) exactly what the purpose of the audit is and confirm the plan and any local arrangements that apply. They should advise the auditee that their findings will be reported back to them, in confidence, upon completion of the audit.

Where there is a team, individual auditors should be assigned tasks and the lead auditor should coordinate the overall activities. The lead auditor should review the findings with the audit team before reporting back to the auditee.

The following activities are typically part of the audit:

- communication during the audit;
- collecting and verifying information; and
- generating audit findings and conclusions.

Depending on the scope and complexity of the audit, it might be necessary to make formal arrangements for communication during the audit. The audit team should communicate the following to the auditee in a timely manner:

- the plans for the audit;
- the status of the audit activities;
- any concerns raised during the audit; and
- the audit conclusions.

Communication of the plans for the audit can be achieved through the use of an opening meeting. Audit findings and conclusions should be reported during a closing meeting.

Evidence collected during the audit which suggests an imminent risk that requires immediate action should be reported without delay.

During the audit, information relevant to the audit objectives, scope and criteria should be collected by appropriate methods. The methods will depend on the nature of the OH&S management system audit being undertaken.

The audit should ensure that a representative sample of the important activities is audited and that relevant personnel are interviewed, e.g. individual workers, worker representatives and relevant external personnel, such as contractors.

Relevant documentation, records and results should be examined.

Wherever possible, checks should be built into the OH&S management system audit procedures to help to avoid misinterpretation or misapplication of collected data, information or other records.

Audit evidence should be evaluated against the audit criteria to generate the audit findings and conclusions. Audit evidence should be verifiable and should be recorded.

The audit will aim to determine whether:

- a comprehensive system exists;
- employees and those working on behalf of the organization are fully aware of the requirements and their duties with respect to OH&S;
- the documentation system reflects the practices;
- the procedures, work instructions, etc., are being followed and satisfy those they are supposed to protect;
- there are areas that are deficient and there are nonconformities; and
- there are areas where improvements can be made.

Examples of some of the issues that might be assessed during the audit are as follows.

- Whether the policy meets the requirements of the organization and conforms as a minimum to those specified within BS OHSAS 18001. (4.2)
- Whether an appropriate procedure has been established for identifying hazards and quantification of risks. (4.3.2)
- Whether the control measures are appropriate and sufficient to minimize harm to workers and those who could be affected by the organization's activities. (4.3.2)
- Whether objectives and strategies have been established and a programme put in place that has been communicated to the affected parts of the organization. (4.3.4)
- Whether top management has taken leadership and allocated accountabilities, roles and responsibilities. (4.4.2)
- How the local management ensures that workers are competent for the task in hand. (4.4.2).

#### Stage 4 Preparing and communicating the audit report

The audit findings from all the audit activities should be reviewed collectively by the audit team. Where there is objective evidence that there is a nonconformity in the OH&S management system, the audit finding should identify its precise nature.

The results of the OH&S management system audits should be recorded and reported to management, in a timely manner.

The content of the final OH&S management system audit report should be clear, precise and complete. It should be dated and signed by the auditor.

The report should contain the following elements:

- the audit objectives and scope;
- information about the plans of the audit (identification of the members of the auditing team and the audited representatives, dates of audit and identification of the areas subject to audit);
- the identification of reference documents used to conduct the audit (e.g. BS OHSAS 18001 and OH&S procedures);
- details of identified nonconformities;
- any relevant remarks on the extent to which the OH&S management system:
  - conforms to planned arrangements,
  - is being properly implemented and maintained,
  - achieves the stated OH&S policy and objectives;
- a listing of recipients for the audit report.

The results of OH&S management system audits should be communicated to all relevant parties as soon as possible, to allow corrective actions to be taken.

Confidentiality should be considered when communicating the information contained within the OH&S management system audit reports.

The nonconformities should be categorized in order of priority.

- Those which are major; where immediate action should be taken because harm to personnel is imminent or where a requirement of the standard is not being met. In the case of the former deficiency, the activity might need to be stopped until satisfactory controls are implemented
- Those that are minor; where part of the requirements of the management system specification is not being fully satisfied. The measures and the timescales to be taken for corrective action will depend on the risk.
- Those areas of some concern where there is insufficient information or evidence to assign a "nonconformity", but where the organization should investigate whether the concern is justified and whether corrective action should be taken.

#### **Stage 5 Completing the audit and conducting audit follow-up**

A review of the results should be carried out and effective corrective action taken, where necessary.

Follow-up monitoring of audit findings should be conducted to ensure that identified nonconformities are addressed.

Top management should consider OH&S management system audit findings and recommendations, and take appropriate action as necessary within an appropriate time.

Where deficiencies are identified the audit team should agree with the auditee the corrective action and timescale for implementation, and then reassess the effectiveness of the actions taken. Depending on the gravity of the nonconformity, the reassessment should be undertaken within a timeframe that is consistent with the risk.

## L.7 Other considerations

### L.7.1 Selection of auditors

One or more persons can undertake OH&S management system audits. A team approach, involving managers and workers, can widen involvement and improve cooperation. A team approach can also allow a wider range of specialist skills to be utilized and allow for individual auditors to have specific competencies.

Auditors need to understand their task and be competent to carry it out. Auditors should be familiar with the OH&S hazards and risks of the areas they are auditing and any applicable legal or other requirements. They need to have the experience and knowledge of the relevant audit criteria and activities they are auditing to enable them to evaluate performance and determine deficiencies.

In order to maintain independence, objectivity and impartiality, auditors should not audit their own work; wherever possible, they should be independent of the part of the organization or the activity that is to be audited. The nature and extent of the audit will determine whether it is undertaken by workers from another part of the organization or by external auditors. Other factors to be taken into consideration include:

- a) the availability of auditors for the length of time necessary to undertake the audit;
- b) the availability of auditors with the necessary competence;
- c) the level of audit experience required;
- d) the requirement for specialist knowledge or technical expertise;
- e) any requirement for training;
- f) the danger of an internal auditor being over-familiar or satisfied with the organization's arrangements, compared with the benefits of the fresh eyes and potentially more questioning approach of an external auditor; and
- g) the danger of unfamiliarity or lack of understanding, particularly where complex technical issues or processes are involved.

### L.7.2 Composition of audit teams

Where an audit team is used, as opposed to an individual auditor, the composition of the team depends on the nature and scope of the audit and also whether:

- a) in-house, external or a combination of both are used;
- b) specialist knowledge, experience, skills or technical expertise is required; and
- c) agreements have been reached about the involvement of worker representatives.

Auditors need to have the experience and knowledge of the relevant standards and systems they are auditing to enable them to evaluate performance and identify deficiencies. Auditors should be familiar with the OH&S hazards and risks of the areas they are auditing and any applicable legal or other requirements.

### L.7.3 In-house question sets

Consideration should be given to the use of in-house question sets. The advantage of in-house questions is that they are manifestly relevant to the work and systems of the organization. The disadvantages are that they are time consuming to prepare and could lack objectivity.

### L.7.4 Proprietary question sets

Consideration should be given to the use of proprietary question sets. The advantages, generally, of proprietary question sets are that they are:

- a) often used by many organizations, thus facilitating benchmarking;
- b) written in the context of an appropriate OH&S management system model; and
- c) usually supplied as part of a software package which facilitates score calculations and the presentation of results and offers online help.

The disadvantages, generally, of proprietary question sets are that they might:

- 1) not adequately reflect the size, organizational arrangements, nature of the work and the hazards and the level of risk within the organization;
- 2) prescribe standards that are inappropriate, for example, requiring safety committees to meet at least once a month, where a two-month frequency would be more appropriate; and
- 3) include questions that are insufficiently searching, for example, asking whether safety committee meetings are held regularly.



## Bibliography

- [1] HSE: "*HSG 65: Successful health and safety management*", Sudbury: 1997.
- [2] HSE: "*INDG 406: Tackling stress: The Management Standards approach*", Sudbury: 2005.
- [3] HSE: "*MISC 714: Making the stress Management Standards work: How to apply the Standards in your workplace*", Sudbury: 2005.
- [4] HSE: "*HSG 218: Managing the causes of work-related stress: A step-by-step approach using the Management Standards*", Sudbury: 2005.
- [5] HSE: "*Managing work-related stress: A guide for managers and teachers in schools*", Sudbury: 1998.
- [6] INTERNATIONAL STRESS MANAGEMENT ASSOCIATION UK, HSE, ACAS and TUC: "*MISC 686: Working together to reduce stress at work: A guide for employees*", 2004
- [7] GROENEWEG, J. "*Controlling the controllable*", 4th edition, DWSO Press, Leiden University: 1998





# British Standards Institution (BSI)

BSI is the independent national body responsible for preparing British Standards. It presents the UK view on standards in Europe and at the international level.

It is incorporated by Royal Charter.

## Revisions

British Standards are updated by amendment or revision. Users of British Standards should make sure that they possess the latest amendments or editions.

It is the constant aim of BSI to improve the quality of our products and services. We would be grateful if anyone finding an inaccuracy or ambiguity while using this British Standard would inform the Secretary of the technical committee responsible, the identity of which can be found on the inside front cover.

**Tel: +44 (0)20 8996 9000 Fax: +44 (0)20 8996 7400**

BSI offers members an individual updating service called PLUS which ensures that subscribers automatically receive the latest editions of standards.

## Buying standards

Orders for all BSI, international and foreign standards publications should be addressed to BSI Customer Services.

**Tel: +44 (0)20 8996 9001 Fax: +44 (0)20 8996 7001**  
**Email: [orders@bsigroup.com](mailto:orders@bsigroup.com)**

You may also buy directly using a debit/credit card from the BSI Shop on the website [www.bsigroup.com/shop](http://www.bsigroup.com/shop)

In response to orders for international standards, it is BSI policy to supply the BSI implementation of those that have been published as British Standards, unless otherwise requested.

## Information on standards

BSI provides a wide range of information on national, European and international standards through its Library.

Various BSI electronic information services are also available which give details on all its products and services. Contact the Information Centre.

**Tel: +44 (0)20 8996 7111**  
**Fax: +44 (0)20 8996 7048 Email: [info@bsigroup.com](mailto:info@bsigroup.com)**

Subscribing members of BSI are kept up to date with standards developments and receive substantial discounts on the purchase price of standards. For details of these and other benefits contact Membership Administration.

**Tel: +44 (0)20 8996 7002 Fax: +44 (0)20 8996 7001**  
**Email: [membership@bsigroup.com](mailto:membership@bsigroup.com)**

Information regarding online access to British Standards via British Standards Online can be found at [www.bsigroup.com/BSOL](http://www.bsigroup.com/BSOL)

Further information about BSI is available on the BSI website at [www.bsigroup.com](http://www.bsigroup.com)

## Copyright

Copyright subsists in all BSI publications. BSI also holds the copyright, in the UK, of the publications of the international standardization bodies. Except as permitted under the Copyright, Designs and Patents Act 1988 no extract may be reproduced, stored in a retrieval system or transmitted in any form or by any means – electronic, photocopying, recording or otherwise – without prior written permission from BSI. This does not preclude the free use, in the course of implementing the standard of necessary details such as symbols, and size, type or grade designations. If these details are to be used for any other purpose than implementation then the prior written permission of BSI must be obtained. Details and advice can be obtained from the Copyright & Licensing Manager.

**Tel: +44 (0)20 8996 7070 Email: [copyright@bsigroup.com](mailto:copyright@bsigroup.com)**

## BSI Group Headquarters

389 Chiswick High Road London W4 4AL UK

Tel +44 (0)20 8996 9001

Fax +44 (0)20 8996 7001

[www.bsigroup.com/standards](http://www.bsigroup.com/standards)

*raising standards worldwide™*



# **Managing Safety the Systems Way**



# **Managing Safety the Systems Way**

## **Implementing BS OHSAS 18001:2007**

*David Smith, Geoff Hunt and Clive Green*



First published in the UK in 1998 as *Managing Safety*; second edition in 2000; third edition as *Managing Safety the Systems Way* in 2004; fourth edition in 2008

by

BSI

389 Chiswick High Road

London W4 4AL

© British Standards Institution 1998, 2000, 2004, 2008

All rights reserved. Except as permitted under the *Copyright, Designs and Patents Act 1988*, no part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means – electronic, photocopying, recording or otherwise – without prior permission in writing from the publisher.

Whilst every care has been taken in developing and compiling this publication, BSI accepts no liability for any loss or damage caused, arising directly or indirectly in connection with reliance on its contents except to the extent that such liability may not be excluded in law.

The right of David Smith, Geoff Hunt and Clive Green to be identified as the authors of this Work has been asserted by them in accordance with sections 77 and 78 of the *Copyright, Designs and Patents Act 1988*.

Typeset in Optima by Monolith – [www.monolith.uk.com](http://www.monolith.uk.com)

Printed in Great Britain by MPG Books, Bodmin, Cornwall

*British Library Cataloguing in Publication Data*

A catalogue record for this book is available from the British Library

ISBN 978-0-580-50954-4

# Contents

<i>Foreword</i>	<i>iii</i>
<b>1. Introduction</b>	<b>1</b>
<b>2. Getting started – Initial status review</b>	<b>21</b>
<b>3. Defining an OH&amp;S policy</b>	<b>62</b>
<b>4. Creating a climate for effective OH&amp;S management</b>	<b>69</b>
<b>5. Planning</b>	<b>79</b>
<b>6. Risk assessment and control</b>	<b>102</b>
<b>7. Implementing and operating</b>	<b>134</b>
<b>8. Checking</b>	<b>157</b>
<b>9. Auditing</b>	<b>182</b>
<b>10. Reviewing</b>	<b>193</b>
<b>11. Integrating your management systems</b>	<b>203</b>
<b>Appendix 1 Common elements of quality, environmental and OH&amp;S systems</b>	<b>209</b>
<b>Appendix 2 Self-assessment questionnaire</b>	<b>211</b>
<b>Appendix 3 Legal requirements for health and safety</b>	<b>222</b>
<b>Appendix 4 British standards publications relating to health and safety</b>	<b>226</b>
<b>Bibliography</b>	<b>237</b>



# Foreword

Employees and society at large expect to be protected from any harm arising from the activities of organizations. Moreover, there is a good business case for effective management of occupational health and safety (OH&S) across all aspects of business activity, whether in the office, the workshop, the work site or as part of the general delivery of an organization's services. Quite apart from the regulatory and ethical issues, there are sound economic and commercial reasons for providing positive improvements to the overall quality of the work environment and for reducing work-related accidents, ill health and accidental damage to an organization's infrastructure, all of which can affect productivity.

Historically OH&S has been managed on a compliance basis – meeting the requirements of regulations and standards which, for the most part, have been introduced after a problem has reached significant levels. This approach will not succeed in the 21st century, particularly when dealing in global markets where different regulations and standards apply and working practices are ever-evolving to meet societal demands. It is also increasingly recognized that the compliance approach to managing OH&S does not, by itself, encourage continual improvement, which is the key driver for effectively managing OH&S in the workplace. The expectations of stakeholders are growing as innovation in the modern world allows us to create a safer workplace. The changing world also introduces new risks that make it hard for regulatory controls to keep pace. This is why the management system approach, using a risk base, is the soundest way to manage OH&S. While it is not possible to remove all risks in life, in the workplace these can be reduced to an acceptable level if not eliminated. The UK Health and Safety Executive (HSE) uses the approach described in its publication *Reducing Risks, Protecting People* [1]

and this is the key to effective OH&S management. The aim is to identify risk in the workplace in order to eliminate unnecessary risk or implement effective control measures to reduce any risk that remains to an acceptable level and this includes risks not necessarily covered by current, local health and safety legislation. The approach taken in this publication is consistent with the direction given by the UK Health and Safety Commission's strategy, *Revitalising Health and Safety*, outlined in their free leaflet, *Leading health and safety at work – Leadership actions for directors and board members* [2].

With the new Corporate Manslaughter and Corporate Homicide Act 2007 being enacted in the UK, there is an even greater need for those directors and senior managers who were previously not committed to the effective implementation of OH&S systems to take note and act. The approach advocated within the two British standards described in the next paragraph, will help organizations meet the requirements placed upon them and enable them to show that they have put effective systems in place.

Organizations are now seeking ways of demonstrating to a wider audience that they are applying the principles of risk management to occupational health and safety. BS OHSAS 18001:2007 has been produced as a specification standard against which organizations can seek accredited certification. It is a consensus document supported by industry, commerce, practitioners, insurers and regulators. The standard is seen as one way of demonstrating the implementation of an effective OH&S management system as advocated originally by BS 8800:2004, the HSE's HSG65 [3] and the International Labour Office's *Guidelines on occupational health and safety management systems* [4]. BS OHSAS 18001, BS 8800, HSG65 and the ILO OSH guidelines are fundamentally the same in approach and the effective implementation of any one will also satisfy the other three.

The fourth edition of *Managing Safety the Systems Way* follows the publication of BS OHSAS 18001. Although the structure of previous editions is retained, it has been updated to include amendments and additional requirements from the new specification. It also includes a much improved approach in Chapter 2, 'Getting started' for those who are implementing a system with little formal arrangements currently in place. There have also been significant developments in the area of integrating management systems. The success of earlier editions

gives testament to the effectiveness of the methodology it uses. The examples of fictitious organizations across a number of business sectors have also proved particularly helpful to some when implementing a new OH&S management system or developing an existing one.

*Managing Safety the Systems Way* is intended for organizations seeking practical guidance in delivering a cost-effective OH&S management system. It provides a structured approach for any organization wishing to implement an OH&S management system and will be particularly useful to small and medium-sized organizations and business units within larger corporate bodies that wish to develop a formal OH&S management system. Those organizations with existing OH&S management systems in place may also benefit from its guidance, especially in taking a risk-based approach.

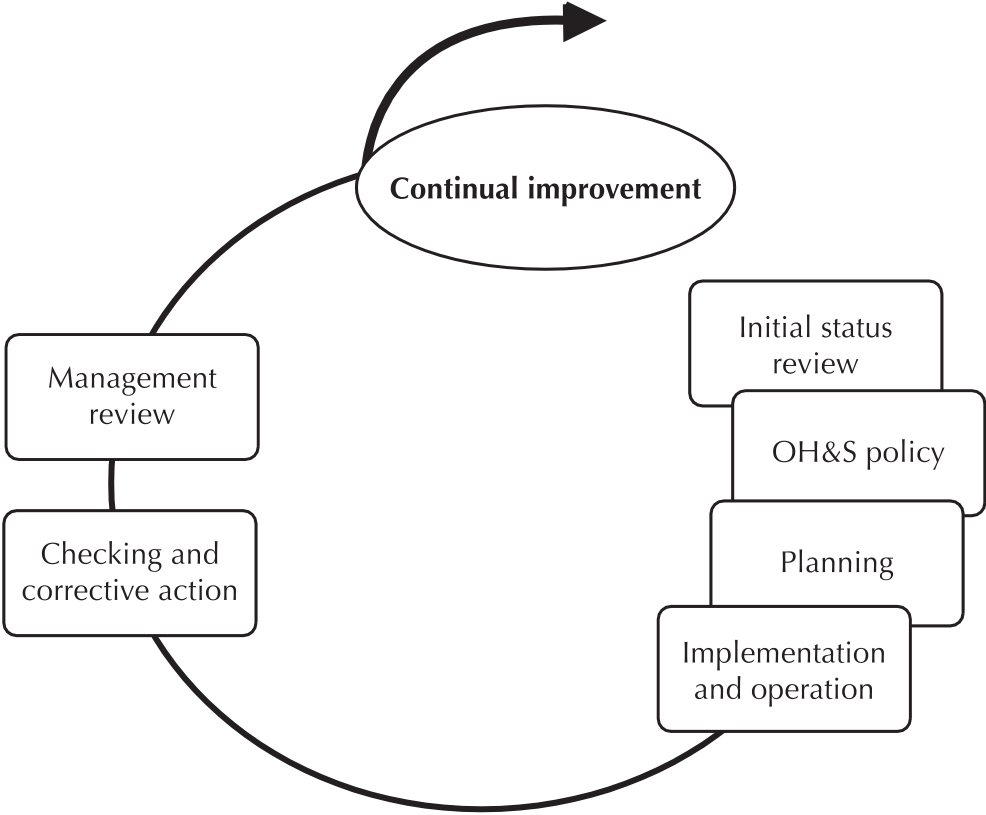
This publication is designed to be helpful to those organizations seeking to integrate OH&S within an overall formal management system covering quality and/or environmental management. It is based on a Plan, Do, Check, Act (PDCA) approach used in management system standards, such as BS EN ISO 14001:2004. For those seeking to integrate their management systems, Chapter 11, which focuses on PAS 99:2006, *Specification of Common Management System Requirements as a Framework for Integration* [5], may be particularly helpful.

*Managing Safety the Systems Way* builds on the basic framework and principles of BS OHSAS 18001 and BS 8800 by providing practical advice, examples and sources of further information. It is not, however, intended to be a comprehensive guide to all aspects of OH&S and does not in any way alter or amend limitations on the use of BS OHSAS 18001. Readers are advised to consult both these documents for further background. Any definitions used also apply in this publication.

Adopting BS OHSAS 18001 and BS 8800 is not a legal requirement, nor will compliance with them confer immunity from legal obligation. BS 8800 is, however, identified in the *Management of Health and Safety at Work Regulations 1999. Approved Code of Practice and guidance* [6], Regulation 5, as one way of implementing an effective OH&S system.

The following model is based on the one used in BS OHSAS 18001 with the additional element, 'Initial status review', as found in BS 8800. The PDCA

process is also a feature of the ILO OSH guideline document although there is a slight difference in order.



*BS OHSAS 18001:2007 Model for a successful health and safety management system*



# 1

## Introduction

Since the Industrial Revolution in the UK over 200 years ago there has been an ever-increasing drive to improve the occupational health and safety arrangements of organizations. The approach in the past has mainly been through regulation. The laws passed were based on the suffering experienced by many in specific industries that necessitated an Act of Parliament to be passed to prevent a continuance of the circumstance that led to the hardship. This retrospective approach was laudable in its way but serious accidents or ill health problems had to occur before such laws were formulated. Some of this regulation was so prescriptive it brought its own problems and created other OH&S issues. Nowadays, the proactive approach is obviously preferred – let's prevent harm before it occurs to anyone.

Lord Robens, in his *Safety and Health at Work: Report of the Committee 1970–72* [7], published in 1972, recognized that the prescriptive regulatory approach could be a disincentive rather than being helpful in managing occupational health and safety:

Our present system encourages rather too much reliance on state regulation and rather too little on personal responsibility and voluntary, self-generating effort.

Regulations which lay down precise methods of compliance have an intrinsic rigidity and their details may be quickly overtaken by new technological developments. On the other hand, lack of precision creates uncertainty.

As a result, much of the legislation appears irrelevant to the real, underlying problems.

In many ways, the more recent regulations have followed this thinking, the most significant in Europe probably being the Framework Directive of 1989. This led the UK to produce The Management of Health and Safety at Work Regulations in 1992, amended in 1999, requiring, in effect, the identification and control of occupational health and safety risks. There is now a greater need than ever before to be proactive in identifying those activities that might give rise to harm rather than waiting for a prescriptive requirement to be made on how to manage the risk.

The HSE guidance document HSG65, first published in 1991, is much revered and has been an invaluable tool in moving the 'management' of safety forward. Since then there have been a number of other approaches that have brought success. BS 8800, first published in 1996, encompassed much of the thinking in HSG65 and embraced other good guidance within a management system framework similar to that used by industry to manage other disciplines, e.g. BS EN ISO 9004 for quality and BS EN ISO 14004 for the environment. BS 8800 was revised in 2004 and is now seen as a very useful guide to good practice with respect to a system for managing OH&S. Its content in many ways is an improvement on HSG65 as it has taken on developments that have occurred since HSG65 was first published. Moreover, BS 8800 was written by industry, regulators, trade unions and trade organizations. It is recognized as practical good practice which could be realistically implemented across most organizations.

The need for an effective system has been emphasized by the new Corporate Manslaughter and Corporate Homicide Act 2007, which states:

- (1) An organisation to which this section applies is guilty of an offence if the way in which its activities are managed or organised –
  - (a) causes a person's death, and
  - (b) amounts to a gross breach of a relevant duty of care owed by the organisation to the deceased.

The phrase 'the way in which its activities are managed or organised' points very much towards a management system for managing occupational health and safety. Top management and managers will need to demonstrate that they are meeting these requirements should they have to defend themselves against charges under this new Act.

BS 8800 was published as a 'guide' and as such it cannot be used for audit purposes. It also contained statements which were not applicable to all organizations. The pressure to have a standard that could be audited against, allowing accredited certification, led to the publication of OHSAS 18001 in 1999. The new version, BS OHSAS 18001:2007 has been adopted as a requirement standard. This specification is seen as providing a very good framework for implementing an effective and efficient system and allowing independent assessment of its effectiveness.

*Managing Safety the Systems Way* has been written to help those wishing to implement such a system. This approach will help those organizations wishing to demonstrate their commitment to preventing harm to workers and others who may be affected by the organization's activities – in other words those interested in going beyond a mechanical approach to just complying with relevant regulations and instead actively seeking to promote a healthy

and safe working environment. The system being advocated here will show regulators, insurers and customers that the organization is managing OH&S in a way that encourages workers to work with management in being effective and productive, minimizing production loss and absenteeism. Obtaining 'buy-in' of the worker and the manager provides an opportunity to maintain the momentum of continual improvement in OH&S performance.

There have been other significant pressures on organizations, both large and small, from more unexpected sources. The London Stock Exchange published rules on corporate governance for listed companies called The Combined Code: Principles of good governance and code of best practice (now adopted by the Financial Reporting Council). This recognizes that the share value of a company is not only based on asset value but also on the success of the directors in managing all the strategic risks that the business faces, including OH&S. The UK government has extended this practice to the public sector, including higher education establishments.

- 140,000 reported workplace accidents
- 2.2 million people suffer work related illnesses resulting in 30 million lost working days
- 241 people killed at work

Source: Health & Safety Commission, October 2007

Any accident comes with a cost to the organization. The cost of occupational ill health is equally as important as accidents yet is often not given due recognition. Major accidents and claims for ill health and injury as well as damage to plant, equipment and property are costly both in the short term, due to production and delivery delays, and in the longer term through the loss of reputation caused by adverse publicity and the impact of legal enforcement. *The Combined Code on corporate governance* [8] affects other organizations besides listed companies because listed companies need to assure themselves that their suppliers, both in their trading practices and the supply of products and services, are not putting them at risk.

Governmental and stakeholder pressure has also led organizations in the private and public sector to focus on corporate social responsibility (CSR). OH&S is just one element but it is a key requirement that has to be addressed when delivering CSR. The pressure for CSR controls comes from the European Union. There are standards currently being developed by the International Organization for Standardization (ISO) and one has been produced by BSI. In the UK the 'Revitalising Health and Safety' initiative, a joint initiative by the UK government and the Health and Safety Commission, also sent a clear message to managers of organizations still not convinced about the need for an effective OH&S management system.

Finally, the UK Government announced in 2004 a new strategy that is a landmark in itself. This strategy is described in the HSE publication, *Reducing risks, protecting people: HSE's decision-making process*. The following statements from that publication recognize that the workplace can never be totally safe and that the aim should be to control the risks to an acceptable level yet not be over-prescriptive:

Our goal is not to have a risk free society but one where risk is properly appreciated, understood and managed.

We will become more robust in defending the reputation of the health and safety system against its detractors, those who are over zealous in its application and those who cannot recognize the appropriate balance between risks and benefits.

## **Importance of occupational health and safety management in smaller businesses**

There is evidence that in the UK those in small businesses, i.e. those employing fewer than 50 people, are 40 per cent more likely to have an accident than their counterparts in larger organizations (with more than 1,000 employees). This is even more disturbing when considered alongside the trend of large organizations developing their businesses as smaller, autonomous operating units.



In some countries this divide is much greater. There is a clear need for organizations to improve their ability to manage OH&S safely rather than trying to understand the detail and requirements of all the regulations that may apply. As only about 40 per cent of organizations in the UK seem to have any sort of OH&S management arrangements, adoption of this approach would obviously go a long way towards improving overall OH&S performance.

The compliance approach is often too burdensome for small businesses. It is, however, recognized that many small businesses have quality systems such as BS EN ISO 9001 working effectively. Risk-based OH&S systems are just as easy to implement. Effective implementation of a system based on BS OHSAS 18001, BS 8800 and the ILO OSH guide should enable an organization to meet and even exceed 99 per cent of their compliance requirements.

Having implemented such a system it is often easier to identify the missing 1 per cent should it have been overlooked. The appeal of this management system approach is that an organization can embrace it within its business (risk) management system. A successful organization will then integrate OH&S into its day-to-day management arrangements, recognizing that there should be only one management system and style providing the necessary procedures and instructions. It will then continuously maintain its OH&S management programme, updating it and, most importantly, communicating it to those who are directly affected – employees, contractors, customers, clients, visitors and the public. Not only is communication with those closest to the organization essential, but evidence of successful OH&S management is now increasingly sought by other groups important to the well-being of the organization, such as investors, insurance companies, financial institutions and potential customers. For instance, one large pension investment group responsible for 4 per cent of the total investment in the UK stock market has instigated procedures to ensure its investments are restricted to companies that manage OH&S arrangements as well as other ethical issues.

By demonstrating a sound track record, organizations are able to show their commitment and sense of responsibility towards managing OH&S issues on an evolving basis. OH&S can be perceived as a serious drain on resources, offering little in the way of financial return. In practice, however, it has been shown that reducing accidents, occupational illness, equipment and plant

damage, etc. will outweigh the costs of implementation, bringing additional benefits in the eyes of customers – for instance repeat orders in the knowledge that the organization is reliable. Improvements in performance indicators, such as the following, help to safeguard the welfare of employees and others, and at the same time benefit the financial performance of the organization:

- reduction in absenteeism;
- reductions in claims against the organization;
- improved insurance rating;
- absence of adverse publicity;
- improved production output;
- a positive response from existing and potential customers wanting to deal with an organization that has a successful OH&S track record and which is unlikely to be disrupted by costly accidents or plant shutdowns;
- lower risk of business interruptions.

The basic principles of management are common irrespective of the activity being managed. Many organizations have already achieved BS EN ISO 9001 status and are operating successful quality systems. With increasing awareness of the importance of managing environmental issues, organizations are also seeking certification to BS EN ISO 14001. BS OHSAS 18001 completes the trio of business management systems – quality, environmental and occupational health and safety.

Many organizations are now seeking to integrate their formal management systems. BS OHSAS 18001 and BS 8800 embody the principles upon which BS EN ISO 9001 and BS EN ISO 14001 are based and many commonalities exist between them. An OH&S management system based on BS OHSAS 18001/BS 8800 allows alignment or integration with these other systems. Comprehensive guidance is provided in Chapter 11 and Appendix 1 of this book on integrating such systems and organizations can choose for themselves the extent to which they wish to interface or integrate the three management systems. It is apparent that such an approach considerably reduces the duplication of paperwork and effort when three systems are operating within a single management system structure. It also avoids unnecessary bureaucracy, improves business focus and avoids potential conflicts.



*Managing Safety the Systems Way* explains how the various elements in developing an OH&S management system can be tackled, and how the system can be maintained as OH&S evolves, responding to internal and external influences.

*Managing Safety the Systems Way* uses six fictitious organizations to help readers with understanding – an office environment, an engineering workshop, a retail operation, a small construction company, a logistics operation and a company trading online. These very different work situations have been chosen to show the parallels that exist between them and how the same basic principles can be applied to all types of organizations and working environments. Clearly, effective OH&S management will not just simply happen. From the outset there needs to be commitment at the highest level and a proactive approach from the organization to addressing all OH&S issues. Management systems such as BS OHSAS 18001 and BS 8800 advance the challenge to organizations to attach the same level of importance to achieving high standards of OH&S as they do to other key business activities. There is only one guaranteed recipe for success: total commitment from managers and the organization by adopting a structured approach to identifying hazards in the workplace, evaluating and controlling work-related risks and developing a positive culture throughout the organization towards managing those risks.

## **How to use this book**

For those wishing to build an OH&S management system, following this book through, page by page, allows a comprehensive system to be developed. To allow further flexibility for others with more particular needs, however, the book uses a combination of:

- key elements sections providing information on the key elements of BS OHSAS 18001;
- checklists giving a reference point to help organizations identify how their organization compares with BS OHSAS 18001 and BS 8800, and where they may need more detailed information;

- ‘in detail’ sections providing greater detail on what is needed to meet the guidance in BS OHSAS 18001 and BS 8800;
- ‘in practice’ sections showing how the system can be implemented in practice, mostly using the six fictitious organizations.

### ***For those organizations with an OH&S system already in place***

Many organizations will have an OH&S management system in place but they may either wish to check whether their existing system is adequate, or may already recognize that there are specific deficiencies that need to be addressed. In this case it may help to ‘fast track’ through the book by using the key elements sections and checklists to help identify how the organization compares and where more detailed information is needed. The ‘in detail’ sections can be referred to as necessary. (Note: Chapters 2 and 3 do not have separate ‘in detail’ sections but they do contain checklists; Chapter 2 also has ‘in practice’ sections.)

There is a self-assessment questionnaire in Appendix 2 that will help organizations to assess their present OH&S management system. It allows the benchmarking of current arrangements and charting of progress as their system becomes more effective.

### ***For new starters who want to get the basics in place quickly***

For those organizations with little or nothing in the way of an OH&S management system already in place, the process may seem daunting. There are no short cuts to success. The approach in this book, however, is such that it enables the new starter to identify the key elements that need to be addressed quickly. They can then proceed to the other elements later as the OH&S management system develops.

The key point to remember is that arrangements must be instituted to control the risks that are present. A good way to start is to address:

1. Getting started (see Chapter 2);
2. Risk assessment (see Chapter 6);
3. Planning (see Chapter 5);
4. Defining an OH&S policy (see Chapter 3);
5. Planning in detail (see Chapter 5).

### ***For small organizations***

The whole process of establishing an OH&S management system may appear overwhelming for a small organization, particularly when there are few obvious risks associated with its activities. The aim should be to address those OH&S issues present, managing them appropriately for the size and nature of the organization and the level of risk that exists.

Following a risk-based approach will help identify the priority issues that the organization needs to address. The initial status review and risk assessments are the key elements to concentrate on. It is, however, essential that the planning stage in this book is covered before a full risk assessment of the organization is carried out. The key elements sections in the other stages will then help in deciding the extent of the management system that will meet the organization's needs. In this case the way to proceed is:

1. Getting started (see Chapter 2);
2. Risk assessment (see Chapter 6);
3. Planning (see Chapter 5);
4. Defining an OH&S policy (see Chapter 3);
5. Key elements sections of the remaining stages.

## ***Background to the case studies***

To show how implementing an OH&S management system might work in practice, six fictitious organizations have been used as case studies. Any resemblance to actual organizations is purely coincidental, though the issues identified may be common to many.

The background to each organization is given as follows and the examples relating to each case study throughout the book can be identified easily by the logo in the margin. The examples and the approach have many features that will be common to all organizations, although there will always be some uniqueness about an individual organization's situation.



### ***Floggitt & Leggit (F&L)***

#### *Introduction*

F&L is a 17-strong firm of accountants, established in 1985 by four partners who previously practised separately. Throughout the late 1980s it expanded rapidly to become a firmly established business serving the UK and Europe. F&L have recently moved from old-fashioned offices to a modern, designer-built, two-storey office suite in a business development park.

F&L's partners have travelled a long way since the early days when health and safety didn't feature high on their agenda. Even as the new partnership developed, health and safety legislation was never thought to be particularly applicable. One partner had remarked, 'Offices aren't dangerous places and you don't need a written safety policy if there are less than five employees, so where's the harm?'

## *Implementing an OH&S management system*

F&L's move to new offices brought an immediate recognition that even small businesses have some OH&S responsibility. The day before the official hand-over took place, a window cleaner fell from a ladder and broke an ankle – not the best start in a new place of work for an organization with a dynamic image. It also raised the question of liability – if the accident had occurred while F&L were tenants in the building, they might have been faced with a potential claim for damages. F&L's response to this event was to ask what precisely it should do as an organization taking responsibility for the health and safety of its staff, visitors and contractors.

Where does an organization in a relatively safe environment begin? The Health and Safety at Work etc. Act 1974 (HASWA) is the core of UK health and safety legislation and, as an enabling Act, has led to the development of new and modern regulations tailored to meet the needs of all industries. F&L clearly had to review its existing position with respect to OH&S. As there was no interest in seeking management system certification in the foreseeable future, BS 8800 provided the vehicle to establish effective arrangements to control its OH&S risks and to assure clients and insurers that it had a system in place meeting the requirements of BS OHSAS 18001.

In the 21st century, F&L is developing its international business, increasing working outside of the UK in the global marketplace. Hence F&L wants to ensure that its OH&S management principles adequately protect its staff when travelling and working overseas.

### ***Unspoke Engineering (UE)***

#### *Introduction*

UE is an established engineering organization tracing its roots back to World War I when it began manufacturing rivets, nuts and bolts for war production. The early premises, two small wooden shacks, have since developed into a

five-hectare site with 83 employees, manufacturing precision gear mechanisms for the motor trade and high quality fasteners. Raw material is sent to the site for conversion into the finished product before being transported to a predominantly UK and European market.

The business activity is clearly divided into two categories: clerical/managerial support and manufacturing. The manufacturing side involves the use of precision engineering tooling and is undergoing a programme of replacement, modernization and computerization. The plant facilities are relatively modern and have been reasonably maintained.

OH&S matters are managed through a human resources manager who has received current training in fire and first aid safety and has a safety certificate issued by a local college. The duties are cascaded through middle management to three business managers with no OH&S background who are responsible for the manufacture and despatch of final products. The clerical function is managed through the HR Department. Basic OH&S compliance is clearly evident but is not organized or formally managed. UE's OH&S record is good, as far as records indicate, and there has not been a visit by the Health and Safety Executive (HSE) for some eight years.

### *Implementing an OH&S management system*

UE's approach was initiated following the successful achievement of BS EN ISO 9001 compliance. UE was increasingly facing probing questions from its customers on every aspect of business performance – quality, health and safety and environmental policy. Pre-qualification tenders had exposed the lack of a robust occupational health and safety management system.

Some companies in its sector had already sought or were seeking certification to BS OHSAS 18001 for business credibility reasons and this provided the perfect vehicle for UE to look at how OH&S was being managed and how it could be improved. There was a solid foundation to build upon; clearly something was being done right, which was evident in the attention to detail UE instilled throughout its operations. Precision engineering requires attention to detail, slowly learnt, with pride in the finished product. The inherent



discipline of the workforce would enable UE to quickly grasp the requirements of BS OHSAS 18001 and maintain them in practice.

UE's management was initially reluctant to embrace BS OHSAS 18001, which it saw as another expensive, time-consuming exercise that would distract from production. The review of their existing arrangements changed that view – it revealed what UE had to do to meet the plethora of modern health and safety legislation and to satisfy the demands of its customers.

The adoption of BS EN ISO 9001 had helped to formalize UE's management system arrangements and had strengthened its procedures and documentation; it therefore seemed an ideal platform to build on. BS OHSAS 18001 would be a valuable tool in helping the organization move forward to meet the demands of the 21st century.

There was, however, an unexpected problem area. UE was very proud of its registration to BS EN ISO 9001, seeing it as a vehicle for improving the management of the business and not just a paperwork exercise to gain a certificate on the wall. It came as a surprise that their system was not robust enough to integrate OH&S as it stood. The main problem was that the scope of its registration to BS EN ISO 9001 was very narrow, focusing on the manufacturing element. UE realized it would have to expand the scope of the current system to all areas of its operations. It also became conscious that the management of OH&S was risk-based and needed a different emphasis to its current quality approach. Having recognized these important differences, UE found there were significant opportunities for using common systems and that the current arrangements for managing quality only needed expanding or modifying slightly in order to embrace the needs of BS OHSAS 18001.

As UE has expanded, it has embraced modern engineering technologies. This has brought new risks as previous engineering practice has evolved. In the 21st century, computerization has replaced a lot of the old methodologies and removed hazards completely but in their place has come the potential for repetitive strain injury and computer software speeds that can put an operator under stress trying to keep pace with production.





## *Low Cost Discount (LCD)*

### *Introduction*

LCD has been trading since 1979, supplying a full range of cut-price food and household products. It occupies a single-storey, 200,000 square metre store on a shopping estate, sharing a common car park with 18 other traders. It has 30 full-time employees supported by 25 part-time or temporary staff brought in as needed. Staff turnover is quite high and 80 per cent are female. LCD is very aware of its responsibility to customers but has a poor record of minor accidents amongst staff, particularly in the warehouse area.

OH&S is the Store Manager's responsibility, supported by two assistants, none of whom has received any formal training. The local environmental health officer visits the store every four to five years. The most recent visit identified major failings and non-compliance with current OH&S legislation.

### *Implementing an OH&S management system*

The organizational requirements of LCD are different from F&L and UE, demanding closer control and management.

Staffing arrangements involving significant numbers of temporary and part-time staff mean it is more difficult to ensure they are adequately trained and kept aware of OH&S issues. LCD's trade also involves the public, which requires continual attention. The supply of food to the public is a further issue, requiring compliance with strict food safety and hygiene legislation. LCD realized that, in order to remain in business, immediate action was required. It appointed one assistant manager with full responsibility for OH&S and BS 8800 was chosen as the vehicle to embrace OH&S arrangements in a formal management system.

LCD saw opportunities and benefits in integrating its management of hygiene requirements and OH&S. Both issues were likely to impact on employees and the public, one way or another, and it was necessary to

manage this area of its business more effectively. With the continuing need for training, it was seen that OH&S could be conveniently accommodated within the general training arrangements already in place.

As LCD has developed, it has become increasingly aware of its responsibilities for ensuring the OH&S of its customers. It was recognized that injuries to customers could result in expensive litigation claims and loss of reputation, both of which could be expensive to LCD.

## ***Bilt & Clapse (B&C)***

### *Introduction*

B&C is a medium-sized construction company with 22 management and administrative staff, 173 tradesmen employees and a subcontract workforce of a further 220 permanent contractors who can be engaged as and when conditions dictate. This flexibility enables the company to be keenly competitive while at the same time undertaking significant construction projects. Throughout the 1990s B&C grew strongly and, being a construction organization, had come to accept that it would always have its share of accidents and incidents, the cost of which were written into tender fees.

In 1994 the HSE issued The Construction (Design and Management) Regulations (CDM) and followed this up in 1996 with the Construction (Health, Safety and Welfare) Regulations, both now incorporated into the CDM Regulations 2007. The impact on B&C came following a breach of the CDM Regulations with the collapse of a tower crane while the company was undertaking work to modify a power plant. Although eventually no blame was apportioned to B&C, the company was now unable to give positive answers in potential client pre-qualification questionnaires that would enable it to undertake the more prestigious construction contracts, particularly within the railway industry.

This incident was the catalyst that led to the Safety Officer and Commercial Director reporting to the board that B&C could soon begin to

have difficulty in getting the work it wanted. Further, unless the company demonstrably improved its OH&S reputation, its traditional customer base could also be reduced.

### *Implementing an OH&S management system*

B&C had never addressed the requirements of quality assurance or considered what environmental impact its activities might have. With the acceptance that the absence of a robust OH&S management system could ultimately lead to the failure of the company, however, the board made a commitment to ensure that B&C would meet these new demands being placed on organizations to become accountable for their actions.

The initial decision was to appoint a manager with experience in implementing management systems and to set a target for achieving BS EN ISO 9001 compliance within a six-month time frame. In addition, the newly appointed Quality Assurance Manager would assist the Safety Officer in implementing the various elements of BS OHSAS 18001 and to begin meeting the environmental management requirements of BS EN ISO 14001. A timescale for achieving full compliance and certification to BS OHSAS 18001 would be decided after the findings of an initial status review were reported and the extent of the work required could be quantified. A further and more far-reaching decision was that B&C would move towards a fully integrated OH&S quality and environmental management system as the most cost-effective way forward in the longer term.

In 2007, B&C had to face the challenge of the new Construction (Design and Management) Regulations, which came into force in April of that year. Now they also have a more multilingual workforce as the European Union market has opened up. Consequently, as well as ensuring the OH&S of its workforce and implementation of the 2007 regulations, B&C also has to ensure that its employees have a clear understanding of the process of implementation.



## ***YumYumInMyTum (YYIMT.com)***

### *Introduction*

YYIMT was formed in 1999 with a workforce of 12 operating from new offices situated in a business park. It uses the Internet to trade in a wide and unique range of exclusive and exotic handmade sweets, cakes and other specialist confectionery made by a network of small independent manufacturers located around the UK. Its business is based on providing specialist shops and chain stores with supplies of fresh products through an independent delivery service. In addition, it provides a mail order service to home-based customers with all marketing and ordering carried out on the Internet.

YYIMT takes on the marketing and distribution roles for the manufacturers and has no direct manufacturing or storage facilities. From the outset it recognized an overall need to comply with all relevant OH&S and environmental legislation and realized that, as a food distributor, quality assurance would also be of prime importance. More specifically, however, the evidence among some of its IT operators of repetitive strain injury (RSI) from past employment, together with the general strength of food hygiene and health and safety legislation, meant there was a clear need for robust OH&S arrangements.

In addition, more investors representing pension investment portfolios were insistent on only dealing with companies that were operating sound, ethical, environmental and health and safety policies. This source of investment was seen as being important to YYIMT in the future and the company needed to be able to demonstrate its commitment to OH&S.

### *Implementing an OH&S management system*

YYIMT decided to prepare for compliance before the organization was actually trading. This was achieved by identifying which operations would be carried out within the office complex to keep the operation functioning, as well as identifying the specific activities of the trading side. In addition, YYIMT

wanted to ensure that it was trading with like-minded organizations and undertook to employ an ethical trading policy using only suppliers and contractors who were as equally committed as YYIMT. Consequently, it was looking for its confectionery suppliers and delivery organizations to be working towards compliance with BS OHSAS 18001 and the requirements of BS EN ISO 9001 and BS EN ISO 14001, if they did not already have them in place.

As YYIMT has evolved it has moved increasingly to operate a home-working regime for its teleworkers. While this has brought about improvements to the work–life balance, it has necessitated the need to ensure that home-workers have a suitable working environment which is OH&S compliant.



## ***Heave and Haul (H&H)***

### *Introduction*

H&H was created from a family road haulage company transporting cattle to abattoirs. It now operates with a fleet of fixed and articulated wheelbase vehicles from five main hubs across the UK. In addition, H&H provides a network of local delivery services for a distribution-only wholesaler supplying perishable foodstuff. The core road haulage business operates across the boundaries of the extended European Union and familiarity and understanding of local and national health and safety issues is essential to the smooth running of the operation. In the UK, maintaining a reliable and prompt delivery service during predominantly unsociable hours presents an ever-present major risk challenge to H&H. The company therefore recognized that an effective OH&S management system was essential to its developing business.

### *Implementing an OH&S management system*

To establish compliance with BS OHSAS 18001, H&H set up separate task forces to deliver it in the two distinct arms of its business, using the sound guidance given in BS 8800. A management group was also set up

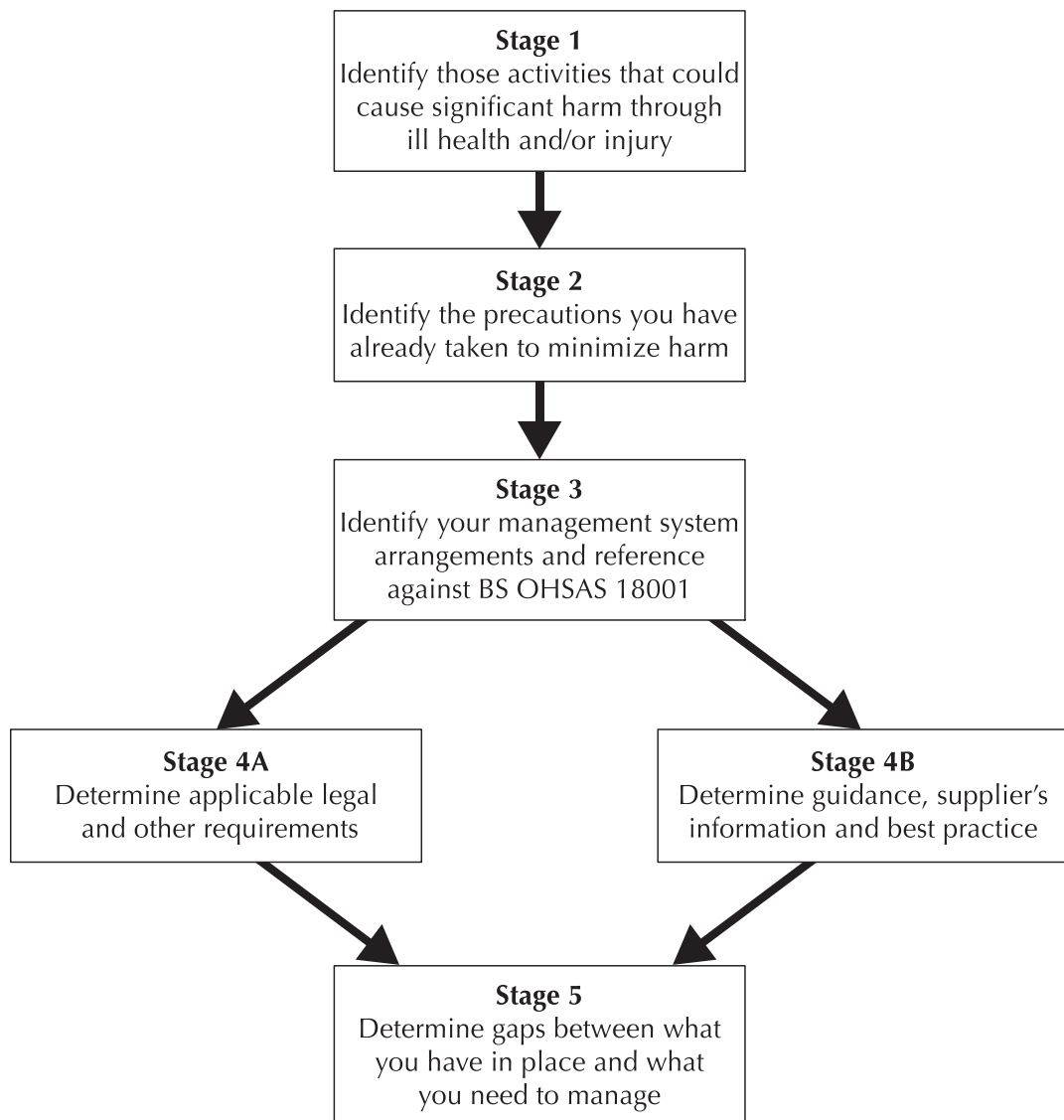
to monitor consistency across the two task forces as well as establish the BS 8800 approach in the business support areas – garaging, administration, etc. Although certification to BS OHSAS 18001 was an option, the company recognized the need to take on the principles given in the annexes of BS 8800, particularly with respect to culture and accident investigation. The latter was seen as being of particular importance in an industry that is high risk.

H&H's longer-term aim is for eventual integration with BS EN ISO 9001 and BS EN ISO 14001. H&H recognizes that to achieve and maintain compliance with BS 8800, it needs to ensure its business partners and suppliers are equally committed.

For H&H the 21st century has brought new hazards to its agriculture industry activity, with the need for biohazard controls to ensure the potential spread of infection or transmitted disease in agricultural herds is minimized.

# 2

## Getting started – Initial status review





## In brief

If you do not already have a well-developed OH&S system – don't worry. It's time to get started using a simple step-by-step approach for implementing a system. It asks an organization to identify its 'problems' and what it has done to mitigate them. It asks them what they should be doing to meet legal requirements and guidance, and what gaps exist in their existing OH&S management system arrangements.

For any organization to either establish a new OH&S management system or develop an existing one, the first and most important step is to carry out a review of the arrangements and procedures already in place for controlling the risks. This process will provide established organizations with information on the scope, adequacy and degree of implementation of an existing management system and, particularly, where it stands in managing risk. For a newly established organization, an initial status review (ISR) serves to determine what arrangements are needed to ensure effective OH&S management functions and the statutory obligations it has to meet. This process of self-assessment essentially answers the question: precisely where is the organization now in managing OH&S issues and/or where does it need to be? It is a key step and identifies what information needs to be gathered and considered when establishing the OH&S system.

BS OHSAS 18001 does not specifically require an ISR to be carried out. OHSAS 18002, however, recognizes the need for an ISR in the case of an organization with limited OH&S management in place, to establish its current position. In addition, the ISR provides the starting point for the development and implementation of the management system process. Carrying out an ISR may, at first sight, seem an onerous task. Most organizations soon find, however, that the process demonstrates that OH&S is already part of their management arrangements. What has rarely been done is to assess its relevance against all aspects of business risk and to determine statutory obligations.

An ISR should always be undertaken by a competent person familiar with understanding and determining risks as well as identifying the legislation applicable to managing risks. They will need to engage in dialogue with all

parts of the organization's operations to understand the services and products it provides and even the direction it intends to go, as part of the organization's evolution.

In the UK, since 1974, all 'persons at work', whether employers, employees or the self-employed, with the exception of domestic servants in a private household, have been covered by The Health and Safety at Work etc. Act 1974 (HASWA). This legislation additionally covers the health, safety and welfare of the general public, contractors and any person or persons who may be affected by an organization's activities. There is a similar requirement for protecting those affected by the organization's activities within the EU and in many other parts of the world.

All organizations, whether small, medium or large, will normally be operating some kind of safety management system. This may be unsophisticated and may not be totally compliant with current health and safety legislation but it will be there. It may have evolved as a result of an accident, a visit by the health and safety inspector or other regulatory body, or as a result of the experience and common sense of those working for the organization. In many cases, the safety management system may not be working as well as it should and, perhaps most importantly, not moving forward in response to business experience and development and changes in legislation. While there may be systems in place to prevent or reduce accidents, it is less likely that similar controls are in place for reducing occupational health problems, for example hearing loss, back problems or acute or chronic ill health from chemical exposure, for which the risk factors are often not as apparent as those presenting a clearly unsafe situation in terms of potential accidents. The ISR helps organizations find out:

- where they are now in managing OH&S issues;
- what help and information are available from internal and outside sources;
- what needs to be done to meet the organization's OH&S obligations;
- which of this is relevant to the organization;
- how the organization shapes up to meeting the core elements of the organization's OHSAS 18001 system.

## *Stage 1 – Identify activities that could cause significant harm through ill health and/or injury*

To satisfy the requirements of the initial status review organizations will need to identify those activities that could result in harm. There are areas of activity that are well regulated but caution should be exercised when it comes to focusing immediately on those areas that the organization is well aware of, where there are specific requirements which it is already managing well. There are many activities that may cause harm where there may not be well-defined regulations (such as stress, for instance) or guidance. Emerging technologies may well bring new hazards to the workplace that pose an unacceptable risk. These need to be managed rather than waiting for regulation to be introduced. The approach needs to be one where the person responsible for this review steps back and considers the bigger picture, identifying those hazards that exist which are not necessarily regulated by specific legislation.

Those new to health and safety will no doubt find trying to read and understand the OH&S law a very onerous and time-consuming task. By contrast, identifying those activities that may cause unacceptable harm may well be a much easier approach. Identifying the hazards, determining the risks and putting in effective controls is likely to allow the organization to meet and/or exceed 99 per cent of the legal requirements it is obliged to comply with. Moreover, it may be possible to achieve this in a relatively short time compared with trying to analyse and understand all the legal requirements.

The following checklist details some of the potential sources for harm that are applicable to many organizations. A tick box has been provided to identify those that apply to the organization concerned (1) and those that have been addressed (2). A more comprehensive approach is provided in Chapter 6.

### **CHECKLIST: Hazard identification, risk assessment and risk controls**

<b>1</b>	<b>2</b>	
<input type="checkbox"/>	<input type="checkbox"/>	Slips/falls on the level;
<input type="checkbox"/>	<input type="checkbox"/>	Falls of persons from heights;
<input type="checkbox"/>	<input type="checkbox"/>	Falls of tools, materials, etc., from heights;

- Inadequate headroom;
- Manual lifting/handling of tools, materials, etc.;
- Hazards from plant and machinery associated with assembly, commissioning, operation, maintenance, modification, repair or dismantling;
- Vehicle hazards, covering both site transport and travel by road (affecting personnel and other vehicles);
- Fire, explosion and natural disasters;
- Substances that may be inhaled;
- Substances or agents that may damage the eye;
- Substances that may cause harm by coming into contact with, or being absorbed through the skin;
- Substances that may cause harm by being ingested, i.e. entering the body via the mouth;
- Substances that may be injected by a needle or under pressure through broken skin;
- Harmful energies, e.g. electricity, radiation, noise, vibration;
- Work-related upper limb disorders resulting from frequently repeated tasks;
- Inadequate thermal environment, e.g. too hot, too cold, extreme variations in temperature;
- Lighting levels (adequacy for tasks or emergencies);
- Slippery, uneven ground/surfaces;
- Inadequate guard rails or hand rails on stairs;
- Contractors' activities;
- Violence to staff;
- Terrorist activity;
- Stress from work pressures, unrealistic deadlines, etc.;
- Physical suitability of employees (health, fitness, etc.).

## In practice

All the case study organizations found that many of the potential sources for harm listed applied to them. Although their first attempt at identifying all the hazards and evaluating the risks may not have been comprehensive, it gave them all a sound basis for progressing and moving to a more comprehensive approach (see Chapter 6). This enabled them to complete the exercise within a short space of time (after completing the 'getting started' stage of the process).



## **F&L**

The ISR for F&L was broken into three elements representing business delivery.

1. Core office environment risks:
  - fire and terrorist threat;
  - first aid – contact with body fluids;
  - managing and selecting contractors;
  - manual handling, e.g. boxes and other office supplies, water dispensers;
  - slips, trips and falls;
  - staff consultations;
  - working with display screen equipment, VDUs.
2. Office location risks:
  - responsibility under The Workplace (Health, Safety and Welfare) Regulations 1992, e.g. decoration, lighting, sanitation provisions;
  - electricity – hard wiring and portable equipment;
  - maintaining and using pressure systems – heating, boilers, etc.;
  - chemicals – office and contractor;
  - disabled persons – employees and visitors.
3. Business environment risks:
  - driving and travelling long distances with limited rest periods;
  - use of mobile telephones;
  - violence – from the public, road rage.

F&L's business structure has the nucleus of a 'suitable and sufficient' health and safety management system. What was lacking was the recognition of all hazards and risks that existed across its working environments both within the confines of the office and outside it, as well as the ongoing control needed over them.

This was demonstrated by the fact that, while F&L had every piece of electrical equipment checked each year, its health and safety policy was last

reviewed over 10 years ago and the hard wiring to the building and services had never been tested since they moved into the building.

The ISR enabled F&L to determine its risk exposure and prioritize the major risks to enable them to be addressed as a matter of urgency.

As F&L grows, each new activity and environment will be reviewed against legislation and best practice, any new risks identified, and control procedures developed and implemented before harm can occur.

## **UE**

The ISR for UE identified three areas of risk management for business delivery.

1. Core business risks – these address the UE business environment:
  - fire and terrorist threat;
  - first aid – contact with body fluids;
  - manual handling, e.g. office and workshop deliveries;
  - selecting and managing contractors;
  - slips, trips and falls;
  - staff consultations;
  - working with display screen equipment, VDUs.
2. Specific office and workshop risks:
  - chemicals – office and workshop materials;
  - disabled persons – employees and visitors;
  - electricity – hard wiring and portable equipment;
  - emergency maintenance;
  - first aid – contact with body fluids;
  - food and canteen hygiene management – UE uses an employee canteen to provide 24-hour services;
  - working with machinery and equipment;
  - machine tool maintenance and management;
  - maintaining and using pressure systems – heating, boilers, etc.;
  - planned preventative maintenance;



- responsibility under The Workplace (Health, Safety and Welfare) Regulations 1992, e.g. decoration, lighting, sanitation provisions;
  - the use and storage of flammable solvents, e.g. petrol, white spirit – UE uses solvents for cleaning and painting.
3. Business environment risks:
- driving – visiting clients and deliveries;
  - manual handling – deliveries;
  - use of mobile telephones;
  - violence – from the public, road rage.

UE's operations involve considerable manual labour and an extensive infrastructure to support the business – warehouse, canteen facilities, etc. There is a greater than average incidence of hazards and an increased need to ensure adequate supervision and training of the workforce. UE's manufacturing base requires strong management control over all its operations. To prevent incidents occurring, OH&S management will require the continuous involvement of all staff. In addition, UE has a recognized trade union and, as such, has to establish and implement structured consultation processes on OH&S matters with its employees.



## **LCD**

The ISR for LCD was based on the management of risks in two areas of business delivery.

1. Core business risks – in the LCD business environment:
  - fire and terrorist threat;
  - first aid – contact with body fluids;
  - manual handling, e.g. office and workshop deliveries;
  - slips, trips and falls;
  - working with display screen equipment, VDUs.
2. Specific office, warehouse, premises and shop floor location risks:
  - applying first aid;
  - canteen hygiene management;



- chemicals – office and shop floor materials;
- disabled people – employees and visitors;
- driving – van deliveries to customers;
- electricity – hard wiring and portable equipment;
- maintaining and using pressure systems – heating, boilers, etc.;
- responsibility under The Workplace (Health, Safety and Welfare) Regulations 1992, e.g. decoration, lighting, sanitation provisions;
- use of mobile telephones;
- violence – from the public, road rage;
- working at night.

LCD has the additional responsibility of interfacing with the public and visitors, e.g. customers and delivery people. Its operation involves rapid set-up and turnover, requiring the safe operation of simple tasks using semi-skilled labour. A significant amount of work involves shelf stacking both at night, during unsocial hours, and when the store is open to shoppers. This provides additional risks.

While it had recognized its responsibilities on the retail side (food hygiene, first aid and fire precautions), LCD had given little attention to the support side – warehouse, traffic routes and staff training (especially part-time staff).

## **B&C**

The ISR for B&C was based on the management of risks in two areas of business delivery.

1. Core business risks in the B&C business environment – office location and B&C work premises:
  - fire and terrorist threat;
  - first aid – contact with body fluids;
  - forklift truck driving;
  - manual handling, e.g. office and work premises deliveries;
  - slips, trips and falls;
  - working with display screen equipment, VDUs.

## 2. Business delivery – work site risks:

- chemicals – cement, etc.;
- driving;
- fire – flammable materials and bomb threats;
- first aid – contact with body fluids;
- managing contractors;
- manual handling, e.g. office and site deliveries;
- public control;
- scaffolding erection and management;
- site management;
- slips, trips and falls;
- specific task/skills competencies – Construction Skills Certification Scheme (CSCS) card compliance;
- structure collapse;
- use of machine and hand tools;
- weather conditions – heat (sunburn), cold, wetness, etc.;
- working at height;
- working with display screen equipment, VDUs.

B&C's operations frequently mean that it has to work at a client's site or premises. It also has its own office and yard sites for which it is responsible and relies on significant periods of driving time between its own premises and worksites for delivery purposes etc.

As a builder, B&C also has specific responsibility under the CDM regulations when acting as a principal contractor and designer.



**YYIMT**

In the case of YYIMT.com, the ISR only applied to a single area of business delivery.

## 1. Core business risks in the YYIMT business environment – office and work premises:

- fire and terrorist threat;
- manual handling, e.g. office and work premises deliveries;
- slips, trips and falls;
- working with display screen equipment, VDUs;
- first aid – contact with body fluids;
- electricity;
- managing contractors.

The business of YYIMT.com means that there is no direct interface with clients and customers, as these are managed electronically.

By planning in advance, YYIMT was able to ensure that, as far as was reasonably practicable, all of its OH&S responsibilities were being addressed. To ensure that risk is managed within the business, however, rigorous review processes are needed to monitor risk management and identify any additional risks it may have to face.



The H&H ISR was based on the management of risks in three areas of business delivery.

1. Core business risks in the H&H business environment – office premises:
  - fire and terrorist threat;
  - manual handling, e.g. office and work premises deliveries;
  - slips, trips and falls;
  - working with display screen equipment, VDUs;
  - first aid – contact with body fluids.
2. Business delivery – yard sites:
  - fire and terrorist threat;
  - manual handling, e.g. office and site deliveries;
  - slips, trips and falls;
  - working with display screen equipment, VDUs;
  - first aid – contact with body fluids;

- forklift truck driving;
  - noise;
  - biological hazards from animal wastes;
  - chemicals – vehicle cleaning and refuelling;
  - vehicle movements.
3. Business delivery – vehicle risks:
- driving – other motorists and driving laws and conditions in other countries;
  - road rage – other motorists;
  - stress – meeting programme deliveries, e.g. ferry timetables;
  - tiredness – excessive hours and night driving.

### *Stage 2 – Identify the precautions already taken to minimize harm*

This is where the organization identifies what is currently in place and is working satisfactorily. It will almost certainly be found that:

- machinery and equipment has been provided with guards and systems to prevent injury;
- guidance has been provided that has been adopted by employees on safe working practices;
- employees have adopted safe working procedures on the basis of previous employment or training;
- managers/supervisors have implemented some form of control to prevent a recurrence of an experience that caused harm or nearly caused harm (i.e. a near miss) at some time in the past;
- resources have been provided for certain precautionary measures (e.g. training, fire extinguishers).

Such information and solutions should be considered at Stage 4.

From the outset, all organizations have to establish at least some ground rules for the health, safety and welfare of staff and for the security and safety of their various activities. Very few operations are conceived without some regard

for health and safety criteria. This may involve selecting a particular course of events or actions to eliminate risk, by reducing the risk if a particular course of events or actions occurs or by choosing to use particular, safer materials instead of others with known hazards.

The following checklist shows some of the health and safety aspects applying to organizations that should be covered by documented procedures. This list is not exhaustive and a tick box is provided for organizations to identify those that are in place or being introduced (1), may apply (2) or are irrelevant (3).

### CHECKLIST: Existing OH&S information, guidance, etc. in your organization

1	2	3	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Accident/incident/occupational ill health/near miss reporting and investigation;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Alcohol and substance misuse testing and screening;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Audits (OH&S);
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Cold environments (refrigeration);
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Communicating information – staff, contractors and others;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Compressed air use;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Confined working (permit to work);
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Contractor deliveries;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Contractor services – selection based on OH&S skills and competencies;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Management of contractors and visitors to offices and work sites;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Management of substances hazardous to health;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Management of substances hazardous to health;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Display screen equipment (VDUs) – operation and use;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Driving;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Electrical inspections of equipment, buildings and services, and portable appliance testing (PAT);
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Emergency arrangements – business contingency planning;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Emergency maintenance;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Eye protection;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Fire and emergency (terrorist threat, gas escape, etc.) evacuation arrangements;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	First aid arrangements;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Forklift trucks operation;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Safety footwear;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	General arrangements for health and safety welfare;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Head protection;

- Hearing protection;
- Hot work – welding, brazing, soldering, flame cutting (hot work permit to work);
- Scaffolds, scaffold towers ladders and steps (working at height);
- Lasers – personal exposure, fire hazard;
- Lifting equipment (lifts, cranes, hoists);
- Lone worker arrangements;
- Machinery selection and operation;
- Manual handling;
- Medical facilities (first aid, health surveillance);
- Noise (occupational and environmental);
- Permit to work procedures (for example, lock-off procedures for maintenance, hot work);
- Personal protective equipment (PPE);
- Planned inspections (safety tours and surveys);
- Planned preventative maintenance;
- Provision of OH&S safeguards in procurement procedures;
- Radiography;
- Respiratory protection;
- Risk assessments;
- Safety policy;
- Safety training – competence;
- Safety training – induction (awareness);
- Safety training – specific for PPE, emergencies, etc;
- Security;
- Skin protection – gloves, overalls, sun cream, etc.;
- Storage;
- Toolbox talks;
- Traffic control/routes;
- Chemical and hazardous substance management for employees;
- Ventilation and extraction systems.

## In practice – Existing information, guidance and instructions within the organization



### *F&L – office*

While offices are generally low-risk areas, F&L still needs to address all aspects of OH&S within its environment.

Aspects that should already be covered are:

- incident and near miss reporting and investigation;
- COSHH (Control of Substances Hazardous to Health) assessments;
- display screen equipment risk assessments;
- fire and emergency management and evacuation procedures;
- first aid procedures;
- manual handling arrangements;
- health and safety policy;
- safety tours and inspections;
- workplace risk assessments (see The Management of Health & Safety at Work Regulations 1999);
- workplace assessment (see The Workplace (Health, Safety and Welfare) Regulations 1992).

Other safety aspects that may already exist and should be considered are:

- communication of OH&S information – contractors, neighbours;
- induction training procedure;
- task training;
- lone working arrangements;
- planned electrical inspections;
- visitor procedures;
- driving and travelling.



## *UE – engineering workshop*

Engineering operations, by their very nature, tend to present a wider range of hazards and much higher risks. The level of control required is greater and closer attention needs to be given to the training of employees.

Safety aspects that should already be covered are:

- accident, incident, near miss and occupational ill-health reporting and investigation;
- communication of OH&S information;
- fire and emergency evacuation procedures;
- first aid procedures;
- hot work;
- induction training procedure;
- lifting equipment;
- manual handling arrangements;
- medical facilities;
- noise assessment;
- personal protective equipment – selection and use;
- planned preventative maintenance;
- emergency maintenance – OH&S procedures;
- process training procedures;
- safety targets and objectives;
- safety tours and inspections;
- safety signs and notices;
- working at height;
- workplace risk assessments.

Other safety aspects that may already exist and should be considered are:

- alcohol and substance misuse;
- contractor and visitor management procedures;
- COSHH assessments;
- display screen equipment risk assessments;

- first aid;
- ladder maintenance;
- lone working arrangements;
- machinery purchase (The Provision and Use of Work Equipment Regulations 1998);
- manual handling;
- noise assessment;
- personal protective equipment;
- scaffold controls;
- traffic control/routes;
- other workplace regulation compliance.



## ***LCD – retail***

As an operation involving totally different types of activities, LCD needs to ensure it addresses safety aspects in each part of the business. While the retail environment tends to be low risk, the interface with the public does add a dimension that needs to be carefully considered, particularly in view of the unpredictable nature of some members of the public whilst in the store.

Safety aspects that should already be covered are:

- accident and incident reporting and investigation;
- contractors and visitors procedures;
- fire and emergency procedures;
- first aid procedures;
- food hygiene;
- safety signs and notices;
- induction training procedures;
- manual handling arrangements;
- preventative maintenance;
- process training procedure;
- safety targets and objectives;
- safety tours and inspections;

- security arrangements;
- traffic control/routes;
- workplace regulation compliance.

Other safety aspects that may already exist and should be considered are:

- COSHH assessments;
- display screen equipment risk assessments;
- use of ladders and working at height;
- medical facilities (staff and customers);
- personal protective equipment;
- risk assessments (repetitive strain injury issues at checkout facilities);
- storage management.

## ***B&C – construction***

As a company operating in a recognized hazardous environment, B&C needs to promote a strong safety culture both among its own staff and among the subcontractors it employs. As with LCD, the interface with the public also needs to be considered.

Safety aspects that should already be covered are:

- accident, incident and ill health reporting and investigation;
- battery charging;
- compressed air use;
- confined spaces;
- contractor and visitor procedures;
- emergency arrangements;
- first aid;
- forklift trucks;
- hot work;
- induction training;
- lifting equipment;

- manual handling;
- noise;
- personal protective equipment;
- recruit to work procedures – competency assessments;
- risk assessments;
- scaffolds;
- steps and ladders;
- safety targets and objectives;
- safety tours and inspections;
- toolbox talks;
- traffic control/routes.

Other safety aspects that may exist and should be considered are:

- communicating information;
- contractor deliveries;
- COSHH assessments;
- display screen equipment assessments in offices;
- eye protection;
- fire precautions on sites;
- planned inspections;
- security;
- storage arrangements;
- working in hot, cold and wet environments.



### ***YYIMT.com – new technology***

By planning in advance, YYIMT was able to benefit from the experience and information available from other organizations that had learnt by trial and error or from expensive mistakes. Its approach was very systematic, looking at what elements made up the company and how they worked together, thus enabling it to identify the interfaces where information would be required.

Safety aspects that should be covered by documentation are:

- OH&S audits;
- communicating information;
- consultations with employees;
- managing contractors and visitors;
- display screen equipment;
- electrical inspections;
- fire and emergency arrangements;
- first aid;
- general arrangements for health and safety;
- manual handling;
- OH&S safeguards in procurement;
- risk assessment;
- safety targets and objectives;
- safety tours and inspections;
- security;
- storage.



## ***H&H – road haulage***

The activities of H&H are based in two areas of delivery: at the business base and during road delivery activities. Business-based activity predominantly consists of office work and vehicle marshalling and storage. Road deliveries need to take account of client workplace interfaces and road safety.

Safety aspects that should already be covered are:

- accident, incident and occupational ill health reporting and investigation;
- contractor and visitor procedures;
- driving;
- fire and emergency procedures;
- first aid procedures;

- food hygiene;
- safety signs and notices;
- induction training procedures;
- manual handling arrangements;
- preventative maintenance;
- process training procedure;
- safety targets and objectives;
- safety tours and inspections;
- security arrangements;
- stress management;
- traffic control/routes;
- workplace regulation compliance.

Other safety aspects that may exist and should be considered are:

- COSHH assessments;
- display screen equipment risk assessments;
- personal protective equipment;
- storage management and safe working loads in warehouse areas;
- security.

### *Stage 3 – Identify management system arrangements – reference against BS OHSAS 18001*

The BS OHSAS 18001 OH&S management model is based on providing and satisfying key criteria for the organization against the following elements:

- policy;
- planning;
- implementation and operation;
- checking and corrective action;
- management review.

This aspect of OH&S management involves examining what the organization already has in place and the success of the existing systems in managing OH&S. It requires a complete and open appraisal of the organization's current controls and procedures.

To help identify what resources are currently being devoted to OH&S management and how these are being applied, the following key questions address your current system and performance. This will be extremely relevant to those with existing BS EN ISO 9001 and/or BS EN ISO 14001 systems. Those without such systems in place need to reference the appropriate chapters and the checklists within them before assigning their implementation status. The self-assessment questionnaire in Appendix 2 is more detailed.

<b>BS OHSAS element</b>	<b>Yes</b>	<b>Partial</b>	<b>No</b>
<b>Policy</b>			
Does your organization define and document its OH&S policy?			
<b>Planning</b>			
Has your organization carried out a thorough identification of all foreseeable hazards associated with its activities?			
Does your organization carry out risk assessments?			
Does the organization implement controls on a hierarchal basis with PPE as the last resort?			
Does your organization identify all legal and other requirements which apply to it?			
Has a top management representative been appointed at the most senior level of the organization and are those with management functions aware of their role, responsibilities and accountability?			



<b>BS OHSAS element</b>	<b>Yes</b>	<b>Partial</b>	<b>No</b>
<b>Implementation and operation</b>			
Does your organization set objectives to ensure continual improvement of OH&S performance?			
Does the organization ensure that those working for or on behalf of the organization are competent for the work they undertake?			
Does your organization carry out training to increase the awareness and knowledge of employees about OH&S issues?			
Do you encourage worker participation in determining the risks and control measures and identifying opportunities for improvement?			
Does your organization provide information about OH&S matters to employees?			
Does your organization provide information about OH&S matters to relevant interested parties, i.e. other than employees?			
Does your organization have a system for gathering relevant OH&S information?			
Does your organization embrace OH&S issues in its operational control system?			
Does your organization have procedures for responding to emergency situations which might endanger OH&S?			
<b>Checking</b>			
Does the organization commit to measuring performance and monitoring?			
Does your organization carry out OH&S audits and act on their findings?			

BS OHSAS element	Yes	Partial	No
<b>Management review</b>			
Does your organization carry out management reviews of its OH&S activities as part of the drive for continual OH&S improvement?			

For those who have more developed systems the following questions will help the organization establish its current implementation status. References to the appropriate requirement in BS OHSAS 18001 are also included.

Yes	No	
<input type="checkbox"/>	<input type="checkbox"/>	Do you carry out risk assessment on all your activities? (4.3.1)
<input type="checkbox"/>	<input type="checkbox"/>	Are your controls and procedures appropriate to the risks involved? (4.3.1)
<input type="checkbox"/>	<input type="checkbox"/>	Do the control procedures primarily remove the risk? (4.3.1)
<input type="checkbox"/>	<input type="checkbox"/>	Do you produce an annual OH&S plan with achievable objectives and targets? (4.3.3)
<input type="checkbox"/>	<input type="checkbox"/>	Are OH&S objectives regularly set and reviewed? (4.3.3)
<input type="checkbox"/>	<input type="checkbox"/>	Do all your staff actively participate in the OH&S management programme? (4.4.3.2)
<input type="checkbox"/>	<input type="checkbox"/>	Do your controls and procedures need to be improved? (4.4.6)
<input type="checkbox"/>	<input type="checkbox"/>	Do you carry out OH&S inspections/tours? (4.5.1)
<input type="checkbox"/>	<input type="checkbox"/>	Are your OH&S objectives being achieved and showing demonstrable improvement in OH&S performance? (4.5.1)
<input type="checkbox"/>	<input type="checkbox"/>	Do you regularly review your health and safety management system? (4.6)
<input type="checkbox"/>	<input type="checkbox"/>	Do you consider your controls and procedures to be cost-effective? (4.6)
<input type="checkbox"/>	<input type="checkbox"/>	Do your OH&S objectives need redefining? (4.6)

Just throwing resources at OH&S issues to merely comply with legal requirements does not guarantee success. An organization may be devoting a lot of effort to OH&S management for a very poor return. For instance, large organizations can fall into the trap of over-communicating irrelevant information to staff when attempting to discharge their obligations. In practice this is more likely to overwhelm staff, be time-consuming, costly and, more importantly, largely ineffective.

Establishing and maintaining an OH&S management system requires a commitment of time, effort and resources by the organization. In the early stages, the additional responsibility of training may cause disruption to the normal schedule of the organization and business delivery. Moreover, performance can also be disheartening as improvements do not always meet expectations. Indeed, it is not unusual to see an initial surge in incident statistics as staff respond to the new regime and the importance of reporting all incidents. A longer-term view is necessary.

After the introductory phase, an ongoing system to monitor and review the performance of the system is essential to identify where adjustments are required or where the system can beneficially be extended into other parts of the working environment.

To help identify what resources are currently being devoted to OH&S management and how these are being applied, the following checklists ask some key questions about the organization's current performance.

### **CHECKLIST: Some key questions about the organization's current system**

<b>Yes</b>	<b>No</b>	
<input type="checkbox"/>	<input type="checkbox"/>	Are you achieving the objectives set in your annual OH&S plan?
<input type="checkbox"/>	<input type="checkbox"/>	Do you think you are using resources to the best effect?
<input type="checkbox"/>	<input type="checkbox"/>	Do your incident statistics show a continual improvement through a maintained reduction?
<input type="checkbox"/>	<input type="checkbox"/>	Are there noticeable improvements following the findings of safety inspections?
<input type="checkbox"/>	<input type="checkbox"/>	Most importantly, is your management system contributing to your overall business performance, i.e. are the costs of managing OH&S less than your losses would otherwise be through accidents/incidents?

The self-assessment questionnaire in Appendix 2 provides a more in-depth analysis of the status of OH&S within the organization. It can be used as an independent assessment or together with the checklists given previously. The questions are similar to those given in the previous checklist but there are some additional requirements as well.

## In practice – Existing resources already devoted to health and safety management



### *F&L – office*

F&L's office-based activities provide a relatively low-risk environment. The absence of an adequate incident reporting and investigation procedure, however, disguised two major safety issues: firstly, the large numbers of slip, trip and fall incidents that were occurring; secondly, a significant number of road accidents involving key staff who had to work continuous long hours to cope with business pressures.

### *UE – engineering workshop*

All accidents and near-miss incidents are continuously monitored in the engineering environment. This information needs to be cascaded to all staff to enable them to recognize similar situations and take remedial action before an incident occurs. This can be achieved by including safety on the agenda of all management meetings and regular but focused toolbox talks by unit organizers.

The use of staff suggestion schemes can identify savings as well as areas where improved safety management can be achieved.



### *LCD – retail*

In a retail environment, customers need to be protected from harmful situations whilst in the store. In addition, where food handling is involved, effective staff training and good housekeeping are of paramount importance.

Adequate OH&S procedures should also cover the interface with the large number of non-LCD personnel, such as those making deliveries. Behind

the front line of the business, identical system monitors will apply as in any other organization.

## ***B&C – construction***

The very nature of the construction industry makes managing OH&S particularly difficult. This stems from the fact that the industry has a particularly mobile workforce between contracts. To ensure that the organization's procedures were compliant, B&C reviewed and revised its contractor and staff training programme to cover all personnel who worked for B&C. Furthermore, to ensure this information was being used B&C introduced an internal reassessment procedure to monitor understanding and provide refresher training where necessary.



## ***YYIMT.com – new technology***

YYIMT's approach was to delegate responsibility for managing OH&S resources through the management structure. This entailed providing strategic OH&S training for all managers and giving incentives to employees to provide positive contributions to improve OH&S performance.



## ***H&H – road haulage***

H&H had two distinct areas of business management to control and address. These were based on site operations and activities and also on transport operations. Competency assessment, i.e. driving skills and knowledge, were a fundamental requirement for the driving workforce. Training was used to ensure this policy was enforced and regular reviews of health and safety aspects of contract delivery were carried out to improve performance. A

further area of improvement addressed the understanding of driving outside the UK and the application of advanced driver training.

### *Stage 4A – Determine applicable legal and other requirements*

This stage relates to the regulatory control obligations placed on the organization and any other guidance on what is considered good practice. It is very difficult to work through all the regulations etc. that exist. It is recommended that organizations focus on those legal and other requirements that relate to its identified risks, taking into consideration their:

- industry sector;
- activities;
- products, processes, facilities, equipment, materials, personnel;
- business location.

All organizations with five or more employees are required to have a written health and safety statement covering the general arrangements for occupational health and safety. This is the primary source document and should be supported by a series of documented procedures that ensure its correct interpretation and application throughout the organization.

Documentation covering OH&S can be in the form of either:

- guidance summarizing regulatory requirements that apply to the organization; or
- specific instructions covering the safe operation of plant, activities or operations carried out within the organization.

It is not sufficient for an organization to say that it complies with guidance and legislation without being able to provide evidence of direct implementation within the organization.

Sometimes it is clearly understood from the business activity of the organization which guidance and legislation applies, e.g. The Control of Noise at

Work Regulations 2005 will most likely apply in a workshop where there is noise from operating machinery. Other regulatory control may be considered less applicable to the organization, e.g. The Control of Asbestos Regulations 2006, as the organization might consider that it does not work with asbestos even though the material is present in the fabric structure of its buildings. Under these regulations, the organization does in fact have a responsibility – as the duty holder – to ensure that the location and condition of the asbestos is known, together with information on whether it can be disturbed and whether appropriate controls are exercised.

The key legislation and basis for modern occupational health and safety law in the UK is The Health and Safety at Work etc. Act 1974. The Act has produced a whole series of modern regulations covering all parts of industry and commerce. Since 1992, HASWA has been reinforced with the core principles of risk assessment described in the various enactments of the Management of Health and Safety at Work Regulations emanating from EU directives and guidance. From these basic guidelines, risk assessment is now the fundamental element of all successful health and safety management systems.

It is important, however, not to forget that some (albeit diminishing) pre-HASWA legislation may still apply because it has yet to be repealed or revised to meet modern requirements.

Appendix 3 provides guidance on how to obtain information on what legislation, regulation and codes of practice exist that might apply to the organization. The checklist given in this chapter will also help most organizations identify regulations or guidance that relates to their activities. It is important when referring to any piece of legislation or guidance that the user confirms that what they are using is current and relevant to their organization before applying it. More information is available from sources such as the HSE, local authorities, trade associations, trade unions, professional bodies and specialist health and safety consultants. See Appendix 3 for more information.

Some legislation is mandatory for all organizations. HASWA states the following:

- 'It shall be the duty of every employer to prepare ... a written statement of his [sic] general policy with respect to health and safety at work of his



employees and the organization and arrangements ... in force for carrying out the policy' (2.3);

- 'It shall be the duty ... to bring the [policy] statement and any revision to the notice of all employees' (2.3);
- 'It shall be the duty of every employee while at work to take reasonable care of himself or any other persons who may be affected by his acts or omissions' (7);
- 'It shall be the duty of any person who designs, manufactures, imports or supplies any article for use at work to ensure, as far as reasonably practicable, that the article is so designed and constructed as to be safe and without risks to health when properly used' (6).

Some organizations may also need to take account of the national legislation of other countries when working overseas. In these instances, if the UK legislation is the more onerous then it should be followed and vice versa.

The checklist that follows details some of the major legislation applicable to many organizations. A tick box has been provided for identifying those that apply to the organization (1), may apply (2), or are irrelevant (3). The legislation has been separated into two categories:

1. core legislation and regulations applicable to all organizations' activities; and
2. more specific legal responsibilities which may or may not apply, either continually or as a result of the organization's activities.

### **CHECKLIST: Legislation and regulations that may apply to the organization**

#### **Core legislation and regulations applying to all organizations**

<b>1</b>	<b>2</b>	<b>3</b>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	The Health and Safety (Consultation with Employees) Regulations 1996;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Control of Asbestos Regulations 2006;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	The Control of Substances Hazardous to Health Regulations 2002 (COSHH);
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Corporate Manslaughter and Corporate Homicide Act 2007;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	The Health and Safety (Display Screen Equipment) Regulations 1992 (DSE);
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	The Electricity at Work Regulations 1989;

- The Fire Precautions Act 1971;
- The Health and Safety (First-Aid) Regulations 1981;
- The Health and Safety at Work etc. Act 1974;
- BS 7671, Requirements for electrical installations — IEE Wiring Regulations;
- The Management of Health and Safety at Work Regulations 1999 (MHASAW);
- The Regulatory Reform (Fire Safety) Order 2005;
- The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (RIDDOR);
- The Safety Representatives and Safety Committee Regulations 1977;
- The Health and Safety (Safety Signs and Signals) Regulations 1996;
- The Workplace (Health, Safety and Welfare) Regulations 1992.

**Some of the more specific legislation which may or may not apply**

- The Chemicals (Hazard Information and Packaging for Supply) Regulations 1994;
- The Control of Noise at Work Regulations 2005;
- The Control of Pollution (Special Waste) Regulations 1980;
- The Construction (Design and Management) Regulations 2007 (CDM);
- The Food Safety (General Food Hygiene) Regulations 1995;
- The Highly Flammable Liquids and Liquefied Petroleum Gases Regulations 1972;
- The Ionising Radiations Regulations 1999;
- The Lifting Operations and Lifting Equipment Regulations 1998 (LOLER);
- The Manual Handling Operations Regulations 1992;
- The Personal Protective Equipment at Work Regulations 1992;
- The Pressure Systems and Transportable Gas Containers Regulations 1989;
- The Provision and Use of Work Equipment Regulations 1998 (PUWER II).

## In practice – Application of primary legislation and regulations

While all working environments are subject to core health and safety legislation, for example HASWA, different environments will be subject to duties and responsibilities under more specific regulatory controls. All these environments may be different but they are all linked by a common theme – the existence of hazards, the risks associated with the activities being carried out and the use of control measures to mitigate them. The case studies identify the

main risk areas that need to be addressed in the very different environments in which each organization operates. Most of the individual case studies have been broken down into core requirements and requirements that are business-specific. Core requirements will apply to most organizations; business-specific ones have been used in the case studies to assist the reader to determine the risks they themselves may have to address. Chapter 6 provides more specific guidance on risk assessment.

Ideally, the organization should identify its significant risks, as described in Chapter 6, before doing this exercise.



## ***F&L – office***

Legislation applying to all F&L activities:

- The Health and Safety (Consultation with Employees) Regulations 1996;
- The Control of Asbestos Regulations 2006;
- The Disability Discrimination Act 1995 (DDA);
- The Health and Safety (Display Screen Equipment) Regulations 1992 (DSE);
- The Electricity at Work Regulations 1989;
- The Health and Safety (First-Aid) Regulations 1981;
- The Health and Safety at Work etc. Act 1974;
- The Management of Health and Safety at Work Regulations 1999;
- The Manual Handling Operations Regulations 1992;
- The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (RIDDOR);
- The Health and Safety (Safety Signs and Signals) Regulations 1996;
- The Regulatory Reform (Fire Safety) Order 2005;
- The Workplace (Health, Safety and Welfare) Regulations 1992.

## *UE – engineering workshop*

Legislation applying:

- The Control of Asbestos Regulations 2006;
- The Control of Noise at Work Regulations 2005;
- The Control of Substances Hazardous to Health Regulations 2002 (COSHH);
- The Health and Safety (Display Screen Equipment) Regulations 1992 (DSE);
- The Electricity at Work Regulations 1989;
- The Fire Precautions Act 1971;
- The Health and Safety (First-Aid) Regulations 1981;
- The Food Safety (General Food Hygiene) Regulations 1995;\*
- The Health and Safety (Safety Signs and Signals) Regulations 1996;
- The Health and Safety at Work etc. Act 1974;
- The Highly Flammable Liquids and Liquefied Petroleum Gases Regulations 1972;\*\*
- The Lifting Operations and Lifting Equipment Regulations 1998 (LOLER);
- The Management of Health and Safety at Work Regulations 1999;
- The Manual Handling Operations Regulations 1992;
- The Personal Protective Equipment at Work Regulations 1992;
- The Regulatory Reform (Fire Safety) Order 2005;
- The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (RIDDOR);
- The Safety Representatives and Safety Committee Regulations 1977;
- The Workplace (Health, Safety and Welfare) Regulations 1992.

\* UE has its own canteen.

\*\* UE uses solvents for cleaning and painting.



## **LCD – retail**

Legislation applying:

- The Health and Safety (Display Screen Equipment) Regulations 1992 (DSE);
- The Electricity at Work Regulations 1989;
- The Fire Precautions Act 1971;
- The Health and Safety (First-Aid) Regulations 1981;
- The Food Safety (General Food Hygiene) Regulations 1995;
- The Health and Safety at Work etc. Act 1974;
- The Management of Health and Safety at Work Regulations 1999 (MHASAW);
- The Manual Handling Operations Regulations 1992;
- The Regulatory Reform (Fire Safety) Order 2005;
- The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (RIDDOR);
- The Health and Safety (Safety Signs and Signals) Regulations 1996;
- The Workplace (Health, Safety and Welfare) Regulations 1992.

## **B&C – construction**

Legislation applying:

- The Construction (Design and Management) Regulations 2007 (CDM);
- The Health and Safety (Consultation with Employees) Regulations 1996;
- The Control of Asbestos Regulations 2006;
- The Control of Noise at Work Regulations 2005;
- The Control of Pollution (Special Waste) Regulations 1980;
- The Control of Substances Hazardous to Health Regulations 2002 (COSHH);
- The Health and Safety (Display Screen Equipment) Regulations 1992 (DSE);

- The Electricity at Work Regulations 1989;
- The Fire Precautions Act 1971;
- The Health and Safety (First-Aid) Regulations 1981;
- The Health and Safety at Work etc. Act 1974;
- The Highly Flammable Liquids and Liquefied Petroleum Gases Regulations 1972;
- BS 7671, IEE Wiring Regulations;
- The Management of Health and Safety at Work Regulations 1999 (MHASAW);
- The Manual Handling Operations Regulations 1992;
- The Personal Protective Equipment at Work Regulations 1992;
- The Provision and Use of Work Equipment Regulations 1998 (PUWER II);
- The Regulatory Reform (Fire Safety) Order 2005;
- The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (RIDDOR);
- The Health and Safety (Safety Signs and Signals) Regulations 1996;
- The Workplace (Health, Safety and Welfare) Regulations 1992;
- The Work at Height Regulations 2005.



***YYIMT.com – new technology***

Legislation applying:

- The Health and Safety (Consultation with Employees) Regulations 1996;
- The Health and Safety (Display Screen Equipment) Regulations 1992 (DSE);
- The Fire Precautions (Workplace) Regulations 1997;
- The Health and Safety (First-Aid) Regulations 1981;
- The Food Safety (General Food Hygiene) Regulations 1995;
- The Health and Safety at Work etc. Act 1974 (HASWA);
- The Health and Safety (Safety Signs and Signals) Regulations 1996;
- The Control of Substances Hazardous to Health Regulations 2002 (COSHH);
- The Electricity at Work Regulations 1989;

- The Management of Health and Safety at Work Regulations 1999 (MHASAW);
- The Manual Handling Operations Regulations 1992;
- The Regulatory Reform (Fire Safety) Order 2005;
- The Workplace (Health, Safety and Welfare) Regulations 1992.



## ***H&H – road haulage***

Legislation applying:

- The Construction (Design and Management) Regulations 2007 (CDM);
- Corporate Manslaughter and Corporate Homicide Act 2007;
- The Electricity at Work Regulations 1989;
- The Fire Precautions Act 1971;
- The Health and Safety (First-Aid) Regulations 1981;
- The Health and Safety at Work, etc. Act 1974 (HASWA);
- The Manual Handling Operations Regulations 1992;
- The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (RIDDOR);
- The Health and Safety (Consultation with Employees) Regulations 1996;
- The Control of Asbestos Regulations 2006;
- The Control of Noise at Work Regulations 2005;
- The Control of Pollution (Special Waste) Regulations 1980;
- The Control of Substances Hazardous to Health Regulations 2002 (COSHH);
- The Health and Safety (Display Screen Equipment) Regulations 1992 (DSE);
- The Health and Safety (First-Aid) Regulations 1981;
- The Health and Safety (Safety Signs and Signals) Regulations 1996;
- The Highly Flammable Liquids and Liquefied Petroleum Gases Regulations 1972;
- BS 7671, IEE Wiring Regulations;
- The Management of Health and Safety at Work Regulations 1999 (MHASAW);



- The Personal Protective Equipment at Work Regulations 1992;
- The Provision and Use of Work Equipment Regulations 1998 (PUWER II);
- The Regulatory Reform (Fire Safety) Order 2005;
- The Workplace (Health, Safety and Welfare) Regulations 1992.

### *Stage 4B – Determine guidance, supplier’s information and best practice*

This section covers guidance and instruction on occupational health and safety available from organizations and trade associations operating and/or specializing in similar fields of activity.

Very few processes and activities found in organizations are so new that there is no existing information available about them. As the legislation under the HASWA has evolved, so has the amount and type of support necessary to ensure safe working conditions.

Information is readily available from many easily accessible sources, ranging from suppliers who have a legal responsibility to produce guidance on the use of their products, to the HSE and trade associations. Information from the HSE is available in the following forms.

- Approved Codes of Practice (ACOPs) accompanying specific regulations, e.g. The Control of Substances Hazardous to Health Regulations 2002 (COSHH).
- Guidance Notes covering particular subject areas, for example, Medical Series, Plant and Machinery.
- General information, e.g. free leaflets, on areas that are being specifically targeted (often provided free of charge for single copies).
- General health and safety material, e.g. *Essentials of Health and Safety at Work* [10], and specialist electronic software, designed to assist small and medium-sized enterprises (SMEs) raise OH&S awareness.
- Contract research reports.

Trade associations or similar bodies exist to support and co-ordinate technical developments within specific business sectors. Many produce advice and guidance focused on their particular sector. This information is especially valuable as it is invariably based on the real-life experience of other member organizations. Frequently, regulatory bodies such as the HSE endorse this type of guidance.

Similar information can arise out of a consensus between several different operators seeking to set standards within a particular sphere of activity.

Local business safety groups, supported by the Royal Society for the Prevention of Accidents (RoSPA), disseminate information and practical experience among different organizations. This may be the simple sharing of views by professional practising safety managers or specific presentations from invited speakers on specialist topics. Invited speakers may include the HSE, an Environmental Health Officer (EHO) from the local authority, manufacturers of personal protective equipment, or specialist consultants operating in a particular field of activity.

With the development of the Internet, access and search capabilities for information have developed extensively, providing nearly all organizations with quick and ready access to current information both in their home country and overseas.

The following checklist shows possible sources of outside information. Tick boxes are provided for identifying those that are relevant (1), may apply (2), or are irrelevant (3).

### **CHECKLIST: Sources of information for your organization**

<b>1</b>	<b>2</b>	<b>3</b>	<b>HSE</b>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Approved Codes of Practice;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Contract Research Reports;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Employment Medical Advisory Service (EMAS);
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Guidance Note Series;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	General information, e.g. free leaflets;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Electronic software packages.

<b>Local authority</b>		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Environmental health officer;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Trading standards officer;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Medical/health advisers;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Business safety groups;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Chambers of commerce.
<b>Suppliers</b>		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Equipment;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Materials;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Services;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Landlords.
<b>Other sources of information</b>		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> British Standards Institution;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Business development organizations;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Customers;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Neighbours;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Fire authorities;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Insurer/insurance brokers;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Trade associations or similar organizations;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Other specialist organizations – RoSPA, Institute of Occupational Safety and Health (IOSH), etc;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Police (welfare and security);
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> IT providers.

## In practice – Best practice and guidance in the particular industry sector

### *UE – engineering workshop*

UE's engineering workshop environment best demonstrates the usefulness of outside sources for information on best practice and guidance. The engineering sector is particularly well served by the HSE, with supporting bodies and specialist organizations providing additional advice:

- *Code of Safe Practice: Application of Powder Coatings by Electrostatic Spraying* [11] (issued by The British Coatings Federation);
- INDG261(rev1), *Pressure systems – safety and you* [12] (HSE);
- HSG231, *Working safely with metalworking fluids* [13] (HSE);
- PM56, *Noise from Pneumatic Systems* [14] (HSE);
- INDG163(rev2), *Five steps to risk assessment* [15] (HSE);
- HSG202, *General ventilation in the workplace* [16] (HSE).

### *Stage 5 – Determine gaps between what is in place and what the organization needs to manage*

Having completed the processes of identifying hazards and quantifying risks, current arrangements in place etc. the next stage is to determine what gaps have to be filled.

The implementation plan can be based on the approach given in Chapter 5 with respect to objectives and programmes. In doing so the following points should be taken into consideration.

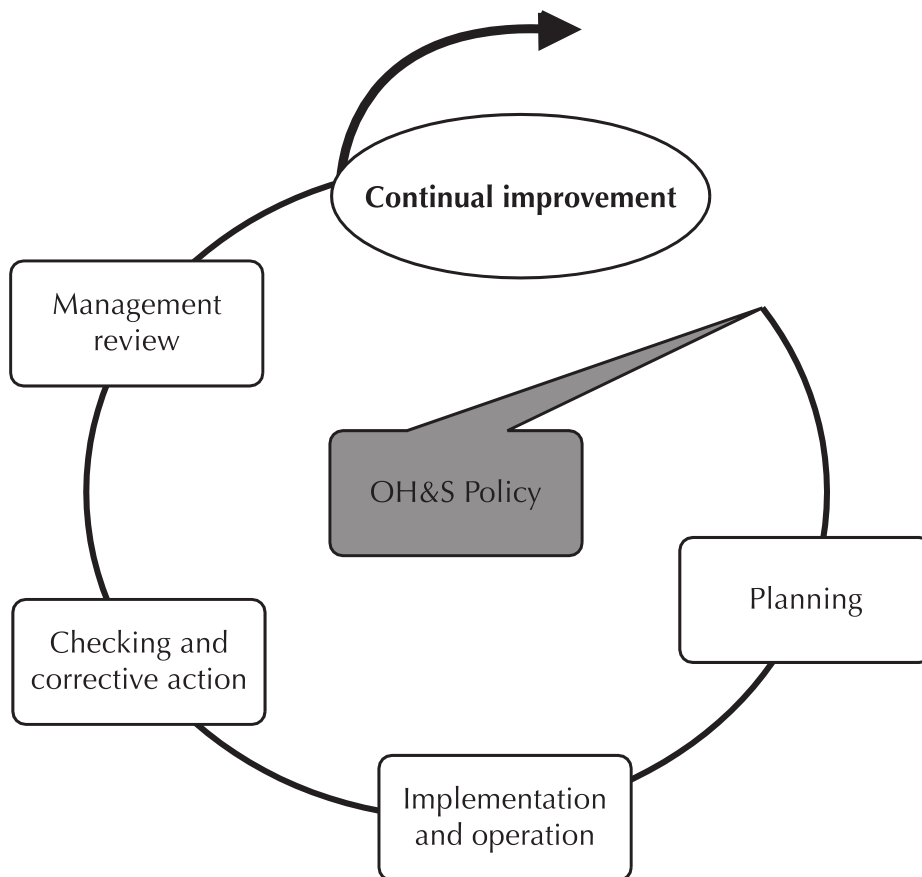
- Fundamental to all successful OH&S management is the principle of effective risk assessment. This applies to all aspects of business activity and should ensure that mitigation in one area does not increase the risk burden in another – either within the business or outside, e.g. for contractors or neighbours. Similar guidelines are found in OHSAS 18002, although here the emphasis is to establish the principles for hazard identification, risk assessment and control – across normal, abnormal and potential emergency operational conditions.
- Very few organizations are so unique that they have no peers. Consequently, areas of best operational health and safety practice should be identified from any source, within or outside the UK.
- Although organizations can be similar in their management delivery, they are rarely the same and, as such, all guidance and best practice adopted for the organization will need to be tailored to its particular needs before

it is implemented. Implementation can only be achieved when it is communicated, trained and briefed to those who need it.

- Often what employees perceive as the only solution is adapted successfully by them to work in a more effective way. This can extend across the whole of the organization, e.g. the sales executive who closes the deal with a client recognizing that there are constraints on delivery of the finished product.
- Both the health and safety aspects of management should be taken into account. Safety in relation to accident prevention is often well regulated and guidelines clearly developed, e.g. working at height, whereas other work-related physical and mental health issues can often be missed, particularly when they are chronic in nature, e.g. asbestosis, which can take many years to develop.
- Mitigation should follow the established principles of elimination, replacement, individuals, control (engineering), personal protective equipment, discipline (ERICPD).
- All organizations have to be compliant with most of the HASWA and other general statutory provision, e.g. The Management of Health and Safety at Work Regulations 1999 (MHASAW). More specific legislation such as The Health and Safety (Display Screen Equipment) Regulations 1992 (DSE) will also apply to those organizations functioning with conventional business techniques. In specialized areas, organizations will have more specific statutory provisions to meet, such as those governing food safety hygiene.
- The ISR will determine how best to measure OH&S management effectiveness. Many areas will respond to conventional audit and inspection techniques – these will be identified together with the need for more specialist tools.
- As with all aspects of business performance, review processes should exist to monitor management system effectiveness and identify what subsequent targets are established to lead to continual improvement.

# 3

## Defining an OH&S policy



## In brief

The OH&S policy is a written statement demonstrating the commitment of an organization to OH&S. It is a formal declaration by top management committing them to implementing a system for preventing harm to those who may be affected by their activities. Ideally it should be less than a page in length, written in simple language and dated and signed by the CEO or appropriate director with responsibility at board level for health and safety.

## Defining an OH&S policy

Every organization must be committed to protecting the safety and health of its employees and all others that might be affected by its work activities.

BS OHSAS 18001, 4.2 requires top management to: 'define and authorize the organization's OH&S policy'.

The OH&S policy demonstrates the commitment of an organization by establishing an overall sense of direction and by setting the principles that underpin the actions to be taken. It is a formal commitment by the organization's top management to deliver the necessary financial and human resources for effective OH&S management. The involvement of the top management in producing, authorizing, communicating and promoting the OH&S policy is therefore essential.

There is a legal obligation on every organization in the UK with five or more employees to prepare a written statement of general policy on occupational health and safety and similar requirements exist in many other countries. Most organizations should therefore already have a mission statement committing themselves to managing health and safety effectively. This alone, however, is insufficient to develop a successful OH&S management system. To ensure delivery, the organization needs to support it with more detailed policy statements together with objectives to implement it in practice.

BS OHSAS 18001, ILO-OSH and BS 8800 have established sound guidance for organizations developing an OH&S policy. The following points are



based on the requirements specified in BS OHSAS 18001, 4.2, with additional guidance based on ILO-OSH, 3.1 and BS 8800, 3.3, where appropriate.

BS OHSAS 18001 specifies eight key requirements for an OH&S policy.

**1. Appropriate to the nature and scale of the organization's OH&S risks**

The policy should be realistic, neither overstating the nature of the risks that the organization faces, nor trivializing them. The reader should be capable of appreciating the types of risks and complexity of the organization.

**2. Includes a commitment to prevention of injury and ill health and continual improvement in OH&S management and OH&S performance**

Inevitably, society's expectations are increasing the pressure on organizations to reduce the risk of ill health, injury, accidents and near-miss incidents in the workplace. It is impossible to make every workplace totally safe but management is expected to commit to preventing injury and ill health. In the case of ill health, this includes stress as well as other disabling effects from exposure to harmful hazards in the workplace environment or from the natural environment, e.g. exposure to avian flu.

Organizations need to achieve not only a high level of OH&S performance but also to seek a continual improvement in that performance. In addition to meeting legal requirements, the aim should be to move forward, in a cost-effective manner, improving OH&S performance and continuously evolving the OH&S management system to meet changing business and legislative needs. The organization should also take account of the 'lessons learnt' from accident/incident investigations, audit findings and best practice from similar industries or relevant cases taken from the experience of other industries.

**3. Includes a commitment to at least comply with applicable legal requirements and with other requirements to which the organization subscribes that relate to its OH&S hazards**

'Other requirements' covers voluntary programmes, collective agreements, codes of practice, corporate or group policies, internal standards and specifications. Some legislative requirements cross boundaries with other

disciplines such as environmental management and product design and these issues may also need to be addressed.

**4. Provides the framework for setting and reviewing OH&S objectives**

Policy statements should enable realistic objectives and management programmes to be established. This demonstrates that the policy is 'not just words' but has real meaning and there is genuine commitment with respect to resources etc. Only a policy that has objectives with tangible outcomes that can be measured and audited can be shown to be working.

**5. Is documented, implemented and maintained**

The organization's top management should set in place procedures to define, document and endorse its OH&S policy, which should be set out in a succinct policy statement that is signed and dated by the top manager with responsibility for OH&S. Recognizing OH&S as an integral part of improving business performance is the key to successful implementation. Planning and adequate preparation are essential. Often, policy statements and objectives are unrealistic because there are inadequate or inappropriate resources available to deliver them. Before making any public declarations, the organization must ensure that the necessary finance, skills and empowerment are available and that any targets are realistically achievable within this framework.

**6. Is communicated to all persons working under the control of the organization with the intent that they are made aware of their individual OH&S obligations**

Everyone working on behalf of the organization, whether employees, sub-contractors, agents etc. should be recognized as being equally important.

The involvement and participation of employees and their representatives is vital in order to gain commitment and to ensure the success of an OH&S management system. Involving employees is often neglected. In most, if not all industries, employees wish to contribute positively to OH&S management to reduce the likelihood of accidents and incidents. They recognize that OH&S needs to be managed cost-effectively to maintain the security of their employment and the quality of their work environment. Engaging employees at this early stage provides them with

shared ownership and helps with implementation of OH&S management system arrangements.

Management of OH&S should be a prime responsibility of line management, from the most senior executive to first-line supervisory level. It must never be seen as a specialist function. Including a safety objective as part of the annual management performance review of all managers reinforces this responsibility as well as maintaining an individual focus on the organization's specific safety targets.

Employees at all levels should receive appropriate training to ensure that they are competent to carry out their duties and responsibilities. Training must be appropriate to the needs of each employee and to the benefit of the organization. Training should not be a 'one-off' but should instead be tailored to business demands and supported by appropriate refresher courses to maintain standards and awareness. Initial induction training should be used to demonstrate to new staff from day one the genuine commitment of the organization to effective OH&S management.

In those organizations undertaking project or development work, designers need to be aware not only of present risks but also of possible future risks they may impose if they do not consider safety at the planning and design stage. Current legislation, such as The Construction (Design and Management) Regulations 2007 (CDM), requires occupational health and safety at the earliest design stage. This should be the overriding philosophy in all organizations.

It is a common misconception that the only employees needing training are those working at the sharp end. This is not the case: management and employees at all levels should understand their responsibilities and be competent to undertake the tasks they are required to perform, including managing OH&S.

## **7. Is available to interested parties**

The policy statement should be made available to interested parties. The OH&S policy enables the organization to demonstrate to its stakeholders how OH&S management is being developed. The process should ensure that the OH&S policy is available on request but need not necessarily provide for unsolicited copies.

Periodic reporting of OH&S management performance, both internally and externally, to interested parties, provides added benefit.

#### **8. Is reviewed periodically to ensure that it remains relevant and appropriate to the organization**

The policy should be reviewed periodically to ensure that it remains relevant and appropriate to the organization.

Change is inevitable and, as a driver of continual improvement, top management should ensure the OH&S policy and management system is reviewed regularly in order to meet changing circumstances. This might arise from issues such as new business demands, legislation and technology as well as, most importantly, the lessons learnt from accident/incident investigation, audit findings and best practice.

What is not stated within the requirements of BS OHSAS 18001 is that leadership is of prime importance. The top management needs to lead by example and set the standard. There is no point in setting rules which are not followed by those in the most senior positions. For instance, if an operator is required to wear a high visibility vest in a defined area then managers must also wear one. It is very important to develop a safety culture within the organization which is well embedded. In the absence of such leadership and culture (which are inextricably linked), the fine words of a policy will have little meaning.

The following checklist asks some key questions about the organization's policy and the commitments included in its present policy statement. A tick box is provided for identifying those you have already considered (1) and those you may need to consider (2).

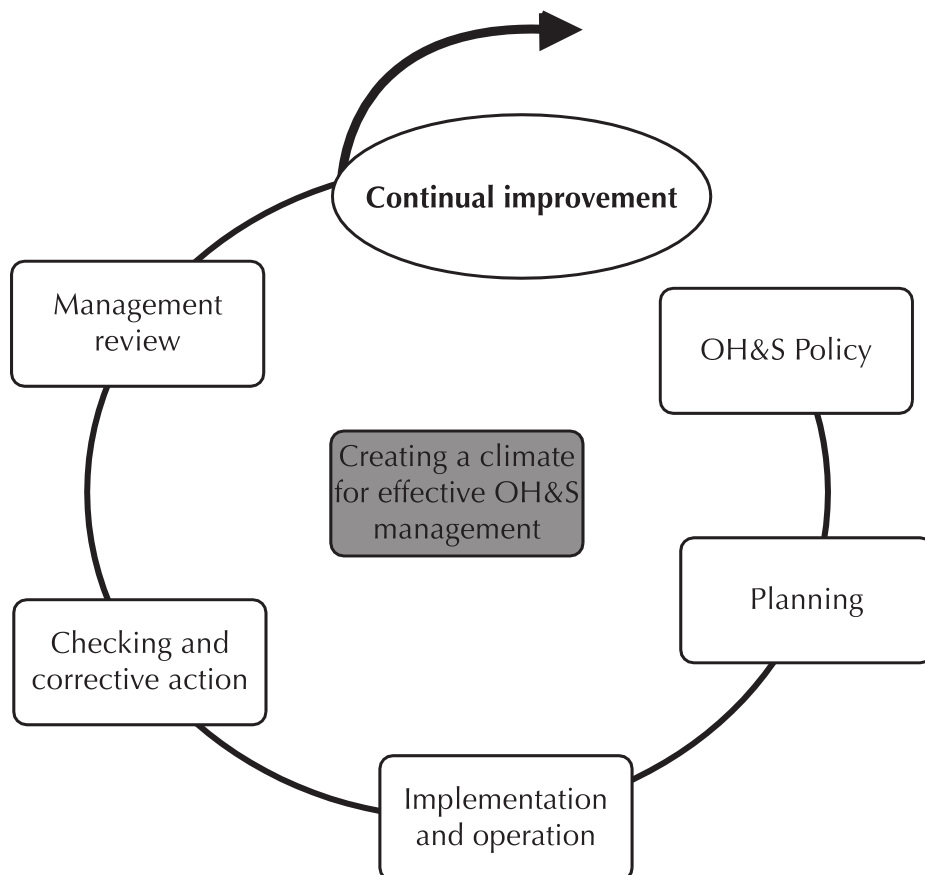
#### **CHECKLIST: The organization's policy statement**

<b>1</b>	<b>2</b>	
<input type="checkbox"/>	<input type="checkbox"/>	Is the policy designed to minimize risk and prevent injury, ill health, diseases and incidents?
<input type="checkbox"/>	<input type="checkbox"/>	Does top management demonstrate commitment by example?
<input type="checkbox"/>	<input type="checkbox"/>	Is the policy appropriate to the nature and scale of your organization's risks?
<input type="checkbox"/>	<input type="checkbox"/>	Do you provide adequate and appropriate resources to implement your policy, including competent personnel to deliver the OH&S policy?

- Is OH&S recognized and implemented as an integral part of your business performance?
- Does the policy commit to prevention of harm?
- Do you include commitment, to a high level, of continual cost-effective improvement in your OH&S performance?
- Do you make management of OH&S a prime responsibility of your line managers, from your most senior executive down to your first-line supervisors?
- Does it promote the health and safety of employees?
- Do you know and understand your historical OH&S performance?
- Do you identify your main OH&S hazards?
- Do you include a commitment to comply with currently applicable OH&S legislation and with other requirements to which the organization subscribes?
- Does the policy acknowledge that people are a key resource?
- Do you allow and encourage employee involvement, participation and consultation?
- Do you allow and encourage employee involvement in all aspects of the development and implementation of OH&S policy?
- Are you committed to continual employee training to a level allowing them to carry out their duties competently?
- Do you ensure that everyone working on your behalf is made aware of their individual OH&S obligations?
- Is the policy and performance made readily available to other interested parties?
- Is your policy and management system reviewed periodically to ensure that it remains relevant and appropriate to the organization as part of the drive for continual improvement?
- Do you set and publish OH&S targets and objectives?

# 4

## Creating a climate for effective OH&S management





## In brief

This chapter is about changing hearts and minds. Creating a positive climate in an organization with respect to occupational health and safety is the fundamental ingredient of effective OH&S management.

It is increasingly evident that developing a positive safety culture is vital when it comes to enabling an organization to achieve excellence in managing occupational health and safety.

Some organizations appear to have effective systems on paper (or electronically) that are highly comprehensive yet in reality there is little commitment to deliver and the output in performance terms is poor.

Building a positive safety culture sustaining a robust system that continually improves can be difficult to achieve. It often takes time to build up the trust and co-operation of the workforce. It is hard to ensure that supervisors/managers do not just subscribe to good practice when it is convenient and then forget everything when they have to meet challenging production targets.

Safety culture is usually inseparable from an organization's overall business ethic and can rarely be managed in isolation. Therefore, many of the characteristics are common. The culture of the organization is very much influenced by the leadership. All too often we see that workers have to wear protective equipment while it seems to be thought unnecessary for managers to wear such equipment while on the shop floor, despite the fact that they would be exposed to the same risks in this situation and should be leading by example. This is unacceptable and there are many such barriers that prevent a positive culture being developed. Examples of positive characteristics are given in Annex C of BS 8800 and the following are based on some of these.

- Staff are committed to the aims of their organization and the way the organization is managed.
- Top management and senior staff demonstrate visible OH&S commitment, including in their personal behaviour, showing leadership by example. They make it clear that they are keen to hear bad news as well as good news and they will take action on the information they receive in a blame-free environment.



- Senior staff and supervisors spend time discussing and promoting OH&S in the work environment; commend safe behaviour and express concern if OH&S procedures are not being followed.
- OH&S is managed with the same determination as other key business objectives.
- OH&S is a normal topic of day-to-day discussion in the workplace and there is active feedback on performance.

Equally there are many factors that can impair the culture, e.g.:

- inconsistencies in rules and procedures;
- supervisors and managers not acting upon non-compliances with OH&S rules, e.g. when there is a production emergency;
- rules and procedures developed without due consideration for their practicability;
- rules and safeguards imposed by external agencies and consultants that do not take into account the complexity of the operation and the challenges of compliance;
- situations that present opportunities for ego enhancement, e.g. public displays of daring;
- failures to communicate shortcomings in OH&S arrangements;
- suggestions for improvements or changes from employees are not welcomed and/or are not acted upon;
- there is no employee involvement in, e.g. preparing risk assessments, developing operating procedures or carrying out accident and incident investigations;
- there is an acceptance that violations are inevitable and that little can be done to eliminate them;
- a culture of personal blame exists;
- underestimation of the magnitude of risk for any reason;
- lack of support for personal problems, leading to impairment of an individual's ability to act safely;
- concentration is placed on statistics when fact-finding and acting on the facts is more important.

There is no quick way to overcome lack of commitment. This has to be gained by promoting good practices such as those given in the initial list above. It is essential to involve the workforce and ask them what needs to be done to enable work to be carried out safely and effectively. The importance of involving the workforce, who know what the real problems are and can provide positive solutions at the same time as ensuring that efficiency is not compromised (or even improving it), cannot be overemphasized. The following is an example of what one large chemical manufacturing company did when it found a lack of commitment to wearing essential personal protective equipment.

Selected employees (on a rota with the full support of their colleagues) were asked to observe and record employees not wearing PPE. The names were not recorded but individuals' reasons for not wearing the required protection was recorded. The survey resulted in the amazing observation that only one size of gloves was available and this resulted in 50 per cent of the workforce not wearing them. The change in attitude resulting from the whole exercise helped promote a far more positive culture towards OH&S issues. This, in turn, reduced the number of avoidable injuries considerably as well as absenteeism from work (a significant cost to the organization).

One way of establishing the present situation in an organization is through the use of attitude surveys or the HSE's *Health and Safety Climate Survey Tool* [17]. A question set is given in BS 8800 but care should be exercised in formulating questions that are relevant to the individual organization rather than just using a standard format.

## **In practice – Creating a climate for effective OH&S management**

In each of the following case studies, there are particular points of reference that specifically helped the organization to progress.



## ***F&L – office***

The expansion of F&L into dealing with more high profile international clients made the organization more open to acts of intimidation by external forces, e.g. groups that might disagree with the support F&L provides for its clients. While this wasn't an immediate or obvious threat to the organization, the F&L mail and despatch department were the first to recognize the personal threat they were under as the first line of contact with F&L if an anonymous attack were to be made by using the mail facilities. The management recognized this concern and took immediate action to consider how a threat to health and safety could occur and how it could be controlled by involving the mail room staff in the evaluation process.

The examples they came up with below were simple but not necessarily obvious.

- Physical attack on office individuals via weaker points in the building – the mail department was at the back of the building and not accessed via the controlled reception.
- Mail came in a variety of sizes and forms, hence it was easy to hide an explosive device.
- Opening mail was done as a matter of urgency, hence little attention was paid to being aware of the content, i.e. whether there were explosive devices or even dangerous chemical contents.
- No one in the department would be aware if a higher than normal threat level existed.
- The department had no instruction or means of dealing with a suspect package.

As part of the employee–management consultation process, senior management discussed with the department what the potential threats could be and what risks there were to personnel, the company and the structure of the office. This led to the following changes being made.

- All clients that F&L took on would be reviewed against the threat level they posed. This would be reviewed at various critical stages of involvement and the information gained used to alert the mail department to be particularly sensitive to mail for the F&L personnel involved, or where mail originated from certain countries. The office arranged to use a coloured threat level against higher risk cases so that all staff were readily aware of the risk.
- CCTV was installed to increase security surveillance around the mail room.
- Mail would be screened for suspect conditions, e.g. feeling for wires or soft pliable contents that may indicate a chemical substance.
- Opening of packages would be more carefully done.
- Staff were involved in drawing up instructions for how to open suspect mail, what should be done if a higher risk was suspected and how an emergency would be managed.

As a final point, these conditions and arrangements were tested with a dummy package, the exercise proving that the conditions had improved. The action helped create a better overall working climate since the staff felt reassured that F&L had taken their concerns seriously and had involved them in addressing the risks.

## ***UE – engineering workshop***

The UE workshop environment was always an active one with working machinery and movements of people and internal transport. While the work tasks were all covered by risk assessments and safe working practices, when looked at as a single big picture the operations of UE could be seen to be moving towards organized chaos, bringing increased risk.

Senior management recognized that any changes that were made had to involve the workforce to prevent interruption to productivity and to ensure their 'buy in' to the control measures adopted. Joint discussions were held that

identified the following steps to ensure the risk factor would not increase and to improve the working environment further.

- All operating areas would have the floor painted a specific colour, coded in accordance with the risk that existed and the activity being carried out. Machines were allocated a red floor risk zone which could not be entered when the equipment was operational without the authority of the machine operator. This would improve the operator's concentration levels.
- Waste areas would be clearly defined and segregated and, more importantly, located on a collection route for the staff responsible for removing the material. This was also applied to the finished product collection. Both these initiatives immediately led to an improvement in productivity and a more organized despatch process as the finished products were part prepared at the point of manufacture for despatch.
- A routine out-of-hours floor cleaning process and renewal of the colour zones was implemented. This had the added advantage of creating an environment more visually acceptable to visitors as well as giving staff a feeling of pride and a sense of well-being that UE valued the work they carried out.



## ***LCD – retail***

LCD's primary business focus had always been to present a professional, customer-based image. The store front was their window and means of attracting custom. Consequently, the primary effort was expended in this area. While OH&S was always taken seriously and applied across all areas of LCD activity, it was seen as being part of compliance and instruction not as part of the LCD image.

To overcome this situation, LCD consulted with employees on what other improvements could be made to the health and safety image of the store. The one area that was immediately raised was the back of store area which the public did not see. While it was still covered by the health and safety regime that applied throughout the store, the promotion of health and safety was a



lower priority than in the public areas where the implications could be greater. This gave the employees the feeling that management were only interested in the customers and the public area.

To address this problem, LCD created two champions, one taking responsibility for the front of the store and one for the back of the store. This recognition of there being two distinct operating zones within LCD enabled the collection and sharing of good practice ideas across the two areas of LCD activity. As a result, changes to operating procedures involving delivery lorry distribution were made to further reduce the manual handling element of the warehouse area of LCD activities.

The creation of a warehouse, storage and delivery health and safety forum increased employee involvement and allowed more focused changes to be implemented for the benefit of common areas.

## ***B&C – construction***

B&C's expansion into overseas construction meant that it had to apply health and safety good practice in the UK to a totally different environment. This entailed complying with the national legislative standards that applied in the relevant country and at the same time ensuring that the contracting interfaces it worked with adopted the same approach to health and safety as B&C did.

This was a major challenge to the supervisory staff and the employees that B&C brought to the construction process. One immediate issue was ensuring that plant and equipment under planned preventative maintenance regimes would always be compliant. While instruction and information would always be given, a clear simple mechanism was needed to provide a message as to the current maintenance status for the site.

This was overcome by taking the colour coded status of equipment to another level by displaying identical coloured wind socks at locations that could be seen all around the site to show what was current for that period. All a user of equipment had to do was ensure that the equipment they were using had an ID colour code that agreed with the colour of the wind sock. The approach of providing a simple piece of information that was not driven by an instruction

that had to cross a language divide prompted further improvements in the exchange of health and safety information during B&C's overseas activities.



### ***YYIMT.com – new technology***

The YYIMT culture of health and safety management was driven by the use of IT equipment and the major problem was managing the break periods that employees needed away from their workstations to prevent them staying in a sedentary position. Senior management were concerned that if all staff took a break every hour for 5 minutes then lost working time would be considerable.

Following a staff consultation programme, the introduction of more flexible working enabled YYIMT to introduce an alarm tool to workstations that alerted employees to the need to take a maximum 5 minute break away from the workstation. These 5 minutes also counted as part of their normal lunch hour, which was reduced to 30 minutes. This way the employees actually finished work 30 minutes earlier. YYIMT maintained its production and having an extended but flexible working day with employees not all arriving and leaving at the same time enabled YYIMT to service its clients over a longer period of the working day.



### ***H&H – road haulage***

H&H's activities took place 24 hours a day, seven days a week to meet its clients' demands. After dark deliveries were always least popular amongst driving crews as delivery had to be made to customer sites where the lighting level was poor and vehicle movements could mean a driver being hit by an unexpected vehicle.

Senior management at H&H had difficulty in understanding the issue, believing that with the use of mandatory high visibility clothing driver crews would always be seen, until a staff meeting reported three near-miss events of this type in a single week. Further consultation revealed that these types of incident were very common but were not collated.



The initial action was to include near-miss reporting as part of the accident reporting process. Employees were provided with a small and simple report book to record their load destination and the vehicle number when a near-miss event occurred. This captured the data but did not help solve the problem until a review of reports with the delivery crew representatives examined what else was needed.

The conclusion they came to was based on the flashing hazard warning indicators which vehicles used. As well as a conventional high visibility vest, driver crews were issued with a flashing light tabard that fitted over the vest. This alerted other drivers to an individual before the reflection of the high visibility clothing was visible.

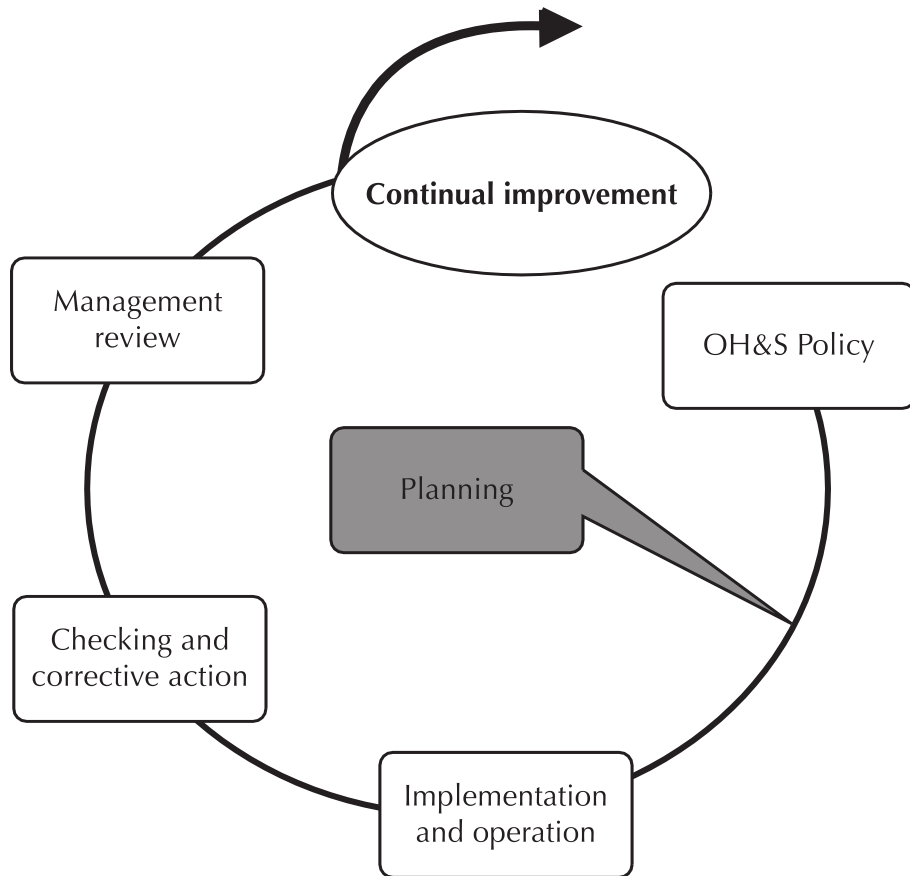
All of the examples described have a common theme: the interaction between the management and the workforce. These can be brought together to describe four defined stages in creating a positive climate for effective OH&S management.

1. First and foremost is management commitment to dialogue. This is the primary driver without which a safety culture cannot evolve.
2. Out of the dialogue comes management recognition and acceptance that employees at the point of delivery do actually have a clearer understanding of the risks – often more so than the manager.
3. Out of this recognition comes a commitment to co-operate in making changes to health and safety delivery.
4. The final level is the decision to make the change rather than accept that no more can be done or needs to be done.

Continual improvement is achieved by ensuring a consistency of approach and, most importantly, not being complacent. This involves challenging what is being done and asking: how can it be done better?

# 5

## Planning



## In brief

It's time for the organization to start developing a new OH&S system. This is the most challenging part because unless all the OH&S risks to the organization are identified and effective controls are implemented, the system will not deliver a workplace that minimizes the risk of harm. Legal and other requirements need to be established and the objectives set based on risks, legal issues and business requirements. A realistic programme needs to be put in place to deliver the objectives.

## Key elements – Planning

From the outset, it is essential that there is commitment to OH&S management at the highest level within and across the organization. Planning is fundamental to the successful implementation of an OH&S management system. Although planning is an integral part of all the elements of an OH&S management system, BS 8800 refers to the planning stage as explicitly covering:

the development of plans for continual improvement and the design, development and implementation of risk assessment and control.

Planning an OH&S management system involves:

- 1) designing, developing and installing suitable management arrangements, workplace precautions and their associated risk control systems proportionate to the needs, hazards and risks of the organization ... and
- 2) operating, maintaining and improving the system to suit changing needs and process hazards and risks.

Planning for OH&S uses similar methodology to that used throughout other parts of the organization and includes:

- identifying specific requirements for the system – what needs to be done, where and with what priority;

- setting clear performance criteria – what needs to be done;
- identifying who is responsible – who gets it done and how;
- setting timescales – when it is to be done by;
- identifying the desired outcome – what the result should be.

The aim is to plan for an OH&S management system capable of:

- identifying and effectively controlling all occupational health and safety risks;
- reacting smoothly to changing demands – legal requirements, new technology and innovation, organizational changes and reaction to regulatory body requirements;
- planning to meet evolving technology and legal obligations to minimize impact on the organization;
- sustaining a positive health and safety culture (see Chapter 4 for more information).

BS OHSAS 18001 identifies three specific areas that need to be addressed.

### **1. Hazard identification, risk assessment and determining controls**

... establish, implement and maintain a procedure(s) for the ongoing hazard identification, risk assessment, and determination of necessary controls.

The procedure(s) for hazard identification and risk assessment shall take into account:

- a) routine and non-routine activities;
- b) activities of all persons having access to the workplace (including contractors and visitors);
- c) human behaviour, capabilities and other human factors;
- d) identified hazards originating outside the workplace capable of adversely affecting the health and safety of persons under the control of the organization within the workplace;
- e) hazards created in the vicinity of the workplace by work-related activities under the control of the organization;

NOTE 1 It may be more appropriate for such hazards to be assessed as an environmental aspect.

- f) infrastructure, equipment and materials at the workplace, whether provided by the organization or others;
- g) changes or proposed changes in the organization, its activities, or materials;
- h) modifications to the OH&S management system, including temporary changes, and their impacts on operations, processes, and activities;
- i) any applicable legal obligations relating to risk assessment and implementation of necessary controls ...
- j) the design of work areas, processes, installations, machinery/equipment, operating procedures and work organization, including their adaptation to human capabilities.

The organization's methodology for hazard identification and risk assessment shall:

- a) be defined with respect to its scope, nature and timing to ensure it is proactive rather than reactive; and
- b) provide for the identification, prioritization and documentation of risks, and the application of controls, as appropriate.

For the management of change, ... identify the OH&S hazards and OH&S risks associated with changes in the organization, the OH&S management system, or its activities, prior to the introduction of such changes.

... ensure that the results of these assessments are considered when determining controls.

When determining controls, or considering changes to existing controls, consideration shall be given to reducing the risks according to the following hierarchy:

- a) elimination;
- b) substitution;
- c) engineering controls;
- d) signage/warnings and/or administrative controls;
- e) personal protective equipment.

... document and keep the results of identification of hazards, risk assessments and determined controls up to date.

... ensure that the OH&S risks and determined controls are taken into account when establishing, implementing and maintaining its OH&S management system. (4.3.1)

Risk assessment is a legal requirement in the UK and in the EU which should be carried out throughout the organization (see Chapter 6 for more information) and is fundamental in delivering a successful OH&S management system. Out of the risk assessment process comes the application of the 'principles of prevention'. By following this hierarchy, organizations will implement control measures that manage risk effectively and can bring added value to the business process.

## **2. Legal and other requirements**

... establish, implement and maintain a procedure(s) for identifying and accessing the legal and other OH&S requirements that are applicable to it.

... ensure that these applicable legal requirements and other requirements to which the organization subscribes are taken into account in establishing, implementing and maintaining its OH&S management system.

... keep this information up-to-date.

... communicate relevant information on legal and other requirements to persons working under the control of the organization, and other relevant interested parties. (4.3.2)

Understanding and awareness of external influences on the OH&S management system enables the organization to meet changes in a controlled way.

Awareness of national legal obligations is only one part. Tracking and understanding emerging standards, e.g. from the European Community, as well as interpreting existing requirements by other interested parties (such as customers) and the legal requirements of other national bodies will enable the organization to take the lead when it comes to change as opposed to having changes imposed upon it.

### **3. Objectives and programme(s)**

The processes of setting objectives and establishing management programmes to implement and achieve them are inextricably linked. BS OHSAS 18001 emphasizes this vital link by merging 'objectives' and 'programme(s)' into the same requirement. This approach is in line with BS EN ISO 14001.

... establish, implement and maintain documented OH&S objectives, at relevant functions and levels within the organization.

The objectives ... measurable, where practicable, and consistent with the OH&S policy, including the commitments to the prevention of injury and ill health, to compliance with applicable legal requirements and with other requirements to which the organization subscribes, and to continual improvement.

When establishing and reviewing its objectives, ... take into account the legal requirements and other requirements to which the organization subscribes, and its OH&S risks. ... consider its technological options, its financial, operational and business requirements, and the views of relevant interested parties. (4.3.3)

The initial part of the planning process involves setting objectives derived from Chapter 2. At a later stage, these plans may be revised in the light of outputs from any status reviews, risk assessments, legal requirements, etc., as these become available. The objectives should be relevant to the organization and not just added for the sake of it. It is important to remember that objectives are not cast in tablets of stone and should evolve as the management system develops and matures.



The objectives should describe what is to be achieved, e.g. the training and development of all employees involved and the completion of risk assessments covering all aspects of the organization. Performance criteria should be assigned – targets, deadlines and responsibilities – to provide a mechanism for escalating OH&S issues throughout the organization, from top management downwards as required by clause 4.3.3 of BS OHSAS 18001.

... establish, implement and maintain a programme(s) for achieving its objectives. Programme(s) shall include as a minimum:

- a) designation of responsibility and authority for achieving objectives at relevant functions and levels of the organization; and
- b) the means and time-frame by which the objectives are to be achieved.

The programme(s) ... reviewed at regular and planned intervals, and adjusted as necessary, to ensure that the objectives are achieved. (4.3.3)

BS 8800, 3.5.5 identifies key areas that this programme should cover (see page 100): BS OHSAS 18001 defines the broad requirements for a management system but there is little direction on how to undertake the planning process. OHSAS 18002 provides some further guidance but it is BS 8800 that gives very sound guidance for those starting down this route. In BS 8800, planning refers explicitly to the development of plans for the delivery of the system, its continual improvement and the design, development and implementation of a risk assessment and control process. This is achieved by:

- identifying and effectively controlling all of the risks;
- reacting to new and changing demands – this covers new legislation, new technology and innovation, organizational changes, regulatory body requirements;
- sustaining a positive health and safety culture – this covers four main themes:
  - leadership and commitment from top management down throughout the organization;

- involvement of line management and employees;
- an effective communication process;
- care and concern across all elements of the organization during the delivery process.

Annex D of BS 8800 provides guidance on a planning process that could be used to develop any aspect of the OH&S management system.

The planning process should be proactive. Learning from failures (incidents, near misses and accidents) should not, however, be ignored. Neither should advice from other informed sources, e.g. trade associations.

The following checklist identifies the main areas that need to be addressed. A tick box is provided for identifying those procedures the organization already has in place (1) and those that need to be introduced (2).

## CHECKLIST: Planning in your organization

### Hazard identification, risk assessment and determining controls

#### 1 2 Risk assessment

- |                          |                          |  |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | An ongoing comprehensive programme for identifying hazards covering all activities;                                |
| <input type="checkbox"/> | <input type="checkbox"/> | Risk assessment process to determine priority areas;   |
| <input type="checkbox"/> | <input type="checkbox"/> | A risk assessment approach that recognizes management of change and takes account of human behaviour;              |
| <input type="checkbox"/> | <input type="checkbox"/> | Other risks programmed for assessment;   |
| <input type="checkbox"/> | <input type="checkbox"/> | A risk control action plan to deal with those risks not judged to be tolerable;                                    |
| <input type="checkbox"/> | <input type="checkbox"/> | A system in place that determines a hierarchy of controls aimed at the elimination of hazards as its prime option; |
| <input type="checkbox"/> | <input type="checkbox"/> | Review arrangements.   |

#### Legal and other requirements

- |                          |                          |   |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | Identifying all legal requirements that apply to the organization;  |
| <input type="checkbox"/> | <input type="checkbox"/> | Identifying other requirements that apply, e.g. specific business demands from, for instance, the railway industry;                   |
| <input type="checkbox"/> | <input type="checkbox"/> | Competent persons identified to review their impact on the business, interpret the effect and initiate changes through communication. |

#### Objectives and management arrangements

- |                          |                          |   |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | Preparing overall plans and objectives for achieving OH&S policy; |
| <input type="checkbox"/> | <input type="checkbox"/> | Monitoring and reviewing performance;                             |

- Designating responsibility, resources and authority for achieving objectives;
- Ensuring that there is sufficient knowledge, skills and experience to effectively manage OH&S;
- Operational plans for implementing risk controls;
- Operational plans for implementing legal and other requirements;
- Operational control activities for ensuring that OH&S policy is implemented and effectively managed;
- Arrangements for measuring, auditing and reviewing OH&S performance to identify any shortfalls and necessary corrective actions;
- Arrangements for implementing corrective actions.

#### **Arrangements**

- Stated plan objectives;
- Provision of employee and financial resources appropriate to the organization;
- Emergency and contingency plans for foreseeable events;
- Organizational arrangements;
- Change management arrangements – replacing key personnel;
- Organizational change arrangements – as a result of restructuring;
- Interfacing with other parties – regulatory bodies, emergency services, etc.;
- Managing work–life balance;
- Employee support when returning to work after a work-related adverse event, e.g. accident.

## **In practice – Planning**

BS OHSAS 18001 and OHSAS 18002 do not give practical examples of the planning process. BS 8800, however, provides a case study for planning improved hearing protection as an objective.

In each of the following case studies, there are particular points of reference that specifically helped the organization to progress.



### ***F&L – office***

The allocation of safety management responsibilities to a senior manager who received appropriate training ensured a co-ordinated approach across the

whole organization. This was extended to ensure that document control was exercised across all business documentation management systems. F&L was particularly concerned about adequate resources being available at all times, e.g. during leave periods, and cover being recognized and provided for during periods of sickness absence.

Initially it adopted a very simple approach to hazard identification and risk assessment. It asked all employees to identify those issues that were of concern to them and used a two-by-two matrix (see the following table) for the evaluation and prioritization process.

<b>Likelihood of harm</b>	<b>Severity of harm – slight</b>	<b>Severity of harm – extreme</b>
Unlikely	Low risk	Medium risk
Very likely	Medium risk	High risk

This led to categories of low, medium and high risk being assigned.

One of the major concerns identified by employees was the risks faced when travelling, which was of particular importance to them as the organization expanded into working overseas. This was identified as high risk and F&L needed to ensure that effective OH&S management controls were implemented, e.g. security and welfare of travellers, personal security requirements.

### ***UE – engineering workshop***

A UE objective was the elimination of forklift truck incidents that had frequently occurred on the site. By introducing an inspection and training regime for operators, UE eliminated those incidents that were previously put down to operator error. Refresher training on a three-monthly basis reinforced the message.

Modern technology places new pressures and stresses on employees. UE recognized that technology-driven stress issues needed to be identified and eliminated, especially for the less computer literate of the workforce.



## ***LCD – retail***

Assigning one of the managers with the responsibility for OH&S and food hygiene safety achieved the desired improvements in a short period of time.

A visitor and reception area was introduced to ensure that all people could be accounted for and visitors were made aware of LCD's safety and emergency management arrangements. Hosts were made aware that they were responsible for their visitors and were required to ensure that the organization knew who was coming when, where they would be and any special arrangements needed for them during their visit. This approach was extended to deliveries, trade visits and contractors maintaining LCD services, especially during abnormal hours.



## ***B&C – construction***

Major weaknesses recognized within B&C were ensuring the mandatory use of personal protective equipment and that all staff had the necessary level of safety competence. To overcome these, B&C initiated an intensive training programme for site managers, supported by regular performance assessments and refresher training. The aim was to ensure that everyone was confirmed as having the required level of safety competence and that they always used and knew how to maintain the PPE provided.

As the organization expanded, taking advantage of the relaxation of cross-border employment restrictions, competency assessments needed to become multilingual.



## ***YYIMT.com – new technology***

To prevent the occurrence of repetitive strain injury YYIMT introduced a programme of exercises for its display screen equipment operatives to carry out during the course of their shifts. In addition, it introduced a medical

screening programme to identify persons with existing or potential work-related upper limb disorders, to enable particular attention to be paid to their workstation set up.



## ***H&H – road haulage***

H&H recognized that it had certain key posts not just for business delivery but also for the management of OH&S. This was reinforced when the manager responsible for OH&S suddenly went on long-term sick leave and a replacement was urgently required. The absence of someone able to immediately take on the role provided H&H with the spur to review all company positions and establish key post credentials, enabling cover to be trained and standards set to provide replacements when needed.

## **In detail – Planning**

Before starting planning, it is important to recognize that the OH&S management system is likely to be more effective and will contribute to improving overall business performance if:

- there is commitment from the outset at the highest level of the organization and this commitment is reinforced throughout the overall organization;
- it is an integral part of the organization's business management system;
- it is based on a proactive approach. Preventing avoidable accidents, occupational ill health, hazardous situations and other adverse event reports using well-managed control measures supported by training, is far better (and cheaper) than reacting to the aftermath of problems as and when they arise;
- there is commitment to continual improvement of OH&S performance throughout the organization. It is sometimes quite erroneously concluded that the absence of incidents or accidents is evidence of good health



and safety practice. This may not be the case. Such a situation can arise because there is a fear of reporting or there is an absence of reporting procedures and this should not be allowed to lead to complacency;

- there is a flexible approach to cope with changing circumstances. For example, the introduction of new or amended legislation, corporate business developments such as The Combined Code on Corporate Governance and Code of Best Practice, changes in materials or processes, developments in technology, organizational changes, staff turnover, etc.;
- it draws together all the relevant experience available to the organization to determine the best approach. For larger organizations, establishing task teams working in different parts and at different levels in the organization may be appropriate. In any organization, responsibility should not be left with one person only.
- Plans are clearly documented and management system outputs recorded as evidence for audit purposes.

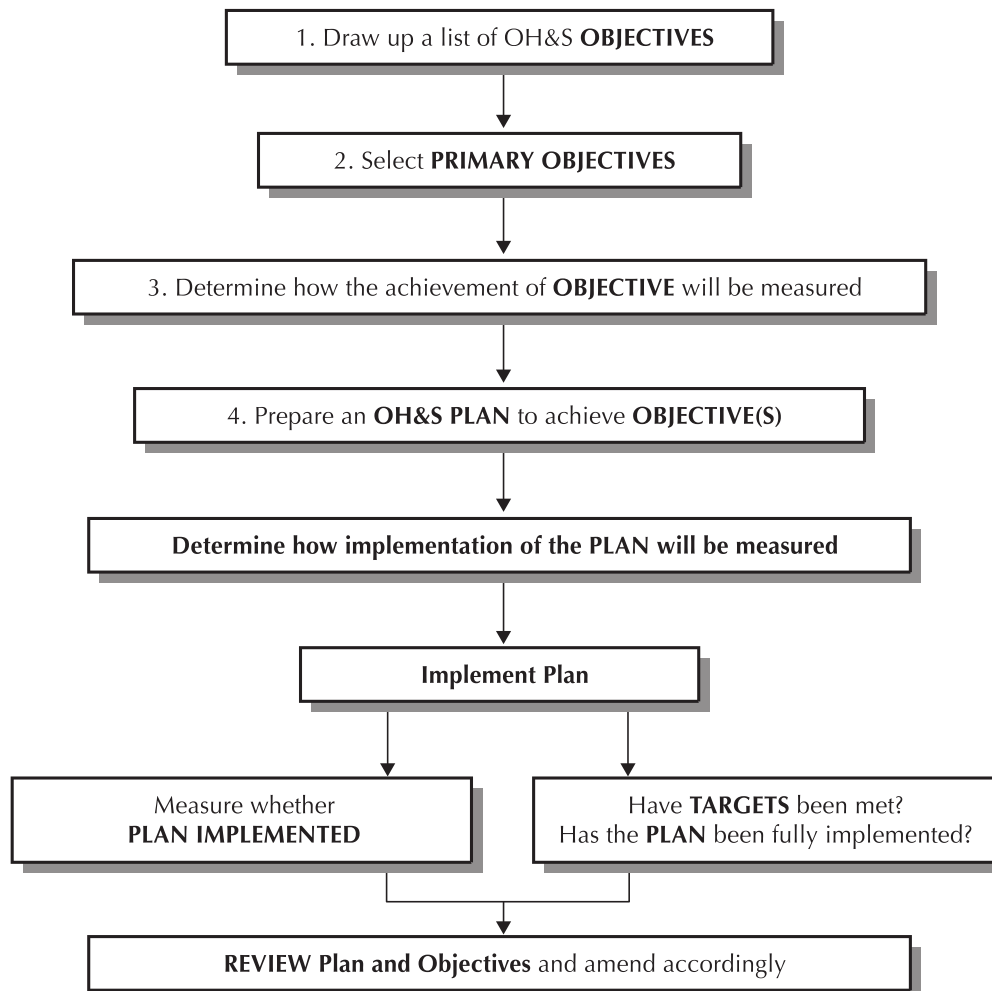
## ***Process for OH&S planning***

The process for OH&S planning is no different to that which should be used to plan and implement change in any other aspect of the organization's operations. There are four key stages, as shown in the following diagram (please note that, for completeness, this diagram also covers the implementation and review stages).

### ***Stage 1. Drawing up an initial list of OH&S objectives***

This stage answers the question: how does the organization get where it wants to be? Time spent here pays dividends later in ensuring that resources are targeted effectively and that the organization prioritizes its efforts towards those areas where there is the greatest risk.





The three major information sources for this stage are the initial status review (see Chapter 2), the risk assessment process (see Chapter 6) and the results of the management review (see Chapter 10).

Other sources of information include:

- regulatory requirements, industry best practice and benchmarking;
- audit reports;
- performance measured against previous OH&S objectives;
- technological options;
- financial, operational and business requirements;
- views of employees and interested parties;
- records of accidents, incidents, near-miss reports, property damage, etc.;
- regulatory body reports.

It is important when gathering information to ensure a broad cover as is necessary to meet the demands of the organization.

The following 'guide words', shown with some examples, are useful in drawing up an initial list of OH&S objectives:

**increase/improve** – near-miss reporting; machinery safeguards; training; use of personal protective equipment; communications; employees' perception of risks;

**maintain/continue** – workplace inspections; training; accident and near-miss reporting;

**reduce** – hazardous conditions; specific hazardous events, e.g. relating to slips, trips and falls; exposure to hazardous substances;

**introduce** – risk assessment; an emergency plan; a system for active monitoring; strategic OH&S training for senior managers; permit-to-work systems for specified tasks;

**eliminate/substitute** – all hazardous events; usage of specified hazardous substances; use of damaged and unsuitable equipment;

**develop** – programmes for administering all aspects of OH&S;

**integrate** – identify and implement where savings and greater efficiencies can be found, e.g. across OH&S and environmental auditing.

## *Stage 2. Selecting primary objective*

The next stage is to prioritize the objectives from the initial list in order to select the key one(s) that match the OH&S needs of the organization and the resources available.

When selecting objectives, it is important to make sure that they are specific, relevant and achievable in a reasonable period of time.

In developing an OH&S management system, the organization is facilitating a change in its culture towards improving the management of OH&S issues. Involving the workforce by concentrating first on those objectives that can be achieved easily at minimal cost helps build confidence and momentum (provided this is consistent with the prioritizing of risks). As commitment grows, the more difficult issues can be addressed.

### *Stage 3. Quantifying objectives and selecting performance indicators*

The aim should be to set objectives which, if at all possible, are quantifiable and can be measured. The point is that 'what you can't measure, you can't manage'.

The following list shows how the guidewords for objectives, as previously described, might be quantified:

**increase/improve** – specify a numerical figure and date for achievement;

**maintain/continue** – specify existing level of activity;

**reduce** – specify a numerical figure and date for achievement;

**introduce** – specify a date for achievement;

**eliminate or substitute** – specify a date for achievement.

In order to determine whether objectives are being achieved, it is good practice to select indicators (guidance on selecting indicators that can be measured is given in Chapter 8).

The objectives finally chosen should be 'SMART':

- **Specific**
- **Measurable**
- **Achievable**
- **Realistic**
- **Time based.**

### *Stage 4. Preparing plans to achieve objective(s)*

The final stage in the planning process answers the question: how does the organization achieve the desired result? The broad content of the plan should be developed by breaking down the key objectives into the individual elements that need to be put in place, such as training, consultation, communication and information-gathering. For each element, the plan should specify

the detailed performance targets necessary to implement it: *who* is to do *what*, by *when* and with what *result*. The arrangements need to be such that they can be readily audited by an independent source.

Performance targets can be listed as a series of questions to act as a checklist for those responsible for achieving them. Whatever form is chosen, it should be clearly drafted so that designated persons/teams know exactly what they have to do. Those who are to be allocated targets to achieve should be consulted about their practicality and become competent in undertaking the task(s) assigned to them. The documentation for the targets can later be used to check whether the plan has been implemented.

The resource implications of the plan should also be considered. The financial aspects should be calculated and adequate time and financial resources made available to those assigned the key responsibilities, with periodic reviews undertaken to ensure that the resources are still sufficient and appropriate. The final plan will need to be fully resourced and taken forward with the complete support of senior management to ensure implementation.

BS 8800, 3.5.2 states: 'The key elements to planning and setting the objectives are as follows.

- a) 'The organization's objectives should be clearly defined and prioritized.'

Objectives should clearly relate to individual and specific aspects of the organization's activities. Priorities should be risk-based, i.e. they should address the major risks first rather than just the easy ones.

- b) 'Objectives should be specific to the organization and appropriate relative to its size, the nature of its activities, the hazards, risks and the conditions in which it operates.'

The objectives should be realistic. Often an organization will be overambitious and set unachievable targets over unrealistic timescales, resulting in all parts of the organization becoming disillusioned at the lack of progress.

- c) 'Suitable and specific performance indicators should be chosen to measure whether objectives have been or are being achieved.'

Measurement criteria should be realistic and positive. Negatives will always be apparent and should not be ignored, whereas small positive

gains will always maintain momentum. Consider taking the negatives and turning them into positives, e.g. as a learning exercise.

- d) 'Plans should be prepared to achieve each objective.'

An action plan should be devised and revisited regularly to monitor progress. The organization should not be afraid to change its focus when progress has been made, diverting resources to where additional support is required.

- e) 'Adequate financial, human resources and technical support should be made available.'

From the outset resource planning is essential. Once objectives are agreed, the commitment to delivery should be as strong as it would be for meeting a customer's order or requirements or any other business demand.

Some organizations set up the OH&S management process as another 'customer' to ensure commitment is focused.

- f) 'The full implementation of plans should be measured.'

- g) 'The plans' successes in achieving objectives should be measured.'

Measurable outputs should be reviewed for effectiveness and the programme tuned to obtain maximum benefit.

- h) 'The objectives and plans should be reviewed as a basis for continual improvement.'

Continual improvement should take the organization forward. Targeting at least a 10 per cent reduction in accidents year-on-year is just as important as maintaining OH&S awareness through new training and refresher courses for the whole workforce.

## ***Risk assessment and control***

It is essential that there is a comprehensive appreciation of the significant OH&S hazards and risks associated with the organization, identifying those areas of risk that are unacceptable and putting in place controls wherever this is deemed to be necessary. Other risks will be covered as part of the priority programme.

BS 8800, 3.5.3 states that:

Where hazards cannot be eliminated the organization should ensure that appropriate and effective risk controls are provided to reduce risks to acceptable or tolerable levels. In high hazard industries, organizations need to ensure that proper attention is given to the high consequence, low probability type event to ensure that adequate control is achieved. It could be that the effort needed to achieve this is disproportionate to that needed for the day-to-day risks of the organization.

Resulting risk management arrangements will vary from organization to organization. They can vary within the time frame of the action plan, requiring an initial significant input at the beginning, which can then be reduced during the monitoring phase.

BS 8800, 3.5.3 provides the following guidelines:

‘The planning process should define the arrangements for:

- a) ongoing, proactive identification of hazards and assessment of risks to OH&S arising out of the work environment and work activities;’

It should address all aspects of business activity from the ‘front desk’ to the contractors who visit the site as part of routine (and non-routine) maintenance services.

- b) ‘the development and implementation of effective workplace precautions and their associated risk control systems that eliminate hazards or reduce risk;’

Risk control should be based on initially looking to eliminate the risk at source, then following the protocol, through to the use of PPE as a final resort (see Chapter 6).

- c) ‘recording the significant details and findings of the risk assessment and making them available to those who need the information.’

Risk management documentation forms an essential tool for audit and training purposes and should be collated and managed.



'A risk assessment should always be carried out, and the control measures implemented, before changes are made to work activities or before new activities commence.'

Risk management should be ongoing, not just a one-off exercise. It should be reviewed periodically when changes occur to the process, new processes are introduced (this may require a completely new risk assessment) and after an adverse event, e.g. an accident, incident or ill health occurrence.

Risk assessment should be carried out throughout the organization as this is a legal requirement in the UK (see Chapter 6 for further information).

## ***Legal and other requirements***

BS 8800, 3.5.4 states:

... establish and maintain arrangements to ensure identification and access to all current and emerging legal and other OH&S requirements and guidance relevant to their activities and services. Relevant employees within the organization should be aware of and understand these requirements.

... seek to emulate best practice and performance, in the organization's business sector and other appropriate sources, (e.g. from regulatory agency and trade association guidelines). Best practice guidelines can be of great assistance and arrangements should be made for their identification, dissemination and use.

Best practice guidelines will have been determined from the initial status review. They will need to be included in the planning process to provide mechanisms for identifying changes in legislation which impact on the organization as well as providing early notice of any future changes, e.g. from the EU.

Early notice of these changes can enable organizations to exert influence through consultation processes involving trade associations or by direct comment to regulatory bodies and can support the overall business planning process.



'Other requirements' can include monitoring and implementing industry codes of practice such as the Chemical Industries Association's 'Responsible Care', or a voluntary code such as 'Investors in People'.

## ***OH&S management arrangements***

BS 8800, 3.5.5 identifies nine key areas that an OH&S management programme should cover:

- a) overall plans and objectives, including employees and resources, for the organization to implement its policy;
- b) operational plans to implement arrangements to control the risks identified ... and to meet the recommendations identified ...;
- c) contingency plans for foreseeable emergencies and to mitigate their effects (e.g. prevention, preparedness and response procedures);
- d) planning for organizational activities ...;
- e) plans covering the management of change of either a permanent or temporary nature (e.g. associated with new processes or plant, working procedures, production fluctuations, legal requirements, organizational and staffing changes);
- f) plans covering interactions with other interested parties, (e.g. control, selection and management of contractors, liaison with emergency services, visitor control);
- g) planning for measuring performance, audits and status reviews ...;
- h) implementing corrective actions;
- i) plans for assisting recovery and return to work of any staff who is injured or becomes ill through their work activities.

Where fundamental changes cannot be made immediately, prioritized action plans should be drawn up and followed through. In the interim, properly assessed short-term measures should be taken to minimize the risk and the risk assessed over the overall process.

## *Implementing and documenting*

Communication and documented evidence forms an essential part of the planning process. These provide the guidelines for the organization to follow, the records of implementation and the historical record for reviewing the effectiveness of the delivered action against the proposed system.

BS 8800, 3.5.6 states:

Workplace precautions, risk control systems and management arrangements are more effective if they are well designed and developed recognizing existing business practice. The strength and limitations of human behaviour should be considered in the design.

This is where planning commences. It must deliver a system for successful OH&S management and be clearly understood by the users. Organizations may need to ensure that certain elements of the workforce have a particular academic understanding or at least the confirmed knowledge that they clearly understand the national tongue.

BS 8800, 3.5.6 states:

All the components of the OH&S management system should be adequately inspected, maintained and monitored to ensure continued effective operation. Risk assessment and risk control should be reviewed in the light of changes and technological developments.

Documentation is vital in enabling an organization to communicate and implement a successful management system. It is also important in assembling and retaining OH&S knowledge. It is important that documentation is:

- a) tailored to the organization's needs;
- b) detailed proportionate to the level of complexity, hazards and risks;
- c) kept to the minimum required for effectiveness and efficiency.

Among the most important written communications are:

- 1) health and safety policy statements;
- 2) organization statements showing health and safety roles and responsibilities ...;
- 3) documented performance requirements and measures;
- 4) supporting organizational and risk control information and procedures;
- 5) appropriate findings from initial status reviews..., risk assessments investigations..., audits...and periodic status reviews ....

The organization should maintain any records necessary to:

- i) demonstrate compliance with legal and other requirements;
- ii) ensure retention of appropriate OH&S knowledge;
- iii) mitigate any liability claims.

Document systems must be clear and they must be co-ordinated across the organization and maintained, usually as part of the document control system that also applies across the whole of the organization. In some circumstances, particularly where specialist document systems are entering from external sources, the use of a secondary document control process specifically for OH&S management system can be beneficial.

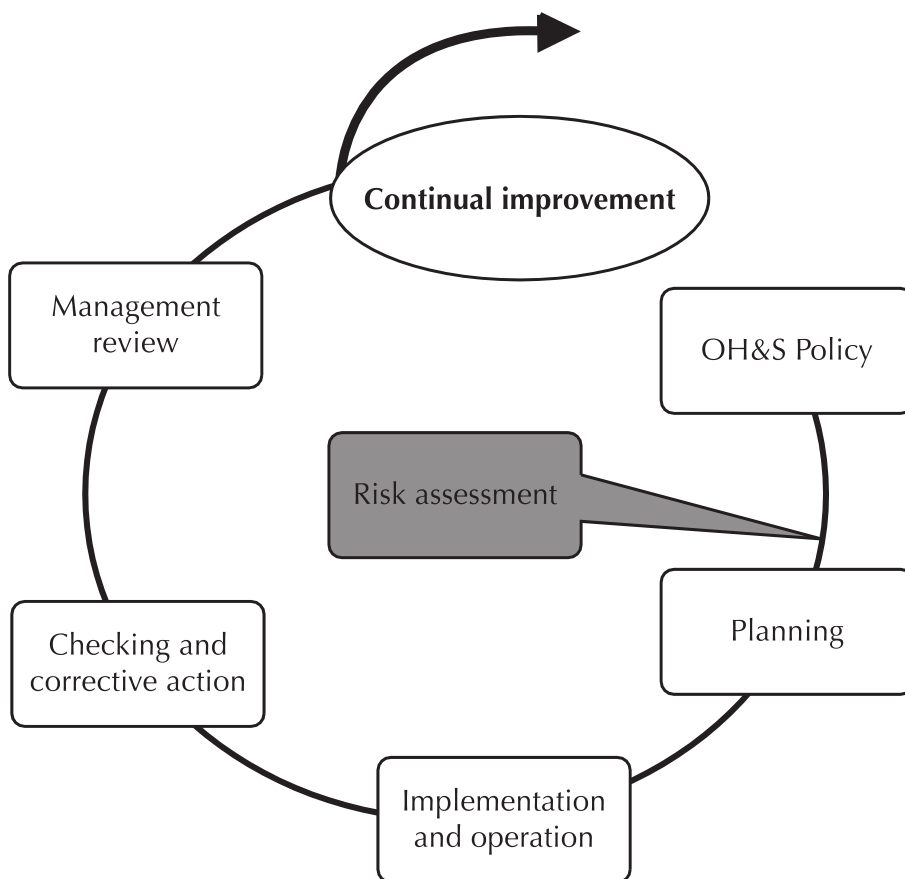
BS 8800:2004, 3.5.6 states:

Organizations should ensure that sufficient documentation is available to enable OH&S plans to be fully implemented and is proportional to their needs....

Organizations should make arrangements to ensure that OH&S documentation is up to date and applicable to the purpose for which it is intended, takes into account the requirements of data protection legislation and is communicated to all those who need it.

# 6

## Risk assessment and control



## In brief

Risk assessment and control is at the core of effective OH&S management. The process used for risk assessment and control need not be complex and should reflect the type of hazards that exist in the workplace. For instance, there are usually very few hazards in an office environment while there may be many in a chemical or engineering environment. No matter what type of workplace, there is no requirement to address every hazard. The aim should be to identify those hazards that pose a significant risk and therefore need to be addressed rather than trying to eliminate all hazards – a task that is unlikely. It is impracticable to make a workplace totally safe and also be able use it.

The identification of hazards and risk assessment are regulatory requirements throughout Europe and much of the world. Risk assessment is fundamental to the successful application of any health and safety management system. In most instances the process is based on simple principles which can be summarized as follows:

1. Classify work activities.
2. Identify hazards.
3. Identify existing risk controls.
4. Determine risk.
5. Determine acceptability.
6. Prepare risk control action plan to improve risk control as necessary.
7. Review adequacy of action plan – confirm risk acceptability/tolerability.
8. Ensure risk assessment and controls are effective and up to date.

## Key elements – Risk assessment and control

Risk assessment is the fundamental element required for the successful implementation of an OH&S management system. It embodies the key principle of proactive management: identifying the hazard and controlling the risk

*before* harm occurs and/or damage is sustained to plant, equipment or other operational conditions. The process of identifying hazards, assessing risks and implementing and reviewing risk controls should be the basis of the whole OH&S management system. It is impracticable to make the workplace free of risk but the aim should be to identify and manage all foreseeable risks. In the UK, there is a legal duty on all employers and self-employed people to assess the risks arising from the hazards that result from their work activities. The main purpose of risk assessment is to decide whether existing or planned controls are adequate. This is a proactive process, i.e. controlling risks before harm (or damage) can occur. It is not a one-off exercise, as the measures taken will need to be reviewed from time to time depending on the gravity of the risk and extent of any changes to circumstances. Whenever there is to be any organizational or operational changes a risk assessment should be carried out before the changes are implemented. To ensure that the risk assessment process works, it is essential to involve the workforce and gain commitment to this proactive approach. Risk management should be equally about identifying positive opportunities as it is about avoiding damage or injury.

Risk assessment looks at the risks to which each person is exposed, whether employee, contractor, visitor or anyone else who might suffer harm, and arrives at a judgment as to whether each risk is:

1. acceptable – very low risk where no action is necessary; or
2. low, medium risk – risks in this category should be reduced so that they are acceptable or tolerable, where this is practicable;
3. unacceptable – something needs to be done right away to reduce it (in extreme cases this may involve stopping an activity until new methods or controls can be introduced).

BS 8800, E.1.4 states the following:

The overall purpose of risk assessment and control is to understand the hazards that might arise in the course of the organization's activities and ensure that any risks to people arising from the hazards are acceptable or tolerable. This is achieved by:

- identifying hazards and making an estimate of the associated risk levels, on the basis of existing or proposed risk controls;
- determining whether these risks are tolerable;
- determining whether further analysis is required to establish whether the risks are, or are not, tolerable, for example noise levels might need to be measured to determine the more exact risk of hearing damage;
- devising improved risk controls where these are found to be necessary.

Risk assessment can also be used to make a systematic comparison of different risk control/reduction options. It aids the organization to prioritize any resulting actions to reduce risk.

It is important that the purpose of risk assessment remains clear in the minds of everyone involved in the process in order to avoid unnecessary work, which is not only wasteful but which might even obscure risks that require urgent attention.

Good judgment, rather than a mechanistic approach, must always be used in assessing a risk. The level of risk attached to almost any action is dependent on whether the relevant controls and safeguards are in place.

Of all the elements of a successful OH&S system, the terminology and understanding is least clear for risk assessment. Similar terminology can apply to the same definition and the difference between the terms 'hazard' and 'risk' is frequently misunderstood. BS OHSAS 18001 specifically defines the key terms:

**hazard**

source, situation, or act with a potential for harm in terms of human injury or ill health, or a combination of these

**hazard identification**

process of recognizing that a hazard exists and defining its characteristics

**acceptable risk**

risk that has been reduced to a level that can be tolerated by the organization having regard to its legal obligations and its own OH&S policy



**risk**

combination of the likelihood of an occurrence of a hazardous event or exposure(s) and the severity of injury or ill health that can be caused by the event or exposure(s)

**risk assessment**

process of evaluating the risk(s) arising from a hazard(s), taking into account the adequacy of any existing controls, and deciding whether or not the risk(s) is acceptable

Definitions of 'risk controls', 'risk control systems', 'unacceptable risk', and 'acceptable risk' are provided within BS 8800.

BS OHSAS 18001, 4.3.1 specifies that the methodology used shall:

- a) be defined with respect to its scope, nature and timing to ensure it is proactive rather than reactive; and
- b) provide for the identification, prioritization and documentation of risks, and the application of controls, as appropriate.

For the management of change, the organization shall identify the OH&S hazards and OH&S risks associated with changes in the organization, the OH&S management system, or its activities, prior to the introduction of such changes.

The success of any risk assessment process is based on a systematic approach being taken. Only then can effective control measures be identified.

## **Systematic risk assessment and control**

This section addresses the fundamentals of managing risk. In order to do this it is necessary to systematically identify the hazards that are created, assess the risks and establish what controls (if any) need to be implemented to reduce the risk of harm to an acceptable level. The process needs to be systematic and consistently applied, considering all the areas, activities and processes undertaken, in order to avoid missing potential sources of harm.

All organizations differ and the risk assessment process used, whilst having the same eventual aim, will vary from organization to organization. In large, complex operations, the risk assessment may appear complex; in the office environment, the process can be simpler. They will normally be expressed in the form of a documented procedure, although BS 8800, E.1.3 states the following in relation to different risk assessment processes:

Not all of these will necessarily be documented, since there is often a case for managers and employees being trained to make a judgement before work begins or as a response to changing circumstances as to whether there are appropriate risk controls in place. This process is often referred to as dynamic risk assessment.

At the other extreme, there are some systematic documented methods which are complex, and appropriate only to the special circumstances of major hazard activities. For example, risk assessment of a chemical process plant might require complex mathematical calculations of the probabilities of events leading to major release of agents that might affect employees, contractors and others in the workplace, or the public. In many countries, sector-specific legislation specifies where this degree of complexity is required.

The process of risk assessment is based on making a judgment. This often frightens the untrained and inexperienced. The HSE in the UK provides extensive information and guidance to support organizations in their judgment process. The following approach is mainly based on that given in BS 8800 and can be seen as a stepwise, logical approach. There is no right or wrong way and the following methodology is seen as one that any organization can embrace.

## **1. Classify work activities**

List the work activities (including those covering premises, plant, people and procedures) and gather information about them, from start to finish, to include the people they cover, and how they work. The process of classifying work activities should include staff consultation where necessary, as it is often the case that a work activity is carried out differently in practice than it is in theory. It is important that the process includes not only employees

but also contractors, visitors and anyone else who might be harmed by the activities of the organization. This does not mean that every person needs to be considered individually. If there are 50 people working in a department, all doing the same thing on identical equipment and under the same conditions, e.g. in a call centre, the hazards are very likely to be the same and one assessment can cover the whole group. Care would, however, need to be taken where, for example, the group includes a new starter who has not been fully trained or someone who has a disability that might put them at greater risk if the premises have to be evacuated.

## **2. Identify hazards**

Identify all significant hazards relating to each work activity, e.g. trapping, slipping, exposure to noise, inhalation of toxic fumes, etc. Consider *who* might be harmed and *how* in relation to the hazard controls that are in place. For each person, or group of people, the key questions to ask are: What could go wrong that could cause injury or damage? Who might be harmed and how? There are hazards in every workplace that will apply to everyone working there as well as visitors and contractors etc., in addition to specific hazards relating to each work activity. A prompt-list of questions relating to hazards is provided on pages 118–119.

## **3. Identify existing risk controls**

Identify the risk controls that exist (or are proposed for planned activities), in order to reduce the risk associated with each hazard. These should be based on the principles of prevention through elimination, substitution, reduction, engineering and, as a final resort, the use of personal protective equipment (PPE) (in that order). Under some conditions, e.g. emergency maintenance, it may be necessary to use a combination of engineering controls and PPE.

## **4. Determine the risk**

Make a subjective estimate of risk associated with each hazard, assuming that planned or existing controls are in place. The assessment should consider the effectiveness of the controls and the consequences of their failure. The style of the assessment should be chosen to best suit the organization and the hazard being assessed. Some organizations use a numerical process for risk assessment; others use descriptive categories

such as 'highly unlikely' or 'very probable'. Whichever method is chosen, the aim is to assess the overall risk as being acceptable, minor or serious. Provide a written record where risks are determined to be significant. Defining 'significant' is often difficult. As a rule of thumb, if it takes longer to record a risk assessment than to complete the overall task then the risk is probably not 'significant' and does not need to be recorded.

**5. Determine acceptability**

Decide if the risk is acceptable/tolerable, i.e. that it has been reduced to the lowest level that is reasonably practicable. Judge whether planned or existing OH&S precautions and control measures are sufficient to keep the hazard under control. In order to be able to assess the acceptability of any particular risk, the organization should establish criteria to provide a basis for consistency in all its risk assessments. See BS 8800, E.3.6.

**6. Prepare a risk control action plan**

Deal with any issues that were found by the risk assessment to require attention. Organizations should ensure that new and existing controls remain in place, are effective, are communicated and, where necessary, are recorded. It should be recognized that in some cases, further control measures may not be required.

**7. Review the adequacy of the action plan**

Reassess risks on the basis of the revised controls and check whether risks will be acceptable. This should be done on completion of the plan and periodically during the implementation process until completion. A final review on full implementation should be carried out to ensure suitability and good fit.

**8. Maintenance**

As with the other steps in the process, this review should be documented and repeated periodically to ensure that the controls remain effective. The frequency of the review will be dependent on the risk – the higher the risk, the more frequent the review process. In most circumstances an annual review is recommended. Update and review risk assessments as necessary in order to maintain their validity.

The following checklist identifies the main steps in a risk assessment. A tick box is provided for identifying those procedures that are already in place (1) and those which need to be introduced (2).

## CHECKLIST: Risk assessment in the organization

1	2
<input type="checkbox"/>	<input type="checkbox"/> Classifying work activities;
<input type="checkbox"/>	<input type="checkbox"/> Identifying the significant hazards relating to each of these work activities;
<input type="checkbox"/>	<input type="checkbox"/> Identifying existing risk control measures in place;
<input type="checkbox"/>	<input type="checkbox"/> Determining the risk associated with each significant hazard;
<input type="checkbox"/>	<input type="checkbox"/> Deciding if this risk is acceptable/tolerable, i.e. has it been reduced to the lowest level that is reasonably practicable?
<input type="checkbox"/>	<input type="checkbox"/> Preparing a risk control action plan (if necessary);
<input type="checkbox"/>	<input type="checkbox"/> Reviewing the adequacy of the action plan – will the risk be acceptable?
<input type="checkbox"/>	<input type="checkbox"/> Providing a written record where risks are significant;
<input type="checkbox"/>	<input type="checkbox"/> Periodically reviewing existing risk assessments.

## In practice – Risk assessment and control

In terms of risk assessment and control, the six case study organizations have a very similar approach to OH&S management because all of them need to adopt a risk assessment and control system in order to be effective.

The following publications, available from the HSE, provide advice on risk assessment that is applicable to all types of organization:

- The Health and Safety at Work etc. Act 1974, Section 2(2)(b) and Section 6;
- The Management of Health and Safety at Work Regulations 1999;
- INDG163 (rev2), *Five steps to risk assessment*;

There are some risks that affect most organizations. Some examples of these are listed as follows.

- a) The reception, clerical and office support environment:
- office chemicals (cleaning solutions) and IT equipment emissions, e.g. from printers, photocopiers;
  - electricity and electrical equipment;
  - display screen equipment;

- fire and emergencies;
  - first aid provision;
  - housekeeping and tidiness;
  - visiting contractors and the work they undertake;
  - manual handling;
  - sources of stress, e.g. workload patterns.
- b) The structure (all locations, offices, workshops, yards, etc.):
- contractor management, e.g. cleaning windows, servicing heating systems, major repairs and building works;
  - workplace condition monitoring and maintenance – welfare facilities;
  - security of personnel;
  - asbestos and other hazardous materials;
  - flammable materials;
  - traffic routes;
  - space availability;
  - lighting levels;
  - storage arrangements;
  - heating and temperature control (hot and cold);
  - site hazards from external sources, e.g. hypodermic needles;
  - biological hazards.
- c) The processes:
- use of plant and equipment;
  - driving;
  - planned preventive maintenance and repair;
  - emergency maintenance and repair;
  - process emissions and body/eye contacts, e.g. dust, fumes, gases, vapours, fibres, mists, liquids, etc.;
  - working at height;
  - falling objects;
  - control measure management;
  - electricity;
  - ionizing radiation;
  - vibration;
  - non-ionizing radiation;

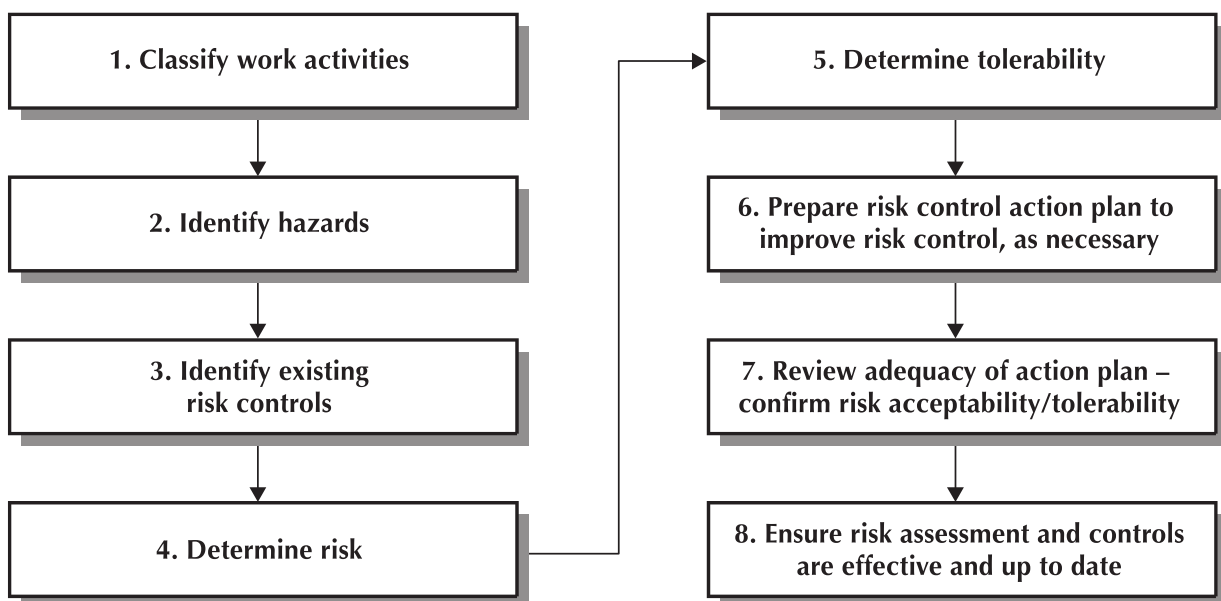


- working outdoors – weather effects, e.g. sunburn;
- biological, e.g. contact with rodents, faeces.

The examples described are not exhaustive. Although these key areas will apply in full or in part to every organization, those dealing with highly specialized risks resulting from major hazards like ionizing radiation will need to include these in their risk assessment.

Compliance with specific regulations should be prioritized according to the demands of the business. In the UK, the application of The Management of Health and Safety at Work Regulations 1999, The Electricity at Work Regulations 1989 and The Workplace (Health, Safety and Welfare) Regulations 1992 will assume significant priority in each of the case study organizations, although the risks and the controls that apply have a universal application throughout the world.

## In detail – Risk assessment



*The process of effective risk assessment*

Organizations should tailor the approach described here to their own needs, taking into account the nature of their work and the seriousness and complexity



of the risks that are present. The full eight-point procedure is not necessary if a preliminary study shows either that the risks are trivial or that the risk controls already in place conform to well-established legal requirements and standards, are appropriate for the task and are understood and used by those involved.

An integrated approach to OH&S risk assessment can be more effective than carrying out separate assessments for, say, health hazards, manual handling hazards, machinery hazards and so on. Not only can separate assessments lead to needless duplication but ranking risk control priorities becomes more difficult if different methods are used.

It is also possible to extend this approach to other management disciplines such as quality assurance, environment, food safety and security. This enables a more encompassing, integrated approach to be adopted for the management system and day-to-day operation of the organization and its activities.

### ***Who carries out the risk assessment?***

The skill levels of those assessing the risk and the depth of the programme of risk assessment should reflect the needs of the organization. An office environment is comparatively a much safer place to work than a building site and the assessment should reflect the situation accordingly. In a high risk industry, the assessment of risks is a specialist subject in its own right.

The assessment process should only be undertaken by those persons competent and trained to do so. Knowledge of the process and the risk assessment methodology is essential and a team approach can often be beneficial. Specialist expertise may be required using external resources. The contributory approach requires all of the organization's stakeholders, staff, managers and employee representatives to agree on the most effective way forward. This allows the OH&S procedures:

- to be based on shared perceptions of hazards and risks;
- to be necessary and workable;
- to succeed in preventing harm.

The joint ownership approach can then become part of the overall positive health and safety culture that the organization should be striving to achieve.

## ***Risk assessment requirements***

The following checklist shows the requirements necessary for a comprehensive risk assessment programme. A tick box is provided for identifying those procedures/actions that are already in place (1) and those that need to be introduced (2).

### **CHECKLIST: Requirements for a risk assessment programme**

<b>1</b>	<b>2</b>	
<input type="checkbox"/>	<input type="checkbox"/>	Appoint a senior member of the organization to promote and manage the process.
<input type="checkbox"/>	<input type="checkbox"/>	Determine training needs for risk assessment personnel/teams and implement a suitable training programme.
<input type="checkbox"/>	<input type="checkbox"/>	Consult everyone involved; discuss what is planned to be done, obtain their contributions and enable commitment.
<input type="checkbox"/>	<input type="checkbox"/>	Agree the risk assessment process and methodology, including review and approval processes.
<input type="checkbox"/>	<input type="checkbox"/>	Design a simple pro-forma (or use a commercially available version) to record the findings of an assessment appropriate to the organization and the risks involved, including details of the work activity; hazard(s); controls in place; personnel at risk; likelihood of harm; severity of harm; risk levels; action to be taken following the assessment and administrative details, e.g. name of assessor, date of review.
<input type="checkbox"/>	<input type="checkbox"/>	Prepare a delivery plan, addressing significant and high risks as a priority.
<input type="checkbox"/>	<input type="checkbox"/>	Review the adequacy of risk assessment: determine whether the assessment is 'suitable and sufficient' – that is to say, adequately detailed and rigorous.
<input type="checkbox"/>	<input type="checkbox"/>	Document administrative details and significant findings of the assessment in hard copy or electronic form.
<input type="checkbox"/>	<input type="checkbox"/>	Initiate the risk assessment review process periodically, for process change and to ensure that it is suitable.

## *The process of risk assessment*

### *Stage 1. Classifying work activities*

To make the list of activities manageable, the list items should be grouped in a convenient way, e.g. according to:

- a) geographical areas within/outside the organization's premises;
- b) stages in a production process, or in the provision of a service;
- c) planned work, e.g. different operational stages of the process;
- d) reactive work, i.e. work carried out in response to an unplanned event;
- e) defined tasks, e.g. driving, window cleaning;
- f) any change in the management or organization;
- g) various identified working groups, e.g. employees, contractors;
- h) plant operation and maintenance works;
- i) tasks being carried out by contractors.

The following list, though not exhaustive, gives examples of the information required for each work activity. It can be used to prepare a pro-forma checklist tailored to the specific needs of the organization.

1. Tasks being carried out:
  - a. duration;
  - b. frequency;
  - c. external weather condition – wet, cold, hot.
2. Location(s) where the work is carried out.
3. Proximity to and scope of hazardous interaction with other workplace activities, i.e. how one process risk could affect another.
4. Who normally/occasionally carries out the tasks, e.g. operators, maintenance staff.
5. Others who may be affected by the work, e.g. maintenance staff, visitors, contractors, the public, neighbouring organizations.
6. Training that personnel have received in relation to their tasks.

7. Written, safe systems of work and/or permit-to-work procedures prepared for the tasks.
8. Plant, machinery and equipment that is used, e.g. suitability, ease of use.
9. Maintenance, condition, calibration and test condition of plant, machinery and equipment used.
10. Training for plant, equipment and tooling operators.
11. Powered hand tools that are used, e.g. company owned, privately owned.
12. Manufacturers' or suppliers' instructions for operation and maintenance of equipment, plant, machinery and powered hand tools.
13. Size, shape, surface character condition, e.g. sharpness of edges, temperature and weight (including centre of gravity) of materials that will be handled.
14. Physical capabilities of personnel to undertake tasks.
15. Distances and heights that materials have to be moved by hand (including accessibility to loads and environment of transfers).
16. Services used, e.g. electricity, compressed air, gas.
17. Substances used or encountered, e.g. created or given off during a process.
18. Physical form of substances used or encountered (fibre, fume, gas, vapour, liquid, dust/powder, solid).
19. Content and recommendations of safety data sheets relating to substances used or encountered (or formed during a process).
20. Requirements of relevant acts, regulations and standards relevant to the work being done, the plant and machinery used and the substances used or generated during the task.
21. Control measures believed to be in place (and actually in place).
22. Reactive monitoring data – incident, accident and ill health experience associated with the work being done and equipment and substances used, gained as a result of information from within and outside the organization.
23. Findings of any existing assessments relating to the work activity.
24. Other available information, benchmarks, regulatory guidance, professional bodies.

## *Stage 2. Identifying hazards*

There are three key questions in identifying hazards associated with any work activity:

1. Is there a source of harm?
2. Who (or what) could be harmed?
3. How could harm occur?

There are different approaches that can be used to help identify hazards, two of which are given as follows.

### Categorizing hazards into broad categories

Here is an example of categorizing hazards by topic:

- mechanical/physical (machinery, plant and equipment);
- electrical (shock, fire);
- substances (chemicals, emissions);
- fire (emergency evacuation, fire fighting equipment);
- explosion (gas, chemical, acts of terrorism);
- temperature/climate (internal/external hot and cold, high humidity);
- radiation (ionizing and non-ionizing, e.g. microwaves);
- biological;
- psychological (stress, work pressures).

### Developing a prompt-list of questions

The following example of a hazard prompt-list is not exhaustive and is intended as a starting point for organizations to build up their own list.

During work activities could the following hazard/s exist?

- slips/falls on the level;
- falls of persons from heights;
- falls of tools, materials, etc., from heights;
- inadequate headroom;
- hazards associated with manual lifting/handling of tools, materials, etc.;
- hazards from plant and machinery associated with assembly, commissioning, operation, maintenance, modification, repair or dismantling;
- vehicle hazards, covering both site transport and travel by road (affecting personnel and other vehicles);
- fire, explosion and natural disasters, e.g. earthquakes;
- substances that may be inhaled;
- substances or agents that may damage the eye;
- substances that may cause harm by coming into contact with, or being absorbed by the skin;
- substances that may cause harm by being ingested, i.e. entering the body via the mouth;
- substances that may be injected by a needle or under pressure through broken skin;
- harmful energies, e.g. electricity, noise, vibration;
- radiation – radioactive sources, non-ionizing radiation, sunlight exposure;
- work-related upper limb disorders resulting from frequently repeated tasks;
- inadequate thermal environment, e.g. too hot, too cold, extreme variations in temperature;
- lighting levels (adequacy for tasks or emergencies);
- slippery, uneven ground/surfaces;
- inadequate guard rails or hand rails on stairs;
- contractors' activities;
- violence to staff;
- terrorist activity.

A useful way of gaining the commitment of the workforce as well as ensuring that issues are not overlooked is to involve employees in identifying hazards. This will lead to information on how a task is *actually* carried out rather than how it *should* be done. It should be remembered that the OH&S management system is designed to help the employees and the organization and to establish a workplace where the risk of harm is minimized.

### *Stage 3. Identify existing risk controls*

It is important to establish what controls are in place and how effective they are. The controls may be barriers, light curtains, safe systems of work, lock-out or tag-out procedures, warnings, etc. The evaluation needs to ascertain whether these measures are operating and whether it is possible to improve on them.

### *Stage 4. Determining risk*

The risk from the hazard should be determined by assessing:

- the potential severity of harm; and
- the likelihood that harm will occur.

The assessment can be subjective; it is not essential to assign a numerical value. What is important is that the process enables a sound judgment to be made as to the comparative risk level of different hazards.

It is generally not necessary to make precise numerical calculations of the risks identified. Complex methods for quantified risk assessment are available and are in regular use in those industries where the consequence of failure could be catastrophic, for example nuclear installations. For most organizations, however, much simpler subjective methods are appropriate.



## Potential severity of harm

When establishing potential severity of harm, information about the relevant work activity should be considered, together with:

- a) part(s) of the body likely to be affected;
- b) nature of the harm, ranging from slight to extremely harmful:
  1. slightly harmful, e.g.:
    - superficial injuries; minor cuts and bruises; eye irritation from dust;
    - nuisance and irritation; ill health leading to temporary discomfort;
  2. harmful, e.g.:
    - lacerations; burns; concussion; serious sprains; minor fractures;
    - deafness; dermatitis; asthma; work-related upper limb disorders; ill health;
  3. extremely harmful, e.g.:
    - amputations; major fractures; poisonings; multiple injuries; fatal injuries;
    - occupational cancer; other severely life shortening diseases; acute fatal diseases.

Assigning harm categories will be based on previous experience, the task involved and the overall requirements of the organization. The following table, taken from BS 8800, Annex E, provides examples of harm categories. It emphasizes the ill health aspect with good reason. The number of people per year in the UK dying from ill health arising from exposure to asbestos many years ago, is some 10 times more than those killed in accidents at work. The table can be used as a model and extended to cover groups affected, e.g. contractors, visitors and members of the public. It can also include a welfare category.

## *Examples of harm categories*

<b>Harm category<sup>a</sup> (examples)</b>	<b>Slight harm</b>	<b>Moderate harm</b>	<b>Extreme harm</b>
Health	Nuisance and irritation (e.g. headaches); temporary ill health leading to discomfort (e.g. diarrhoea).	Partial hearing loss; dermatitis; asthma; work related upper limb disorders; ill health leading to permanent minor disability.	Acute fatal diseases; severe life shortening diseases; permanent substantial disability.
Safety	Superficial injuries; minor cuts and bruises; eye irritation from dust.	Lacerations; burns; concussion; serious sprains; minor fractures.	Fatal injuries; amputations; multiple injuries; major fractures.
<sup>a</sup> The health and safety harm categories are effectively defined by quoting examples and these lists are not exhaustive.			

## Likelihood of harm

When establishing the likelihood of harm, the existing risk controls need to be considered. For specific hazards the legal requirements, codes of practice and guidance from manufacturers/suppliers, etc. are helpful in the assessment. Information may also be available on the number of previous incidents. Further factors to consider are:

- a) number of personnel exposed;
- b) frequency and duration of exposure to the hazard;
- c) failure of services, e.g. electricity and water;
- d) failure of plant and machinery components and safety devices;
- e) exposure to the elements;

- f) protection afforded by personal protective equipment and usage rate of personal protective equipment;
- g) unsafe acts (unintended errors or intentional violations of procedures) by persons, for example who:
  1. may not know what the hazards are;
  2. may not have the knowledge, physical capacity, or skills to do the work;
  3. underestimate risks to which they are exposed;
  4. underestimate the practicality and usefulness of safe working methods;
  5. indulge in horseplay;
  6. take short cuts to complete tasks.

It is important to take into account the consequences of all unplanned events. As with the severity of harm, the process of assigning and categorizing likelihood of harm will be designed to meet the organization’s needs and the method of doing this is down to each individual organization to decide upon. The following table, from BS 8800, Annex E, provides examples of categories for likelihood of harm, scaled so that the difference between each level alters by a factor of 10. The examples provided in this table can be helpful for maintaining consistency but again, judgment and common sense must be applied. Mechanical assessment must be avoided.

*Examples of categories for likelihood of harm*

<b>Categories for likelihood of harm</b>	<b>Very likely</b>	<b>Likely</b>	<b>Unlikely</b>	<b>Very unlikely</b>
Typical occurrence	Typically experienced at least once every six months by an individual	Typically experienced once every five years by an individual	Typically experienced once during the working lifetime of an individual	Less than 1% chance of being experienced by an individual during their working lifetime

## Stage 5. Deciding if the risk is acceptable

The following table, taken from BS 8800, Annex E, shows one simple method for estimating risk levels and for deciding whether risks are acceptable, i.e. whether the risk has been reduced to the lowest level that is reasonably practicable. In this table, risks are classified according to their estimated likelihood and potential severity of harm. Some organizations may wish to develop more sophisticated approaches, for instance by assigning values instead of terms, although this would not confer any greater accuracy to the estimates.

The matrix shown in the following table is just one approach to assessing risk. The organization can obviously choose a matrix that is larger than this and more accurately reflects the risks associated with its overall activities. Care should, however, be exercised, as a large matrix of, say, 10-by-10 does not imply greater accuracy or greater ability to discriminate between different risks. The approach taken in the table is subjective and, for those organizations with high risks, may be a useful tool in identifying risks that need more careful analytical investigation using sophisticated risk techniques.

### *A simple risk estimator*

Likelihood of harm (see table on page 123)	Severity of harm		
	Slight harm	Moderate harm	Extreme harm
Very unlikely	Very low risk	Very low risk	High risk
Unlikely	Very low risk	Medium risk	Very high risk
Likely	Low risk	High risk	Very high risk
Very likely	Low risk	Very high risk	Very high risk

NOTE These categorizations and the resulting asymmetry of the matrix arise from the examples of harm and likelihood illustrated within this British Standard. Organizations should adjust the design and size of the matrix to suit their needs.

## Stage 6. Preparing a risk control action plan

The following table, taken from BS 8800, Annex E, provides a means of establishing a ranking order for risks in the workplace. The aim is to produce an inventory of actions in order of priority. Because the process of ranking is subjective, it is often best for a number of people to be involved in order to ensure the final judgment reflects a balanced view.

This table provides a starting point for deciding the action that should be taken in response to the findings of the risk assessment.

### *A simple risk-based control plan*

<b>Risk level</b>	<b>Tolerability: Guidance on necessary action and timescale</b>
Very low	These risks are considered acceptable. No further action is necessary other than to ensure that the controls are maintained.
Low	No additional controls are required unless they can be implemented at very low cost (in terms of time, money and effort). Actions to further reduce these risks are assigned low priority. Arrangements should be made to ensure that the controls are maintained.
Medium	Consideration should be given as to whether the risks can be lowered, where applicable, to a tolerable level, and preferably to an acceptable level, but the costs of additional risk reduction measures should be taken into account. The risk reduction measures should be implemented within a defined time period. Arrangements should be made to ensure that the controls are maintained, particularly if the risk levels are associated with harmful consequences.
High	Substantial efforts should be made to reduce the risk. Risk reduction measures should be implemented urgently within a defined time period and it might be necessary to consider suspending or restricting the activity, or to apply interim risk control measures, until this has been completed. Considerable resources might have to be allocated to additional control measures. Arrangements should be made to ensure that the controls are maintained, particularly if the risk levels are associated with extremely harmful consequences and very harmful consequences.

Very high	These risks are unacceptable. Substantial improvements in risk controls are necessary, so that the risk is reduced to a tolerable or acceptable level. The work activity should be halted until risk controls are implemented that reduces the risk so that it is no longer very high. If it is not possible to reduce risk the work should remain prohibited.
NOTE Where the risk is associated with extremely harmful consequences, further assessment is necessary to increase confidence in the actual likelihood of harm.	

The next step is to determine what controls need to be put in place for those risks that are not acceptable, taking into account the following:

- a) eliminating hazards altogether, if possible, or combating risks at source;
- b) substitution, e.g. using a safer substance instead of a dangerous one;
- c) if elimination is not possible in trying to reduce the risk, for example by using a low voltage electrical appliance, remote operation from enclosures, or use of refuges to isolate the worker from the hazard rather than relying on PPE;
- d) where possible, adapting work to the individual, for example to take account of individual mental and physical capabilities;
- e) taking advantage of technical progress to improve controls, for example, by using robotics;
- f) use of measures that protect everyone, e.g. having restricted entry areas and using authorized pass mechanisms;
- g) using a blend of engineering, technical and procedural controls;
- h) introducing planned maintenance such as regular extraction system inspection and maintenance;
- i) adopting appropriate PPE, only as a last resort after all other control options have been considered or as a short-term contingency during maintenance or repair;
- j) installing emergency arrangements such as alarm systems and back-up controls;
- k) adopting proactive measurement indicators to monitor compliance with the controls.

Consideration needs to be given to the development of emergency and evacuation plans, and provision of emergency response equipment relevant to the organization's hazards.

The hierarchy should always be to eliminate; remove by substitution; isolate a hazard; control by engineering means and, as a last resort, use appropriate PPE. Sometimes a combination of these measures can be necessary, e.g. in maintenance or emergency situations.

### *Stage 7. Reviewing adequacy of action plan*

Before implementing the new controls, it is important to review the consequences of the proposed action. It is not uncommon to find that there may be new hazards arising from the controls:

- Will the revised controls lead to acceptable risk levels?
- Have new hazards been created?
- Has the most cost-effective solution been chosen?
- What do operators think of the practicality of the preventive measures?
- Will the revised controls be used in practice and not ignored in the face of, e.g. pressures to get the job done?
- How will the revised controls be affected if changes occur to, e.g. plant and machinery, production methods, or the layout of buildings and services?

### *Stage 8. Ensure risk assessments and controls are effective*

A written record should be made where risks are significant. Where action needs to be taken, a record should be kept of the risk assessment and the controls installed. A review date should be included to ensure the corrective measures are reviewed with respect to their effectiveness.



## Sample risk assessment form (blank)

<b>Location:</b>																		
<b>Work Site/activity:</b>																		
<b>Hazards identified</b> (Please note that serious hazards or conditions of imminent danger <i>must</i> be supported with documented safe systems of work, health and safety plans, etc.)	<b>Persons and/or numbers at risk</b> (indicate numbers or tick where numbers vary)				<b>Severity of harm</b>			<b>Likelihood of harm</b>				<b>Current control measures</b>	<b>Risk rating</b>					
	<b>Employees</b>	<b>Contractors</b>	<b>Visitors</b>	<b>Others (specify)</b>	<b>Extreme harm</b>	<b>Moderate harm</b>	<b>Slight harm</b>	<b>Very likely</b>	<b>Likely</b>	<b>Unlikely</b>	<b>Very unlikely</b>		<b>Very high</b>	<b>High</b>	<b>Low</b>	<b>Very low</b>		
NOTES:																		

Assessor name(s):

Date:

Latest review date:

## Sample risk assessment form (completed)

<b>Location:</b> Any Town <b>Work Site/activity:</b> Room 101																
<b>Hazards identified</b> (Please note that serious hazards or conditions of imminent danger <i>must</i> be supported with documented safe systems of work, health and safety plans, etc.)	<b>Persons and/or numbers at risk</b> (indicate numbers or tick where numbers vary)				<b>Severity of harm</b>			<b>Likelihood of harm</b>				<b>Current control measures</b>	<b>Risk rating</b>			
	<b>Employees</b>	<b>Contractors</b>	<b>Visitors</b>	<b>Others (specify)</b>	<b>Extreme harm</b>	<b>Moderate harm</b>	<b>Slight harm</b>	<b>Very likely</b>	<b>Likely</b>	<b>Unlikely</b>	<b>Very unlikely</b>		<b>Very high</b>	<b>High</b>	<b>Low</b>	<b>Very low</b>
Electricity: electric shock, burns	✓	✓			✓					✓		Electrical equipment and building hard wiring tested in accordance with company procedures. Inspection records provided for equipment and electrical condition status of the building. Only persons trained, competent and authorized are allowed to work on or with electrical equipment systems.	✓			

## Sample risk assessment form (completed)

<b>Location:</b> Any Town <b>Work Site/activity:</b> Room 101																
<b>Hazards identified</b> (Please note that serious hazards or conditions of imminent danger <i>must</i> be supported with documented safe systems of work, health and safety plans, etc.)	<b>Persons and/or numbers at risk</b> (indicate numbers or tick where numbers vary)				<b>Severity of harm</b>			<b>Likelihood of harm</b>				<b>Current control measures</b>	<b>Risk rating</b>			
	<b>Employees</b>	<b>Contractors</b>	<b>Visitors</b>	<b>Others (specify)</b>	<b>Extreme harm</b>	<b>Moderate harm</b>	<b>Slight harm</b>	<b>Very likely</b>	<b>Likely</b>	<b>Unlikely</b>	<b>Very unlikely</b>		<b>Very high</b>	<b>High</b>	<b>Low</b>	<b>Very low</b>
Fire: burns, asphyxiation	✓	✓	✓	✓	✓						✓	Fire risk assessment carried out. All employees receive fire safety training. Fire drills are carried out. Fire wardens/evacuation marshals receive training in emergency evacuation/safety procedures. Visitors instructed on emergency procedures on arrival.		✓		

## Sample risk assessment form (completed)

<b>Location:</b> Any Town																
<b>Work Site/activity:</b> Room 101																
<b>Hazards identified</b> (Please note that serious hazards or conditions of imminent danger <i>must</i> be supported with documented safe systems of work, health and safety plans, etc.)	<b>Persons and/or numbers at risk</b> (indicate numbers or tick where numbers vary)				<b>Severity of harm</b>			<b>Likelihood of harm</b>				<b>Current control measures</b>	<b>Risk rating</b>			
	Employees	Contractors	Visitors	Others (specify)	Extreme harm	Moderate harm	Slight harm	Very likely	Likely	Unlikely	Very unlikely		Very high	High	Low	Very low
Slips and trips	✓	✓				✓					✓	Floor surfaces kept dry and spillages cleaned up as they arise. Damaged carpet and other surfaces replaced or made safe. Cables and leads kept out of way of walking routes or protected with cable covers. Office housekeeping procedures apply.				✓
NOTES: Others affected by the risk of fire, in addition to employees, contractors and visitors, are neighbours.																

Assessor name(s): A.N. Other

Date: 10/11/2004

Latest review date:

## Sample risk assessment form completed after implementation of revised control measures

<b>Location:</b> Any Town				<b>Date:</b> 01/01/2005												
<b>Work Site/activity:</b> Room 101				<b>Reference:</b> AB 1												
<b>Hazards identified</b> (Please note that serious hazards or conditions of imminent danger <i>must</i> be supported with documented safe systems of work, health and safety plans, etc.)	<b>Persons and/or numbers at risk</b> (indicate numbers or tick where numbers vary)			<b>Severity of harm</b>			<b>Revised control measures</b> (implemented in addition to current control measures)	<b>Revised likelihood of harm</b>				<b>Revised risk rating</b>				
	<b>Employees</b>	<b>Contractors</b>	<b>Visitors</b>	<b>Others (specify)</b>	<b>Extreme harm</b>	<b>Moderate harm</b>		<b>Slight harm</b>	<b>Very likely</b>	<b>Likely</b>	<b>Unlikely</b>	<b>Very unlikely</b>	<b>Very high</b>	<b>High</b>	<b>Low</b>	<b>Very low</b>
Electricity: electric shock, burns	✓	✓			✓			New electrical equipment included on the location inventory and allocated an inspection date. Routine visual inspection of electrical equipment and service supplies initiated.				✓			✓	
Fire: burns, asphyxiation	✓	✓	✓	✓	✓			Fire alarms fitted. Changes to layouts and/or building fabric made after review of fire risk assessment.				✓				✓
Slips and trips	✓	✓				✓		Maintain through regular housekeeping management.				✓				✓
Assessor (print name):							Approved by (print name):									

## Sample risk assessment action plan (completed)

<b>Activity/situation hazard</b>	<b>Action required</b> (Note – consider health surveillance requirements, additional engineering controls, personal protective equipment, staff training).	<b>Action date</b>	<b>Action by (name)</b>	<b>Completed by (name)</b>
Electricity	Staff instructed to visually inspect electrical equipment and leads, prior to use, for signs of damage, wear and tear.	1/12/04	Section supervisors	Ongoing
Slips, trips and falls	Clean-up notices posted adjacent to drink dispensing machines.	1/12/04	Canteen supervisor	1/12/04
Name of assessor (print name):		Assessor's signature:		
Approved by (print name):		Approver's signature:		
Date of assessment:		Assessment review due (date):		

## Documenting a risk assessment

The way risk assessments are recorded is entirely a matter of choice for the organization. There is a need to identify the site, work area, activity, hazard, those at risk, worst case scenario with respect to harm and the likelihood of harm occurring with the calculated risk rating.

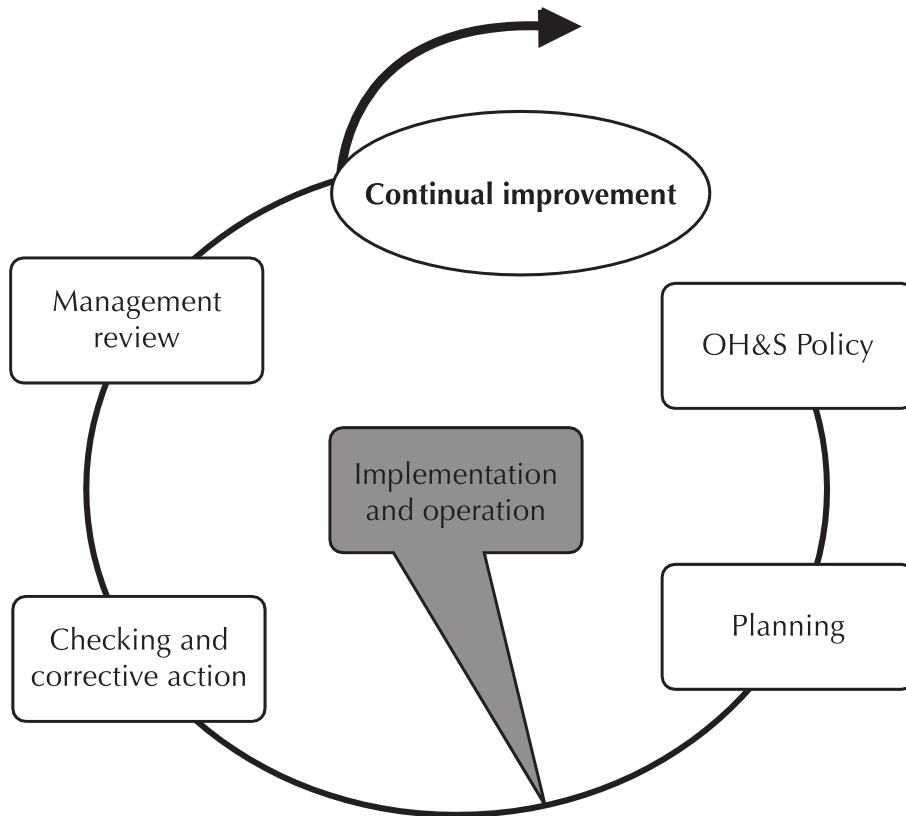
The control measures also need to be identified. The names of those who carried out the assessment should be recorded, preferably along with a date and signature, together with a recommended review date (per risk, if necessary).

A simple example of a blank form is given on the next page. This is followed by a completed version and a further example of a completed form after revised control measures have been implemented, together with an action plan pro-forma.



# 7

## Implementing and operating



## In brief

It's time to start making arrangements for a working system. Having identified in the planning phase what needs to be put in place, all the key areas that must be addressed to make this happen must now be identified.

## Key elements – Implementing and operating

For the successful implementation and operation of an OH&S management system, BS OHSAS 18001 identifies seven key areas that need to be addressed.

### **1. Resources, roles, responsibility, accountability and authority**

Top management shall take ultimate responsibility for OH&S and the OH&S management system.

Top management shall demonstrate its commitment by:

- a) ensuring the availability of resources essential to establish, implement, maintain and improve the OH&S management system;

... Resources include human resources and specialized skills, organizational infrastructure, technology and financial resources.

- b) defining roles, allocating responsibilities and accountabilities, and delegating authorities, to facilitate effective OH&S management; roles, responsibilities, accountabilities, and authorities shall be documented and communicated.

The organization shall appoint a member(s) of top management with specific responsibility for OH&S, irrespective of other responsibilities, and with defined roles and authority for:

- a) ensuring that the OH&S management system is established, implemented and maintained ...;
- b) ensuring that reports on the performance of the OH&S management system are presented to top management for review and used as a basis for improvement of the OH&S management system.

... The top management appointee (e.g. in a large organization, a Board or executive committee member) may delegate some of their duties to a subordinate management representative(s) while still retaining accountability.

The identity of the top management appointee shall be made available to all persons working under the control of the organization.

All those with management responsibility shall demonstrate their commitment to the continual improvement of OH&S performance.

The organization shall ensure that persons in the workplace take responsibility for aspects of OH&S over which they have control, including adherence to the organization's applicable OH&S requirements (4.4.1).

The most effective OH&S systems are those in which top management shows its commitment and strives for continual improvement by:

- appointing a member of top management with particular responsibility for ensuring that the OH&S management system is properly developed, implemented and supported and performs to requirements in all locations and spheres of operation within the organization;
- providing and maintaining adequate resources essential to the implementation, control and improvement of the OH&S management system and ensuring the competence of those appointed to undertake such tasks;
- directly involving itself in continual improvement measures by 'leading by example';
- developing the management system in line with business development.

## 2. Training, awareness and competence

OH&S should form a part of all training and awareness requirements for the organization. This should begin at the point of employment by ensuring that staff have the literacy skills and other specific abilities required to carry out a role, e.g. forklift driving, within the required health and safety parameters. These should be confirmed prior to appointment and maintained through refresher training and other competence maintenance and delivery processes.

BS OHSAS 18001 states that:

The organization shall ensure that any person(s) under its control performing tasks that can impact on OH&S is (are) competent on the basis of appropriate education, training or experience, and shall retain associated records.

The organization shall identify training needs associated with its OH&S risks and its OH&S management system. It shall provide training or take other action to meet these needs, evaluate the effectiveness of the training or action taken, and retain associated records.

The organization shall establish, implement and maintain a procedure(s) to make persons working under its control aware of:

- a) the OH&S consequences, actual or potential, of their work activities, their behaviour, and the OH&S benefits of improved personal performance;
- b) their roles and responsibilities and importance in achieving conformity to the OH&S policy and procedures and to the requirements of the OH&S management system, including emergency preparedness and response requirements ...;
- c) the potential consequences of departure from specified procedures.

Training procedures shall take into account differing levels of:

- a) responsibility, ability, language skills and literacy; and
- b) risk (4.4.2)

In practice this means:

- a) employees should have the necessary skills and authority to carry out all their responsibilities in the execution of their duties and be aware of the importance of OH&S in their work delivery;
- b) employees should understand the impact that non-compliance will have, along with the added values of compliance;
- c) adequate resources should be allocated, taking account of the risks and size of the organization;
- d) the skills and competencies needed for the tasks should be identified and any gaps between these and the existing skill profiles should be rectified.

### **3. Communication, participation and consultation**

BS OHSAS 18001 states:

#### **Communication**

With regard to its OH&S hazards and OH&S management system, the organization shall establish, implement and maintain a procedure(s) for:

- a) internal communication among the various levels and functions of the organization;
- b) communication with contractors and other visitors to the workplace;
- c) receiving, documenting and responding to relevant communications from external interested parties. (4.4.3.1)

#### **Participation and consultation**

The organization shall establish, implement and maintain a procedure(s) for:

- a) the participation of workers by their:
  - appropriate involvement in hazard identification, risk assessments and determination of controls;

- appropriate involvement in incident investigation;
- involvement in the development and review of OH&S policies and objectives;
- consultation where there are any changes that affect their OH&S;
- representation on OH&S matters.

Workers shall be informed about their participation arrangements, including who is their representative(s) on OH&S matters

- b) consultation with contractors where there are changes that affect their OH&S.

The organization shall ensure that, when appropriate, relevant external interested parties are consulted about pertinent OH&S matters.

(4.4.3.2)

It is insufficient merely to instruct or advise on what the organization is striving to achieve. Employees are a very valuable asset. They bring experience to the workplace and often have knowledge of situations which are unknown to their direct supervisors. It is therefore advantageous to involve them in the process of implementing and operating and this should be done from the start. If they own the system, they are more likely to make it work.

#### **4. Documentation**

Documents are a fundamental part of an organization's existence.

BS OHSAS 18001: states:

The OH&S management system documentation shall include:

- a) the OH&S policy and objectives;
- b) description of the scope of the OH&S management system;
- c) description of the main elements of the OH&S management system and their interaction, and reference to related documents;

- d) documents, including records, required by this OHSAS Standard, and
- e) documents, including records, determined by the organization to be necessary to ensure the effective planning, operation and control of processes that relate to the management of its OH&S risks.

... It is important that documentation is proportional to the level of complexity, hazards and risks concerned and is kept to the minimum required for effectiveness and efficiency. (4.4.4)

Today it is common to keep documents in electronic format. As with paper-based documentation, however, the aim should always be to ensure that it supports the OH&S system and is not driving it.

## **5. Control of documents**

BS OHSAS 18001, states:

Documents required by the OH&S management system and by this OHSAS Standard shall be controlled ...

The organization shall establish, implement and maintain a procedure(s) to

- a) approve documents for adequacy prior to issue;
- b) review and update as necessary and re-approve documents;
- c) ensure that changes and the current revision status of documents are identified;
- d) ensure that relevant versions of applicable documents are available at points of use;
- e) ensure that documents remain legible and readily identifiable;
- f) ensure that documents of external origin determined by the organization to be necessary for the planning and operation of the OH&S management system are identified and their distribution controlled, and



- g) prevent the unintended use of obsolete documents and apply suitable identification to them if they are retained for any purpose.
- (4.4.5)

Records are a special type of document and control over them is dealt with in Chapter 8.

The emphasis should be to ensure that the end-user has access to relevant risk assessment documents and is able to understand their content. This demands a certain level of personal literacy and may even require translation into other languages (e.g. foreign languages, Braille, provisions for those with learning difficulties). When translation is necessary, it is essential to ensure that the translated document fully interprets the original. In some cases, the most effective way is to use pictograms or, where there are many different languages involved, step-by-step diagrams showing how, physically, to carry out certain activities.

The storage of information in electronic form should be reviewed periodically in terms of its permanence and accessibility. Some media such as CDs do not last for ever and changes in software can mean that information becomes inaccessible in the longer term.

## **6. Operational control**

It is essential to implement effective controls to meet any specified requirements for safe operation. BS OHSAS 18001 states:

The organization shall determine those operations and activities that are associated with the identified hazard(s) where the implementation of controls is necessary to manage the OH&S risk(s). This shall include the management of change ...

For those operations and activities, the organization shall implement and maintain:

- a) operational controls, as applicable to the organization and its activities; the organization shall integrate those operational controls into its overall OH&S management system;
- b) controls related to purchased goods, equipment and services;

- c) controls related to contractors and other visitors to the workplace;
- d) documented procedures, to cover situations where their absence could lead to deviations from the OH&S policy and the objectives;
- e) stipulated operating criteria where their absence could lead to deviations from the OH&S policy and objective. (4.4.6)

## **7. Emergency preparedness and response**

Most organizations have some degree of emergency planning in place. This is normally based around the evacuation process but needs to be extended to other areas to ensure that any break in the organization's delivery process causes as little disruption as necessary. BS OHSAS 18001 states:

The organization shall establish, implement and maintain a procedure(s):

- a) to identify the potential for emergency situations;
- b) to respond to such emergency situations.

The organization shall respond to actual emergency situations and prevent or mitigate associated adverse OH&S consequences.

In planning its emergency response the organization shall take account of the needs of relevant interested parties, e.g. emergency services and neighbours.

The organization shall also periodically test its procedure(s) to respond to emergency situations, where practicable, involving relevant interested parties as appropriate.

The organization shall periodically review and, where necessary, revise its emergency preparedness and response procedure(s), in particular, after periodical testing and after the occurrence of emergency situations. (4.4.7)

Foreseeable emergencies should be identified in the risk assessment process. Contingency plans should include the evacuation of staff and visitors,

procedures to interface with the emergency services, and consideration of the provision of start-up arrangements following a major incident. This area is often not adequately addressed in a quality system based on BS EN ISO 9001.

It is important to be able to restart quickly after an emergency as soon as it is safe to do so. There is a standard on business continuity that can help in determining the issues that should be addressed in order to mitigate potential and actual emergencies (BS 25999-2:2007).

The following checklist identifies the key areas in implementing and operating an OH&S management system. A tick box is provided for identifying those procedures that are already in place (1) and those that may need to be introduced (2).

### **CHECKLIST: Implementing and operating in the organization**

<b>1</b>	<b>2</b>	
<input type="checkbox"/>	<input type="checkbox"/>	A member of top management is allocated full responsibility for OH&S throughout the organization and supported by the board.
<input type="checkbox"/>	<input type="checkbox"/>	There is clear responsibility in the management structure.
<input type="checkbox"/>	<input type="checkbox"/>	There is clear accountability in the management structure.
<input type="checkbox"/>	<input type="checkbox"/>	Senior management endeavours to ensure that there is a positive culture towards OH&S.
<input type="checkbox"/>	<input type="checkbox"/>	There is clear delegation of authority in the management structure.
<input type="checkbox"/>	<input type="checkbox"/>	All necessary resources are identified and allocated.
<input type="checkbox"/>	<input type="checkbox"/>	All staff are aware of their individual responsibilities.
<input type="checkbox"/>	<input type="checkbox"/>	All staff are aware of their responsibility to others who may be affected by the activities they control.
<input type="checkbox"/>	<input type="checkbox"/>	All staff are aware of the consequences of their action or inaction.
<input type="checkbox"/>	<input type="checkbox"/>	A training, awareness and competence assessment programme is in place.
<input type="checkbox"/>	<input type="checkbox"/>	A retraining and refresher training programme is in place.
<input type="checkbox"/>	<input type="checkbox"/>	A system for effective, open communication of OH&S information is in place.
<input type="checkbox"/>	<input type="checkbox"/>	Specialist (in-house or external) advice/services are made available, where appropriate.
<input type="checkbox"/>	<input type="checkbox"/>	Employees are fully involved and consulted.
<input type="checkbox"/>	<input type="checkbox"/>	An adequate documentation system is in place.
<input type="checkbox"/>	<input type="checkbox"/>	A system is in place for ensuring documents are kept up to date and relevant.
<input type="checkbox"/>	<input type="checkbox"/>	Contingency plans are in place for emergencies, including arrangements for evacuating the site, liaison with the emergency services and start-up following an emergency.

## In practice – Implementing and operating

The case study given in BS 8800, Annex C (Figure C.4) covers the implementation of risk control measures. For the six case study organizations used in this book, there are points of particular reference that helped them to progress. As with previous sections, some of these points will be common to all, while others will be unique to the particular organization.



### *F&L – office*

F&L found that dedicating a key member of staff to occupational health and safety management ensured that OH&S was always on the monthly management meeting agenda. It was able to exercise immediate control over any issues that arose and ensure that risk assessments were carried out before any changes in operations were implemented.



### *UE – engineering workshop*

The wide range of activities undertaken by UE required a large number of procedures and risk assessments. By including the risk assessments with the programme for implementing working procedures and controls, UE was able to ensure that OH&S management was integrated into all its activities. Training staff in the basics of risk assessment has led to a proactive approach to OH&S management, with staff raising issues at an early stage.

UE uses chemicals in its operations and therefore devised a scheme to reduce its use of toxic chemicals and the risk of exposure by moving to lower-risk materials. The simple, routine method used to determine progress was to monitor the stores and designate 'green areas' representing low toxicity, 'yellow areas' representing medium toxicity and 'red areas' representing high toxicity. The output was measured by the space taken up by the three groups. Increases in 'green areas' and reductions in 'red areas' indicated progress in UE's plan.



## ***LCD – retail***

By establishing an emergency plan that included members of the public (at the retail end) and visitors and delivery staff (on the warehouse side), LCD could demonstrate an appropriate level of emergency preparedness. Regular reviews of the system and training of staff, including evacuation drills, ensured its operational effectiveness.



## ***B&C – construction***

Following the success of restricted employee involvement in the emergency planning arrangements, to which there was a very positive response, it was decided to launch a new initiative involving all staff in reviews of the existing safety management arrangements.

Each site championed a specific safety item on a monthly basis, e.g. handling chemicals and reducing noise, with site and area compliance charted as a league table. Maintaining a safe working environment was used to sell the organization to new customers. B&C also introduced a rigorous management regime to ensure the use of PPE, with non-compliance becoming a disciplinary matter.



## ***YYIMT.com – new technology***

As a business relying heavily on the use of display screen equipment, YYIMT identified a need to establish a daily work programme for each display screen equipment user. This ensured that time was being used effectively and also that display screen equipment users had regular breaks away from the equipment. Users also took part in group exercises during their work shift to prevent repetitive strain injury occurring.



## ***H&H – road haulage***

Following an incident at one of the sites visited by an H&H driver, the company recognized that it needed to do more than just rely on drivers behaving responsibly behind the wheel. It could not envisage all the situations a driver may face but could provide some basic training on what to do when faced with problems such as ‘road rage’, hijacking or arriving at a location where it was totally unsafe to unload. The company decided to look at past incidents and talk to the trade association it belonged to, asking for guidance and examples of best practice. A team of drivers led by a senior manager developed some guidance covering various situations. All drivers were briefed and asked for feedback on the proposed guidance. Although H&H recognized that individual drivers would still have to manage any situations they faced, at least they would have the benefit of guidance.

## **In detail – Implementing and operating**

### ***Structure and responsibility***

For effective implementation of an OH&S management system, commitment from the highest level in the organization is essential. This commitment is best demonstrated by ensuring that someone at the most senior level within the organization has the specific responsibility for ensuring that the OH&S management system is operating effectively, the arrangements are working in practice and are embedded into the daily activities of the organization.

At every level of the organization, people need to be aware of their responsibilities and to whom they are accountable. They need to recognize the influence that their action or inaction can have on the effectiveness of the OH&S management system. Moreover, the responsibility and accountability for OH&S should be reflected in the management structure. Whether this is documented or not will depend on the size, culture and structure of the organization.



## *Individual responsibilities*

To ensure commitment to OH&S throughout the organization, the following areas need to be addressed.

- a) OH&S responsibilities should be clearly defined. Where job descriptions are used it may be appropriate to include OH&S responsibilities as part of them.
- b) Personal responsibilities should be reasonable and employees should be given the authority and resources (including time) necessary to carry them out.
- c) Appropriate arrangements should exist to ensure that everyone is accountable for discharging their responsibilities.
- d) Reporting relationships should be clear and unambiguous.
- e) Where personal appraisal systems exist, OH&S performance should be included in the appraisal system.

Everyone in an organization should be aware that, under The Health and Safety at Work etc. Act 1974, 'it shall be the duty of every employee to take reasonable care of himself or any other persons who may be affected by his acts or omissions'. It is not unknown for employees to be prosecuted for their own negligence even when the only person injured is themselves.

It is important to recognize that organizations are responsible for contractors and visitors as well as any other members of the public who attend their business premises and interface with their activities and operations. The OH&S arrangements need to take these factors into account. It is not satisfactory, for example, to employ a firm to clean the premises without ensuring that it is aware of the organization's OH&S arrangements and has its own OH&S arrangements for working at those premises. What this firm does should not compromise the staff of the employing organization and vice versa.

For instance, it is not uncommon to use out-of-hours cleaning staff. In such cases it is essential that the staff are adequately briefed on what they may clean and how they have to clean certain items. They need to be aware of the



risks to themselves and the residual risks they may leave behind unwittingly, e.g. unsecured cleaning chemicals that could be used by staff of the employing organization and which might lead to an accident occurring.

When interviewing prospective contractors, it is good practice to find out their attitude to OH&S and to view their OH&S policy and general arrangements. If these can't be provided or there is difficulty in delivering them then there is a real risk that the contractor may cause problems for the employing organization as well as for its own staff. Should an accident occur the employing organization, and in addition the individual responsible for hiring the contractor, may not be able to distance themselves from a contributory responsibility. It needs to be demonstrated that everything reasonably practicable was done to ensure that the contractor was aware of the necessary precautions, procedures, etc. that were in place and that these were verified by the employing organization before allowing work to proceed.

It is also good practice to make sure that staff take responsibility for any visitors they receive, ensuring that, where necessary, they are escorted and protected and do not compromise the organization's OH&S arrangements.

## ***Defining top management responsibilities***

The responsibility of top management should include defining the organization's OH&S policy and ensuring that the OH&S management system is implemented. As part of this commitment, top management should designate a specific management appointee with defined responsibilities and authority for implementing the OH&S management system (in large or complex organizations there may be more than one designated appointee). It is preferable that the appointee has some OH&S training and awareness. For board appointees this can be addressed with strategic awareness training covering OH&S and their responsibilities under the Corporate Manslaughter and Corporate Homicide Act 2007.

## ***Defining management appointee responsibilities***

Other personnel who have delegated responsibilities for monitoring the overall operation of the OH&S function may support the top management appointee. The management appointee should, however, be regularly informed of the performance of the system and should retain active involvement in periodic reviews and the setting of OH&S objectives. Any other duties or functions assigned to the support personnel should not conflict with the fulfilment of their OH&S responsibilities.

## ***Defining line management responsibilities***

Line managers' responsibilities should include ensuring that OH&S is managed within their area of operations. Where prime responsibility for OH&S matters rests with line management, the role and responsibilities of any specialist OH&S function within the organization or brought into it should be appropriately defined to avoid ambiguity with respect to responsibilities and authorities. This should include arrangements to resolve any conflict between OH&S issues and productivity considerations by escalation to a higher level of management for direction.

## ***Documentation of roles and responsibilities***

OH&S responsibilities and authorities should be documented in a form appropriate to the organization. This can take one or more of the following forms, or an alternative of the organization's choosing:

- OH&S management system manuals;
- working procedures and task descriptions;
- job descriptions;
- induction training packages.

These should be regularly reviewed to ensure that they meet the organization's needs and are revised to meet new developments and changes in the business, legislation or best practice.

## ***Training, awareness and competence***

To ensure an effective OH&S system, it is essential that everyone is competent to take on the duties assigned to them. It is sometimes forgotten that training is as important for those at the highest level in the organization as it is for those at the operational level. Arrangements need to be made for:

- a) carrying out a structured training needs analysis, systematically identifying the competencies required by each member of staff (including senior managers) and the training needed to bridge any gap in knowledge and skills;
- b) providing any training in a timely and systematic manner;
- c) assessing individuals to ensure that they have acquired and are maintaining the necessary knowledge and skills;
- d) maintaining appropriate training/skills records;
- e) retraining staff as new technologies evolve.

It is important that there are measures in place to ensure that the training is understood and is effective. BS 8800, Annex B.4 provides more information on the specific elements that need to be included in any training programme.

It should be remembered that those not directly involved in core activities also need to be trained. A classic example is those involved in design and development, who need to ensure that the output of their work does not compromise the occupational health and safety of others. If OH&S is not considered at the development stage there can be costly and time-consuming delays later on in the manufacture and operation stages and in maintaining plant and equipment, potentially resulting in client/customer dissatisfaction.

It is easy to forget contractors, temporary workers, trainees and visitors. They all need to be included in any relevant training programme according

to the level of risk to which they may be exposed or could themselves cause. Again, it is important to establish the competencies needed for the task. Organizations can put themselves seriously at risk if they do not ensure that they have strived to establish that the contractors they hire are competent for the task they are engaged for.

One way of assessing external competence is through a pre-qualification procedure. This can determine what the organization wants to see demonstrated by its contractors and provides a mechanism for verifying that they have it in place.

## ***Employee involvement and consultation***

The commitment of employees throughout the organization to OH&S is essential. They are a valuable asset and source of information in identifying hazards and assessing risk and their cooperation is essential in effectively implementing control measures.

It is not uncommon to find individuals who are well placed to make an important contribution to all aspects of OH&S because, for example, of their training as a safety representative or their past experience. Employees should be encouraged to report shortcomings in the OH&S arrangements and be involved, where appropriate, in the development of OH&S procedures.

There are a number of ways of involving staff and consulting them on OH&S issues. One very effective method is to set up an OH&S committee to act as a vehicle for active participation. Some organizations have found that this can be successfully integrated with other committees dealing with quality, production and environmental issues, thus reducing the possibility of one solution causing problems elsewhere. It is all too easy to resolve a production problem thereby creating a new OH&S problem and vice versa. All too often, the comment is made after the event that 'I could have told you that would have happened but nobody wanted to listen to me'. Actively encouraging employees to share their views and experience avoids this problem and contributes to ensuring compliance.

## ***Communication***

Effective communication is a key factor in ensuring delivery of a successful OH&S management system. Arrangements need to be made for:

- a) identifying and receiving relevant OH&S information from outside the organization, e.g. changes in legislation, information on new developments and clients' requirements;
- b) ensuring that any pertinent OH&S information is communicated to those within the organization who need to know;
- c) ensuring that relevant information, e.g. design risks, is communicated to people outside the organization who require it;
- d) encouraging feedback and suggestions from staff on OH&S matters – information should be escalated up the organizational chain of command and also across the organization and specific directions should be given to employees and other persons affected;
- e) ensuring that lessons learnt from incidents, near misses and accidents are communicated and acted upon;
- f) ensuring that management makes it clear that it wants to hear bad news as well as good news – this feedback is essential if it is to take positive action quickly.

## ***Specialist advice and services***

Employers are required, with limited exceptions, to appoint one or more competent persons from within or outside the organization to help in applying the provisions of OH&S legislation.

This may be achieved by various means, including training staff from within the organization, engaging trained professionals as in-house employees, e.g. a health and safety officer, or by using the services of competent external consultants to assist with OH&S compliance. Whatever route is chosen, it is essential that adequate information, time, resources and co-operation are available to any specialist adviser. Remember, however, that the employment of

an OH&S adviser does not relieve the management of the organization of their legal responsibilities.

## ***OH&S management system documentation***

There is always going to be a need for retaining and managing some documentation (hard copy or computer-based) in the OH&S management system. This should reflect the particular needs of the organization and should support the OH&S management system, not drive it. The required documentation should be readily available, simple and understandable and should be maintained.

Organizations with five or more employees are required to have a written statement of OH&S policy and a record of the significant findings of any risk assessment. There is, however, little point in producing a large manual if it is not going to be understood and used by those who have to refer to it. The aim should be only to document what is required, ensuring it is focused on the needs of the user. Consulting those directly involved can be helpful in formulating the structure and wording of any documentation.

## ***Document control***

All documentation, records and procedures should be kept up to date and readily accessible to those who are required to use the information. Arrangements need to be made for:

- a) keeping accessible records of essential documentation and ensuring backup of electronic versions in the event of IT system failure;
- b) assigning responsibility for keeping documents up to date;
- c) ensuring that up-to-date information is readily available and communicated to the users;
- d) ensuring that information is understandable (bearing in mind the literacy, capability of understanding and mother tongue of the intended users);
- e) providing archive arrangements and for managing obsolete documents.



## ***Operational control***

To ensure effective operational control, two issues need to be addressed: responsibility (as discussed previously) and integration.

OH&S activity, in its broadest sense, needs to be fully embraced both within and between functions in order to encourage close co-operation and collaboration between all parts of the organization.

All too often, accidents occur because there is a lack of clarity as to who is responsible when areas interface closely with each other. For example, a series of small business units within the same organization may share premises and have their own effective OH&S arrangements for their own workshop, office, etc. but fail to implement any arrangements for a shared delivery yard or the reception area. Often, the OH&S arrangements for 'support' activities, e.g. maintenance staff, cleaners, etc. are inadequate or overlooked.

Encouraging co-operation can be achieved in a number of ways, including:

- a) OH&S project teams/task groups comprising representatives from and working with different parts of the organization;
- b) managers, OH&S specialists, safety representatives and safety committees addressing problems common to different parts of the organization;
- c) co-ordinating OH&S audits and reviews to examine findings and investigate recommendations and remedial actions in an effective manner;
- d) inspections, safety surveys and safety tours – these should be focused on those areas where there is a known risk, e.g. housekeeping, ladder inspections, etc. – which shows commitment and ensures that all staff recognize the importance attached to such issues.

## ***Emergency preparedness and response***

Contingency plans need to be established to mitigate the effects of any emergency that might affect the organization. It is increasingly recognized that it is essential organizations manage emergencies rather than hope they don't happen. Even very small organizations need to identify the risks of an



emergency occurring and understand how they will address it. Equally, all organizations, large and small, want any emergency to interfere with their business delivery systems as little as possible and, in the event of a break in production occurring, be able to recover as quickly as possible. Nowadays it may be important to make provision for employees travelling abroad as they may be subject to local illness and sickness, terrorist activity or kidnap – these scenarios were hardly regarded as a major issue a few years ago but are worthy of consideration in the current climate of globalization.

As well as assessing the risks posed by their own operations and practices, organizations need to be aware of hazards posed by neighbours that may affect their own site. It is important to remember that emergency planning should go beyond evacuation and dealing with the incident. Organizations need to return to normal working as soon as possible so they need to put in place plans for minimizing disruption following an emergency evacuation. Areas to be considered include:

- a) recovery of software for information technology systems, ensuring secure storage, containment;
- b) safe recovery of undamaged plant and equipment from the original site;
- c) maintaining the OH&S management system at temporary sites;
- d) reviewing the operation of the OH&S management system in the light of the emergency to identify and remedy any areas of failure so as to prevent a reoccurrence;
- e) contingency OH&S plans for contingency arrangements.

The following checklist sets out arrangements that should be considered in a contingency plan for emergencies. A tick box is provided for identifying those that are already covered (1) and those that should be considered (2).

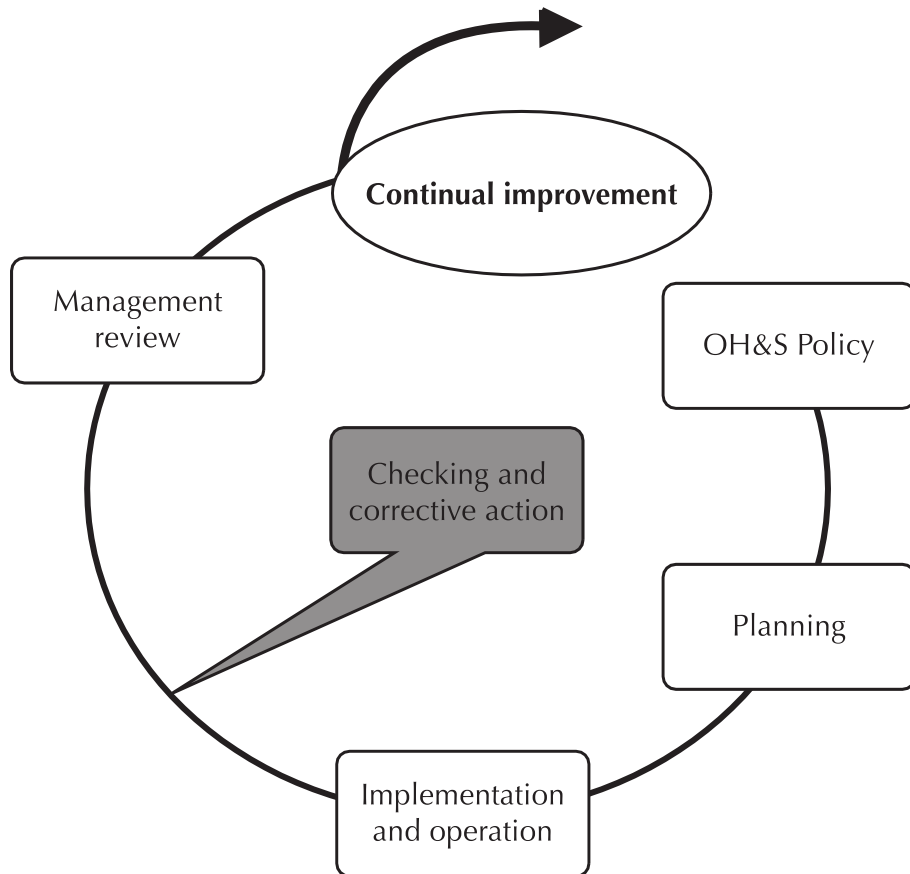
### **CHECKLIST: Contingency planning for emergencies**

1	2	
<input type="checkbox"/>	<input type="checkbox"/>	Identify all potential emergencies that could reasonably be predicted to occur on the site (remembering the activities of neighbours and vandals) or to employees working off-site;

- Train staff to deal with off-site emergencies;
- Evacuate staff and visitors, alert neighbours;
- Alert the emergency services;
- Appoint a senior person to co-ordinate and liaise with the emergency services and staff during evacuations and to activate appropriate contingency plans;
- Ensure that procedures, equipment, etc. are in place for dealing with emergencies;
- Notify the emergency services of any risks they face on the organization's premises, e.g. chemical storage, gas shut-off valves, etc.;
- Train staff for evacuations and organized assembly;
- Ensure that there is contingency planning for re-mobilization after the emergency, including OH&S management and other essential interface management arrangements, e.g. environmental management requirements.

# 8

## Checking



## In brief

‘What you can’t measure, you can’t manage’ – it’s time to put in place procedures to measure and monitor the OH&S system, enabling the organization to put right any deficiencies and to identify opportunities for improvement.

## Key elements – Checking

It is essential that systems are put in place to show that the OH&S management system is working and delivering the performance that the organization is committed to achieve. The old adage that ‘what you can’t measure, you can’t manage’ very much applies. The organization needs to plan for measuring, checking and correcting any deficiencies.

To ensure an effective checking and correcting stage in an OH&S management system, BS OHSAS 18001 identifies five areas that need to be addressed.

### 1. Performance measurement and monitoring

... establish, implement and maintain a procedure(s) to monitor and measure OH&S performance on a regular basis. This procedure(s) shall provide for:

- a) both qualitative and quantitative measures, appropriate to the needs of the organization;
- b) monitoring of the extent to which the organization’s OH&S objectives are met;
- c) monitoring the effectiveness of controls (for health as well as for safety);
- d) proactive measures of performance that monitor conformance with the OH&S programme(s), controls and operational criteria;
- e) reactive measures of performance to monitor ill health, incidents (including accidents, near-misses, etc.) and other historical evidence of deficient OH&S performance;

- f) recording of data and results of monitoring and measurement sufficient to facilitate subsequent corrective action and preventive action analysis.

If equipment is required to monitor or measure performance, the organization shall establish and maintain procedures for the calibration and maintenance of such equipment, as appropriate. Records of calibration and maintenance activities and results shall be retained. (4.5.1)

This text is fairly explicit and requires little addition. It should be noted, though, that although qualitative measures are subjective, they can play an important role in measuring performance.

## **2. Evaluation of compliance**

Consistent with its commitment to compliance ... establish, implement and maintain a procedure(s) for periodically evaluating compliance with applicable legal requirements.

... keep records of the results of the periodic evaluations.

NOTE The frequency of periodic evaluations may vary for differing legal requirements.

... evaluate compliance with other requirements to which it subscribes. The organization may wish to combine this evaluation with the evaluation of legal compliance ... or to establish a separate procedure(s).

... keep records of the results of the periodic evaluations.

NOTE The frequency of periodic evaluation may vary for differing other requirements to which the organization subscribes. (4.5.2)

This is a new requirement in BS OHSAS 18001. The intent is that organizations need to keep under review their continuing compliance. It supports the commitment made in the policy statement and the procedures established to ensure compliance.

There are no fixed rules. Periodic reviews can be initiated by several different drivers: changes to legislation, new legislation, business changes, new best practice, an adverse event report or when set by the organization against a key performance indicator. Review periods can also be set according to the activity or business risk. The greater the risk, the more frequent reviews may be required.

### **3. Incident investigation, nonconformity, corrective action and preventive action**

#### **Incident investigation**

... establish, implement and maintain a procedure(s) to record, investigate and analyse incidents in order to:

- a) determine underlying OH&S deficiencies and other factors that might be causing or contributing to the occurrence of incidents;
- b) identify the need for corrective action;
- c) identify opportunities for preventive action;
- d) identify opportunities for continual improvement;
- e) communicate the results of such investigations.

The investigations shall be performed in a timely manner.

... The results of incident investigations shall be documented and maintained.

#### **Nonconformity, corrective action and preventive action**

... establish, implement and maintain a procedure(s) for dealing with actual and potential nonconformity(ies) and for taking corrective action and preventive action. The procedure(s) shall define requirements for:

- a) identifying and correcting nonconformity(ies) and taking action(s) to mitigate their OH&S consequences;

- b) investigating nonconformity(ies), determining their cause(s) and taking actions in order to avoid their recurrence;
- c) evaluating the need for action(s) to prevent nonconformity(ies) and implementing appropriate actions designed to avoid their occurrence;
- d) recording and communicating the results of corrective action(s) and preventive action(s) taken; and
- e) reviewing the effectiveness of corrective action(s) and preventive action(s) taken.

Where the corrective action and preventive action identifies new or changed hazards or the need for new or changed controls, the procedure shall require that the proposed actions shall be taken through a risk assessment prior to implementation.

Any corrective action or preventive action taken to eliminate the causes of actual and potential nonconformity(ies) shall be appropriate to the magnitude of problems and commensurate with the OH&S risk(s) encountered.

The organization shall ensure that any necessary changes arising from corrective action and preventive action are made to the OH&S management system documentation. (4.5.3)

The aim should be to find out the fundamental reasons behind any deficiencies before deciding on what action is necessary (see section entitled 'hazardous incident investigation' on pages 171–173, which is based on the approach given in BS 8800). Reactive, short-term solutions, although expedient, may not address the root cause and can result in further difficulties in the longer term. The recommended methodology is well known and can be related to the model for a successful health and safety management system as shown in the diagram in the Foreword of this book.

Regulations can also require that certain records be retained for a stipulated period, e.g. enforcement bodies may want to review inspection records for local exhaust ventilation equipment and UK statutory provision places responsibility on employers to retain the results of health surveillance for 40 years.



## 4. Records and records management

... establish and maintain records as necessary to demonstrate conformity to the requirements of its OH&S management system and of this OHSAS Standard, and the results achieved.

... establish, implement and maintain a procedure(s) for the identification, storage, protection, retrieval, retention and disposal of records.

Records shall be and remain legible, identifiable and traceable.

(4.5.4)

Implementing a document control system enables an organization to demonstrate how information is cascaded and managed throughout the business. It should be designed in such a way that it is simple and information is easily recovered.

It is essential to recognize that there may be a need to keep records for the working life of employees. Many occupational health complaints are latent and the effects of a short-term exposure to a hazardous substance may develop over a long period of time. Retaining records for the working life of employees may be necessary to comply with a statutory requirement, for example the retention of personal health surveillance records for at least 40 years, or to meet the organization's own personnel management policy.

## 5. Internal audit

This is covered separately in Chapter 9.

The following checklist sets out the key issues (other than auditing) for checking and correcting the OH&S management system. A tick box is provided for identifying those arrangements that are already in place (1) and those that need to be introduced (2).

### CHECKLIST: Checking and correcting in the organization

1	2	
<input type="checkbox"/>	<input type="checkbox"/>	Regular measurement of OH&S performance;
<input type="checkbox"/>	<input type="checkbox"/>	Regular inspections are carried out on equipment and working practices;

- Use of proactive measures of performance – such as training and review of risk controls;
- Use of reactive measures of performance – such as monitoring accident reports;
- Monitoring OH&S performance to ensure objectives and targets are being met;
- Where performance is not meeting criteria, identifying the root causes and taking appropriate corrective action;
- Investigating accidents and incidents and implementing any corrective and preventive actions;
- Keeping OH&S records, particularly those relating to compliance with legal and other requirements, results of audits and reviews.

## In practice – Checking and correcting

By its very nature, the output from performance monitoring is very specific to each organization and will vary with time. There are, however, some useful points of reference from the five case study organizations.



### ***F&L – office***

Office activities often do not readily lend themselves to checking and monitoring of OH&S performance. F&L overcame this by encouraging the recording and investigation of all accidents and near-miss incidents. This enabled it to identify any adverse trends in specific activities and, by reviewing individuals' work practices, it was able to take action across all activities where this was appropriate.

These arrangements revealed a number of minor injuries in the mailroom. A junior member of staff was required to log and process all the incoming mail before the partners arrived each morning. The urgency of this work and the resulting pressure placed on the member of staff was identified as the root cause of the problem. To overcome the situation, F&L arranged for earlier delivery of the mail to allow extra time for the mail room and it also arranged for assistance to be provided in the final 30 minutes before the mail was

needed. Although monitoring past events is a reactive measure, this nonetheless enabled F&L to produce a proactive response to prevent reoccurrence and contribute to safe systems of work.

## ***UE – engineering workshop***

In a manufacturing environment a strict regime of checking and monitoring OH&S performance is vital. Regular safety inspections by UE's supervisory staff were used to check that safe systems of work were being operated. Findings were reported at both management and staff level, together with proposed improvements and/or remedial actions. Implementation of improvements was always monitored and the effectiveness of controls measured. In one example the mandatory use of all machinery guards, the clear identification and accessibility of emergency stop buttons on machines and regular inspections to ensure that safeguards were not compromised, for instance, as part of a refined start-up procedure, prevented the possibility of entanglement incidents occurring on machinery.



## ***LCD – retail***

Handling deliveries and shelf stacking are a key part of LCD's activities, covering machine handling, the use of forklift trucks and manual handling by individual employees. These operations are prone to vehicle–person incidents and lifting and handling injuries. There is also the possibility of customer injuries caused by badly stacked products, overloaded display stands and the carrying of heavy 'cut loads' from the store to the car park area. By frequent assessment of the following control procedures LCD was able to implement a regime of proactive control measures:

- keeping traffic routes clear and well maintained;
- ensuring lifting aids are always available, suitable for their intended purpose and used by staff;

- reviewing stacking procedures through store layouts and staff training as well as checking and inspection of racking with load notices;
- providing a store customer help service for accessing items and transporting them to customer vehicles.

Frequent programmed inspections ensured that the process was always implemented.

## ***B&C – construction***

Construction sites have always presented one of the most difficult management environments. This arises from the wide scope of work carried out and the extensive transient workforce employed. By including OH&S as part of site managers'/supervisors' daily responsibilities for managing building activities, breaches of site safety rules and failure to use personal protective equipment (either at all or properly) were dealt with immediately. Findings were also included in daily toolbox talks to re-emphasize the OH&S message and were reviewed regularly to identify areas of repetition at other B&C sites.



## ***YYIMT.com – new technology***

YYIMT assigned team leaders with the responsibility for managing OH&S performance within their own particular sectors of the call centre, with the call centre manager acting in a co-ordinating role and addressing areas that were not covered by a team leader. Strict monitoring of workstation layout for display screen equipment was enforced, with the aim of getting employees to manage this crucial area of major risk for the organization. As part of their responsibilities at the end of each day, employees were required to leave workstations organized and set up for the next day or shift period so as to instil discipline and reinforce a safe working environment.



## ***H&H – road haulage***

H&H recognized that maintaining excellent driving skills was its major challenge. This extended to loading activities using forklift trucks, sales representatives who provided the company's commercial input and the hauliers themselves. Accidents could occur under a wide range of circumstances:

- forklift drivers overloading pallets, unbalanced loads, driving too fast, reversing without due care and attention, lack of interaction with site pedestrians and other drivers, poor internal road surfaces and blind areas, use of mobile phones while driving;
- commercial representatives working excessively long hours and travelling long distances, tight time schedules, burden of office duties, RTAs (road traffic accidents);
- hauliers working long hours, stress due to long periods spent away from the home base, RTAs, carriage of dangerous cargoes, tight delivery timescales.

To address these conditions, H&H devised and managed a strict transport policy. This covered all aspects of driving activity, from advanced driver training to addressing road rage, and the inspection and maintenance of all internal road/yard surfaces on a weekly basis.

Each week line and middle managers reviewed all vehicle accident reports together with any subsequent investigations. Reports were also provided at board level on a monthly basis.

### **In detail – Checking**

To ensure that the OH&S management system is operating as envisaged at the planning stage, it is essential to check the performance of the system on a regular basis and to correct any deficiencies that are found.

The checking and correcting stage should deal with the following key questions from the planning stage:

1. Has the *plan* been fully implemented?
2. Have the *objectives and targets* been achieved?
3. Are they still relevant?

In addition, to maintain effective control of specific risks:

4. Are risk controls continuing to be *effective*?
5. Are lessons *being learnt and acted upon* from any OH&S management system deficiencies including hazardous events (accidents, incidents)?
6. Is the information obtained used in reviewing and improving the practices and arrangements?

## ***Monitoring and measurement***

Both proactive and reactive monitoring should be used in any performance measurement system to monitor the extent to which the policy and objectives are being met. They also play complementary roles in the control of specific risks.

The control plan should include the proactive monitoring of risk controls. Proactive data, e.g. workplace and documentation inspections, should be used to monitor compliance with risk controls. It should also be used in subsequent risk assessments.

The control plan also needs to include reactive monitoring. Reactive monitoring data, e.g. accident, incident and hazardous event investigation reports, helps with:

- a) making subjective estimates of the likelihood and consequences of hazardous events;
- b) selecting appropriate risk controls;
- c) improving existing practices.

Reviewing existing performance provides a positive response. The use of proactive data as a sole indicator of performance is, however, insufficient. It is quite possible that the training of, for example, forklift truck drivers



has increased yet the number of incidents may still be on an upward trend. Evidence from both proactive and reactive monitoring (and from operational experience and local knowledge) should therefore be used to review and, if necessary, improve the controls in place (implement a safe system of work) and compliance with the OH&S management system generally.

## ***Selecting indicators***

To determine whether objectives are being met it is necessary to measure performance against them by using monitoring data as measurable performance indicators. BS 8800 specifies the use of 'leading' and 'lagging' performance indicators.

A 'leading' performance indicator is based on data about compliance or non-compliance with a specific performance requirement in the OH&S plan (such as a safe system of work) and compliance with the OH&S management system generally.

A 'lagging' performance indicator is based on data about the prevalence of hazardous events, incidents, accidents, and occupational ill health.

Accident and ill health data are vital as the final check on the effectiveness of the OH&S management system. For various reasons, however, organizations need to be cautious about their use and they should never be used as the sole measure of OH&S performance.

A combination of leading performance indicators using mainly proactive monitoring data, and lagging performance indicators using mainly reactive monitoring data should be used to assess the overall performance of the OH&S management system.

Examples are given in the following checklist of leading performance indicators and lagging performance indicators using proactive and reactive monitoring data respectively. The list is not intended to be comprehensive. A range of indicators and performance measures should be selected and developed to suit the organization's chosen objectives and information needs. A tick box is provided to help identify those that are already being used (1), those the organization may wish to consider (2) and those that do not apply (3).



## CHECKLIST: Performance measures

1	2	3	Examples of leading performance indicators
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Progress in achieving the plans, targets and objectives that have been set;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Results of attitude surveys of employee perceptions about management commitment to OH&S;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Appointment of a director with management responsibility for OH&S;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Appointment, where necessary, of OH&S specialist staff – in addition to the safety manager;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Appointment of worker safety representatives or representatives of employee safety who are able to operate effectively;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Monitoring the extent of influence of OH&S specialist staff;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Progress on reviewing and publishing an OH&S policy relevant to company activity;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Progress on communicating the OH&S policy – response and feedback;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Number of personnel trained in OH&S;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Monitoring the effectiveness of OH&S training;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Staff understanding of risk control;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Staff attitude to risks and risk controls;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Progress in completing/regularly reviewing the risk assessment programme;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Monitoring compliance with risk controls;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Monitoring compliance with statutory requirements;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Awareness of new standards and legislation that affect the business;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Monitoring the number and effectiveness of OH&S audits, tours, inspections/ surveys;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Monitoring the quality and number of staff suggestions for OH&S improvements;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Monitoring staff attitudes to risks and risk controls;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Monitoring staff understanding of risks and risk controls;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Maintaining agreed housekeeping standards;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Progress on completing and closing out OH&S audits;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Progress on implementing OH&S audit recommendations;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Monitoring the frequency and effectiveness of OH&S committee meetings;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Monitoring the frequency and effectiveness of staff OH&S briefings;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Progress on OH&S specialist reports;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Progress on implementing action on complaints and suggestions;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Results of health surveillance reports;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Results of personal exposure sampling reports, e.g. noise surveys;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Results of workplace exposure level reports, e.g. noise, dust, fumes;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Monitoring the availability and use of PPE;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Implementing engineering controls in place of PPE.

### Examples of lagging performance indicators

- Health surveillance reports;
- Absenteeism due to ill health related to work activities;
- Reported unsafe acts;
- Reported unsafe conditions;
- Reported near misses;
- Reported incidents;
- Reported damage-only incidents;
- Reportable dangerous occurrences;
- Lost-time accidents – when at least one work shift (or other time period) is lost by a person as a result of an accident or injury;
- Reportable accidents involving absence from work for more than three days;
- Accidents requiring first aid;
- Reportable major injuries;
- Minor accident reports;
- Sickness absence – employee absences due to illness (occupationally related or non-occupationally related);
- Complaints made, e.g. by members of the public;
- Criticisms made by regulatory agency staff;
- Regulatory agency enforcement action;
- Fatal accidents.

Some examples of measurement techniques are given in the following checklist. A tick box is provided to help identify those that are already in use (1), those the organization may wish to take into account (2) and those that do not apply (3).

### CHECKLIST: Examples of measurement techniques

- | 1                        | 2                        | 3                        |  |
|--------------------------|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Systematic workplace inspections using checklists;   |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Safety tours – for example on a ‘walk through’ basis;  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Inspections of specific machinery and plant to check that safety-related parts are fitted, being used and are in good condition; |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Safety sampling – examining specific aspects of OH&S;  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Environmental sampling – measuring exposure to substances or energies and comparing with recognized standards;                   |

- Behaviour sampling – assessing workers’ behaviour to identify unsafe working practices that might require correction, for example by work design improvements or through training;
- Attitude surveys of personnel at all levels;
- Analysis of documentation and records;
- Benchmarking against good OH&S practices in other organizations.

## ***Hazardous incident investigation***

BS OHSAS 18001 emphasizes the investigation of ‘incidents’, irrespective of whether or not these gave rise to ‘accidents’ involving actual injury, ill health or fatality. In practice, there is a natural concern and motivation for organizations to investigate accidents more thoroughly than incidents. However, there are often many precursory incidents (also referred to as near misses, dangerous occurrences, etc.) before accidents causing harm occur.

Identifying the root cause of incidents rather than finding someone to blame who was involved in the actual failure is very important. It is estimated that 80 per cent of accidents are caused by management failure in some way. Hence, the identification of a simple cause may not improve overall performance. Only by understanding what the management failures are within the organization can real performance be addressed in a positive manner.

There are very few occasions in which harm occurs which could not have been foreseen and therefore prevented. Similar events may have occurred within the organization before but, because either harm did not occur or there was no knowledge about the possibility of harm, preventive action was not taken. For instance, ‘Jack slipped on the floor and broke his ankle’ is a foreseeable incident, particularly if the floor is often wet and many others have slipped but have avoided injury.

For every serious accident there are, typically, 300 minor incidents. This is why it is very important to understand the root cause of incidents in which, although actual harm did not occur, the situation could have had far more serious consequences. This type of incident is often referred to as a near miss,

near hit, close call or dangerous occurrence. A brick falling from height on to someone's head is an 'accident' but the brick missing someone's head by a metre is a 'near miss'.

A very comprehensive form is supplied at the end of this chapter, which should help when investigating such events.

There are a number of factors that can be the root cause; it is rare to have just one. The factors can be broken down into three groups:

1. Personal factors – lack of or inappropriate skill, knowledge, competence, behaviour, etc.
2. Job factors – inappropriate environment, equipment, materials, work instructions, etc.
3. Management organizational factors – shortfalls in policy, resources, supervision, assessment of competency and training needs, etc.

The level of investigation should reflect the significance of the event and/or its potential for helping the learning process to improve future conditions. In order to deal with investigations successfully, an organization needs to ensure that staff are available who are either trained or experienced in the required technical and personal skills. The needs should obviously reflect the significance of the event. Equipment such as cameras, tape measures, torches and sample containers may need to be used, together with effective systems of communication, if the site being investigated is hazardous.

The plan of action contained in BS 8800 is a useful checklist of what to cover when investigating hazardous incidents:

- assess risk;
- make safe, make secure, investigate, analyse;
- produce conclusions and recommendations;
- report;
- implement improvements.

Each stage needs to be given careful consideration and the amount of time and effort devoted to the investigation should, if possible, be determined prior

to commencement. This should be proportionate to the harm or potential harm caused.

There are important issues to be addressed in such investigations. If the facts are to be established it is very important that those who are interviewed feel they are helping rather than being assessed to establish who can be blamed for the event. The aim of the investigation must be seen as trying to understand and improve rather than to allocate blame.

<b>PERSONAL DETAILS</b>			
Name (in full):		Employee number:	DoB: / /
Sex: Male [ ] Female [ ]			
Location/department:		Home address:	
Telephone number:		Postcode:	
Line manager:		Telephone number:	
Job description:			
Employment:		Employee [ ]	
Full time [ ] Part time [ ]		Self-employed [ ] contractor [ ] passer-by [ ] visitor [ ]	
<b>EVENT DETAILS</b>			
Date occurred: / /		Time occurred:	
Near-miss incident [ ]	Ill health [ ]	Minor injury [ ]	Serious injury [ ]
Major injury [ ]	Fatality [ ]	Damage only [ ]	RIDDOR reportable [ ]
Injury (including body part, side, injury type)/damage description:			
Location/address where event occurred:			

How did it happen? (Where appropriate, attach diagrams, photographs, etc.) Include a brief description of events/period leading up to it:		
Weather conditions at the time:		
Immediate action taken, including action taken to protect others:		
First aid treatment: Yes [ ] No [ ]	By whom:	
Did the adverse event require the emergency services to be summoned? Yes [ ] No [ ]		
Hospital treatment received: Yes [ ] No [ ] Details:	Where:	
Are you able to continue working: Yes [ ] No [ ]		
Own job: Yes [ ] No [ ]		
Alternative work (give details below):		
1 Name(s) of witness(es):	Location:	Tel no.:
2 Name(s) of witness(es):	Location:	Tel no.:
3 Name(s) of witness(es):	Location:	Tel no.:
Employee signature:	Print name:	
Completed by (if other than injured person):	Date completed:	
Date received by organization's safety representative:		



Signature of safety representative:					
Accident/incident status:			Minor [ ]	Major [ ]	
Accident Book Entry/Ref:	Yes [ ]	No [ ]	RIDDOR F2508 Ref:	Yes [ ]	No [ ]
Internal investigation required?			Yes [ ]	No [ ]	
<b>INVESTIGATION</b>					
Where did the event happen?					
Who was injured?					
Was there any damage?					
What was being carried out at the time of the event?					
How did the event occur?					

Was there anything unusual about the working conditions when the event occurred?
What was the injury/ill health caused?
If there was a known risk, was a risk assessment in place? (Provide a copy.)
Were there any external influences that contributed to the event taking place, e.g. materials, plant equipment, working environment etc.?
Were the persons present trained/competent to be undertaking their tasks?
Were there any unusual difficulties encountered whilst the work was being undertaken?
Was the activity under any direct supervision?

Were control measures being used as required?
Was personal protective equipment required? (Provide details.)
Was the PPE of the correct type and being used as instructed?
Are there any other factors to be recorded?
<b>ANALYSIS</b>
What are the reasons for the event occurring?

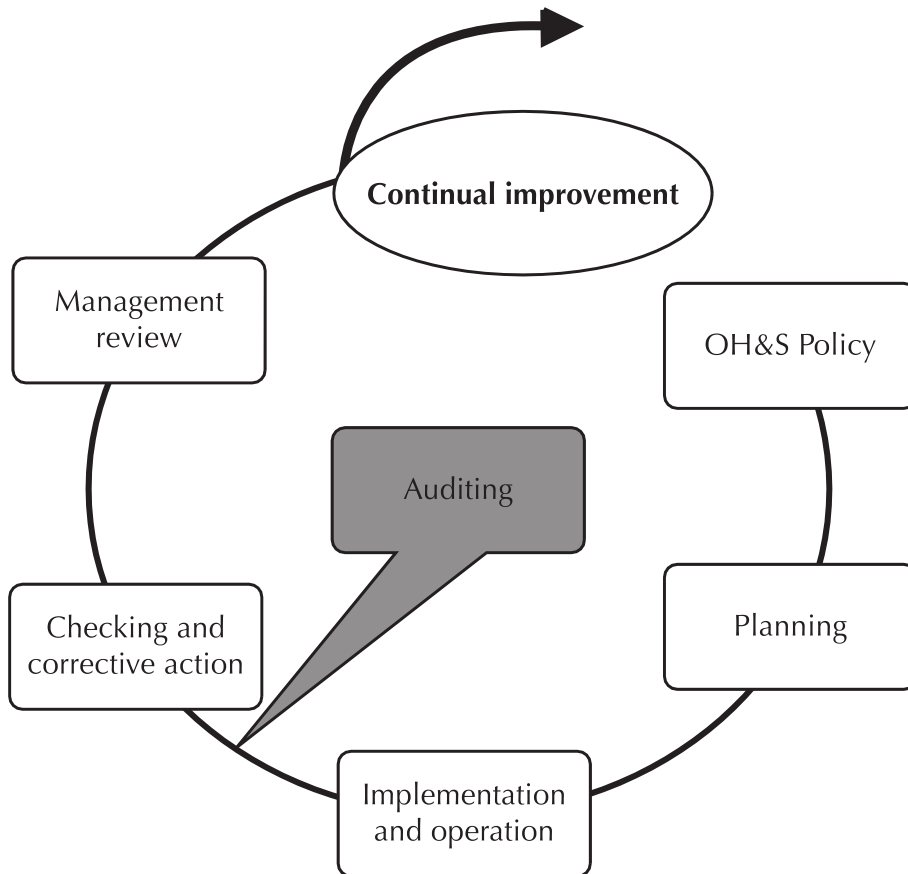
Were there any underlying root causes which led to or contributed to the event?
Has a similar/identical event occurred before? (Provide details, including action taken.)
What new control measures are recommended?
1
2
3
4

Are there similar conditions applying elsewhere which should be investigated?			
Which revised control measures should be implemented?			
<b>Control Measure</b>	<b>Completion Date</b>	<b>Person Responsible</b>	<b>Completion Confirmed</b>
1			
2			
Which risk assessments, safety plans need to be reviewed – what is required?			
<b>Action Plan Risk Assessment/Safety Plan</b>	<b>Completion Date</b>	<b>Person Responsible</b>	<b>Completion Confirmed</b>
1			
2			
Is any further investigation/action required?			

What was the cost of the event – include lost time, production, reporting and investigation involvement, remedial action costs?		
Lost time	<b>Hours</b>	<b>Value (£)</b>
Production		
Reporting time – all parties	<b>Hours</b>	<b>Value (£)</b>
Investigation time – all parties	<b>Hours</b>	<b>Value (£)</b>
Direct remedial action costs	£	
Indirect remedial action costs	£	
Other costs	£	
Details:		
Who needs to be advised of the findings and recommendations?		
<b>Person</b>	<b>Position</b>	<b>Date Completed</b>
1		
2		
3		
Is a review required?		
When?		By who?
Investigation carried out by: (state all parties)		
Signed:		

# 9

## Auditing





## In brief

Organizations need to periodically reassure themselves that the OH&S system is effective and is being followed throughout. It's time to put in place a system of independent internal audits. Auditing is a powerful proactive tool for determining whether the organization is actually carrying out in practice what it has stated it will do. Internal audits should be viewed positively, as a way of ensuring that all is working well and for determining where improvements can be made.

## Key elements – Auditing

A system for routinely monitoring OH&S performance is insufficient in itself to ensure that the OH&S management system is effective. There needs to be a procedure for auditing the system to make sure that it is being followed throughout the organization. Only in this way will it be possible to judge whether the system is adequate to meet the requirements expressed in the stated policy of the organization. If it is found that the policy and objectives are not being met then the organization cannot be sure whether it is the system or its implementation that is responsible for the shortfall unless an audit confirms that the system is, in fact, being followed.

Guidance on auditing can be found in BS EN ISO 19011:2002. Although this document is primarily aimed at auditing quality and environmental systems, the principles contained in it apply to the audit of management systems in general. Guidance is also given in *Auditing the 19011 Way* [18] and *Continual Improvement through Auditing* [19].

BS OHSAS 18001, 4.5.5 specifies:

... shall ensure that internal audits of the OH&S management system are conducted at planned intervals to:

- a) determine whether the OH&S management system:
  - 1) conforms to planned arrangements for OH&S management ...;
  - and

- 2) has been properly implemented and is maintained; and
- 3) is effective in meeting the organization's policy and objectives;
- b) provide information on the results of audits to management.

Audit programme(s) shall be planned, established, implemented and maintained by the organization, based on the results of risk assessments of the organization's activities, and the results of previous audits.

Audit procedure(s) shall be established, implemented and maintained that address:

- a) the responsibilities, competencies, and requirements for planning and conducting audits, reporting results and retaining associated records; and
- b) the determination of audit criteria, scope, frequency and methods.

Selection of auditors and conduct of audits shall ensure objectivity and the impartiality of the audit process.

To achieve this in practice requires that the operation of the system is checked in all areas and applications, by auditors who are not directly involved.

The term 'auditing' is frequently misinterpreted by those who are going to be audited, largely because of the association with financial auditing, which is quite different. It is important that the purpose of auditing is made clear to all who are going to be involved as otherwise there may be resentment at a lot of people, probably comparative strangers, asking questions about how a system is being operated. The object is not to find fault. The purpose is to help, not to criticize. If an area is found where the system is not working properly then the reason has to be established. Is the system itself at fault, making it unworkable in some way? Has the manager or operative not understood what is being asked, possibly through lack of training? The auditor is not a policeman but instead more like a coach who tries to find out what is wrong in order to put it right.

Although the main purpose of auditing is to check that the system is being followed and is effective, it is also a primary means of achieving continual improvement of the system, another essential requirement.

If the audit is to be done by employees of the organization (in most cases the best way) then they need to be selected with care and given the training they need. This will consist of training in systems auditing in general and of OH&S systems in particular. If there are experienced quality systems auditors in the organization then they may well be suitable for the task after training on the specialist OH&S aspects. An essential requirement is that those performing the audit do not themselves have direct responsibility for the function being audited, otherwise the integrity of the audit may be compromised.

All parts of the system need to be audited regularly – customarily in the course of a year – but not all parts of the system need to be audited at the same time or at the same frequency. Those areas where the risk is greatest should be audited more frequently than those where the risk is lower and the audit programme should recognize this requirement. Those organizations in which the risks are inherently high should audit their systems more frequently than the annual cycle that is appropriate to other organizations. In areas where the system has been changed, it is advisable to arrange an audit soon after the changes have been fully implemented so that any problems arising can be identified and solved.

Apart from the auditor's independence and integrity, it is important that the auditor feels they have the full support of senior management and can make their findings known to the local manager (if that has been agreed at the commencement of the audit) without being intimidated. The outcome should be confidential to the manager but given freely as a guide to where the system has weaknesses or could be improved. In the absence of such openness, auditors may feel their job is on the line if they deliver bad news. Audits are for the benefit of the organization, to help it improve, and should not be seen as the justification for a 'witch hunt'.

Ideally, the results of audits should be communicated to all relevant personnel on completion of the audit so that any necessary corrective action can be taken and improvements made. These results will be an important input to the annual management review. If the auditor finds a serious problem in the course of the audit this should immediately be raised with the appropriate manager without waiting for the formal report.

The following is a checklist of the key issues in auditing the OH&S management system. A tick box is provided for identifying those issues that are already being addressed (1) and those that need to be considered (2).

### CHECKLIST: Auditing in the organization

1	2	
<input type="checkbox"/>	<input type="checkbox"/>	Regular, periodic audits of the OH&S management system are taking place;
<input type="checkbox"/>	<input type="checkbox"/>	Staff conducting audits are competent to perform this task;
<input type="checkbox"/>	<input type="checkbox"/>	Staff conducting audits are independent from the activity being audited;
<input type="checkbox"/>	<input type="checkbox"/>	Audits verify that the organization is fulfilling its OH&S obligations;
<input type="checkbox"/>	<input type="checkbox"/>	Audits identify strengths and weaknesses in the OH&S management system;
<input type="checkbox"/>	<input type="checkbox"/>	Audits verify that the organization is achieving its OH&S performance targets;
<input type="checkbox"/>	<input type="checkbox"/>	Audit results are communicated to all relevant personnel;
<input type="checkbox"/>	<input type="checkbox"/>	Audit results are the basis for corrective action;
<input type="checkbox"/>	<input type="checkbox"/>	Audit results are monitored to ensure OH&S improvement, i.e. there are no repetitions of failures revealed by previous reports.

## In practice – Auditing

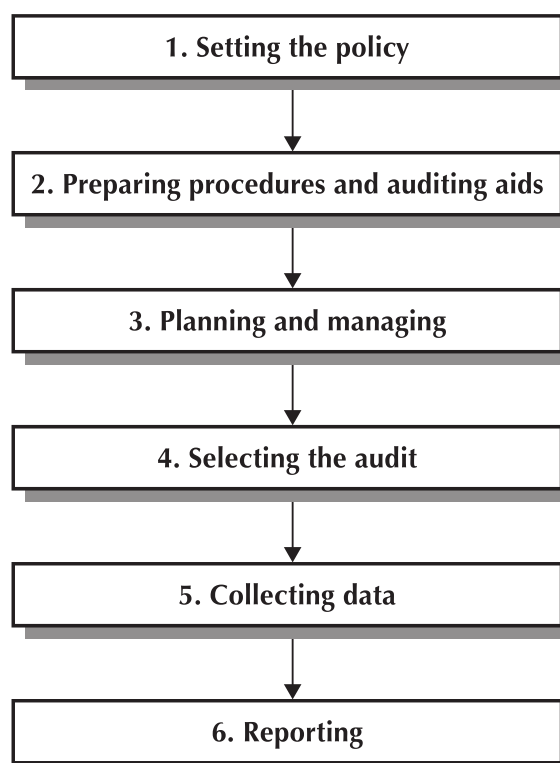
The six organizations used in our case studies all have similar requirements to audit their OH&S management systems, although the way this is done may differ from one organization to another. One may adopt a horizontal approach such as auditing the application of training programmes in the engineering workshop while another may adopt a vertical approach, such as auditing all the safety management programmes operated by the retail organization. The depth and detail of the audit should be appropriate to the organization. The low risk environment of a business such as F&L (office environment) or YYIMT (new technology-based organization) means that their audit arrangements can be simple.

In contrast, a business such as UE (engineering) or B&C (construction) has more diverse operations and activities, the risks are greater and the audit process will need to be more detailed. For LCD (retail), the audits should address the workforce–customer interface to ensure a safe environment for both groups.

H&H (road haulage) needs to pay special attention to its maintenance activities as this is perceived to be an area that poses risks to its fleet operation with respect to safety and reliability. In addition to auditing its own system, YYIMT also undertook to audit its suppliers to ensure that specific aspects were being properly managed, particularly compliance with food hygiene requirements.

## In detail – Auditing

Auditing is an essential element of the OH&S management system. All personnel must appreciate its importance and all managers must be fully committed to it, co-operating in its execution and acting reasonably and promptly on any findings and recommendations. Staff must recognize that it is not a threat but a means of seeing how the system is working and where it needs to be improved. Everyone must co-operate fully and be open and honest with the auditor. In summary, the audit must be seen as an integral part of the process of maintaining and improving the OH&S system.



*The stages in establishing an audit system*

## *Stage 1. Setting the policy*

In developing an audit policy, the issues which need to be considered include:

- a) the objectives and purpose of auditing;
- b) the standards, procedures and aids to be used;
- c) who is to undertake audits (or be part of a team) and the training needed;
- d) the arrangements for managing the audit, including budget provisions;
- e) formulating the audit programme;
- f) the format of audit reports and arrangements for responding to them;
- g) performance standards for planning and implementing the audit programme and arrangements to monitor it;
- h) arrangements for the review of the audit policy, its implementation and its revision, as necessary.

## *Stage 2. Preparing procedures and auditing aids*

Establishing a procedure for the audit will assist in ensuring that the audit is undertaken efficiently and smoothly. Although the staff being audited will recognize its importance, they may also perceive it as time-consuming and possibly intrusive. It is therefore important that the audit is well organized and focused on the issues at hand. A well-prepared audit will determine the facts quickly and give a productive output that will quickly show the benefits of the system to those involved.

Issues to consider in preparing for the audit are:

- a) the elements of the audit process, preparation, on-site work and follow-up programme;
- b) the key elements of the OH&S management system, any other topics that the audit programme will address and the criteria against which performance will be judged;
- c) a means of ensuring that the audit includes a representative sample of activities to be included;



- d) how key questions should be framed;
- e) the need for auditing aids, e.g. checklists, *aides-mémoire*, inspection procedures.

The audit system should be based on current best practice and be appropriate to the nature and complexity of the organization.

### *Stage 3. Planning and managing*

Audits cost money. Apart from the direct cost of the auditors (even if they are in-house staff who have been seconded to do the audit) all staff and managers will be involved, so there is a significant indirect cost arising from the disruption and distraction from people's normal duties. It is important therefore that there is a senior manager in charge who is responsible for planning and managing the audit and control of the agreed financial budget for the audit.

The programme and frequency of audits should be appropriate to the nature of the hazards, the degree of risk, the size of the operation, etc. As experience is gained, the records of previous audits will show where problems have arisen in the past and where the emphasis should be placed in future audit programmes. Planning should cover:

- a) preparing the programme;
- b) the scope of the audit;
- c) establishing terms of reference;
- d) establishing a timetable;
- e) selecting an appropriate audit team.

### *Stage 4. Selecting the audit team*

It is a requirement of any management system standard that all employees are competent to perform the tasks that they are expected to do. If, as is suggested, the audits are to be carried out by members of staff as a part-time occupation



separate from their principal duties then it is almost certain they will need training, both in the principles of systems auditing and in the specific disciplines to be audited, in this case occupational health and safety. Even more important is the selection of the right type of person to carry out the audits. If not presented correctly, auditing, as previously stated, can be seen as intrusive as well as disruptive. The auditor must not be seen as an inquisitor who is trying to find faults but more as a coach or mentor who is trying to see if any problems have arisen so that they can be avoided in future. If the audit is seen by everyone as being helpful and constructive it will be of much greater value to the organization.

The auditor must be able to communicate effectively with others at different levels within the organization. One way of achieving this is for each departmental manager to audit a department other than their own. This may bring added benefits to the organization as managers appreciate and understand the workings of other departments. If the organization already has staff who are experienced in auditing the quality system then they can readily be trained to cover the requirements of occupational health and safety. Staff from personnel or training departments may also be suitable for training as auditors – it is their understanding of the organization that is important rather than the specific job role they hold within the organization.

### *Stage 5. Collecting data*

There are a number of stages involved, including:

- a) carrying out structured interviews with key personnel throughout the business area to determine that robust procedures are in place and that they are understood and are being followed;
- b) examining accident and incident reports for the area;
- c) examining other relevant documentation, including policy statements, risk assessment reports, audit records, manuals, etc.;

- d) confirming the statements made by observation and examining documents;
- e) analysing and interpreting the data;
- f) maintaining records.

The auditor should always be looking not only for problems (a term preferable to 'non-compliances' as it sounds less judgmental) but should try to establish the root causes of any problem and discuss with the auditee how these can best be overcome. The audit process can be one of the main means of achieving continual improvement but this depends on the correct relationship being established and preserved between the auditor and the auditee.

If the auditor meets a situation that requires urgent attention then the departmental manager should be told immediately.

### *Stage 6. Reporting*

For each department or section audited, the auditor should prepare a written report. This should be in a standard format and should specify the processes audited, the problems found and details of the actions agreed to overcome them together with names and dates. The auditor and the person responsible for the activity should both sign the report to indicate mutual agreement on the facts of the situation and any remedial actions.

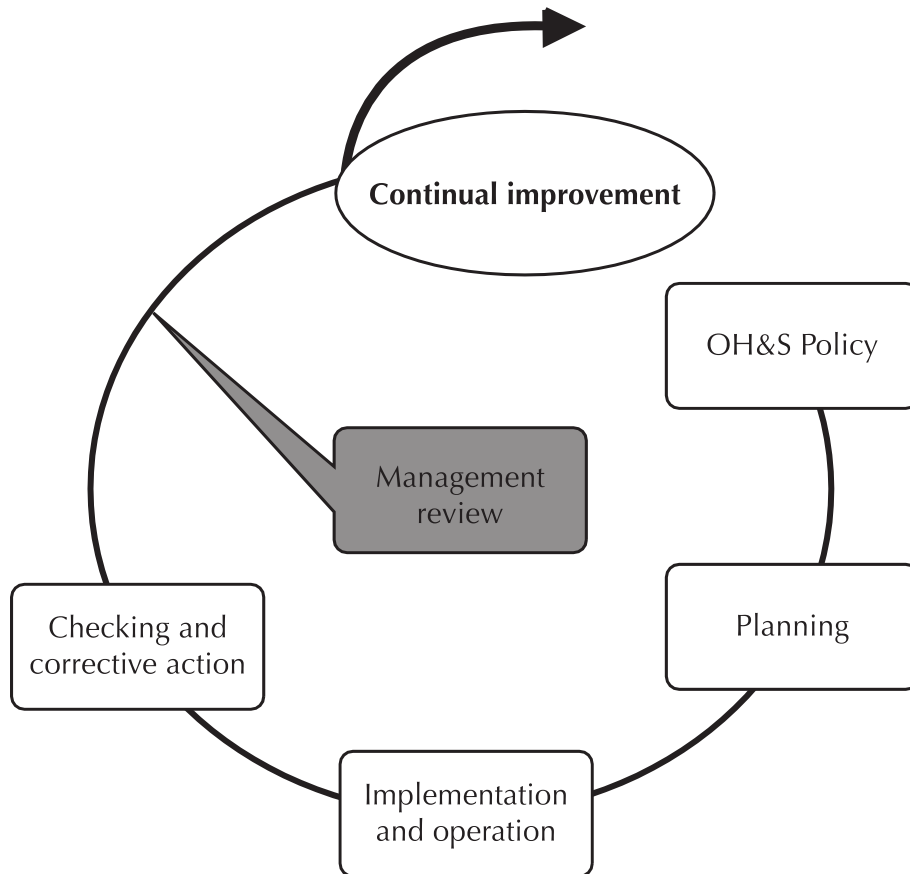
The report should then be passed to the audit manager or whoever is in charge of the process. The audit manager may accept responsibility for checking that the necessary corrective action has been taken to ensure no reoccurrence of the problems that have been reported, or this may be left with the individual auditors to clear with the appropriate managers.

More importantly, the audit manager will be able to judge from the reports received on all the departmental audits whether or not the system is working satisfactorily (there will always be some problems reported but if these are not numerous or serious, the system may be considered to be working) and this will be the basis for the report to top management on the audit as a whole, to

be considered as part of the management review. This review will consider whether the system is meeting the requirements of the organization, a question that can only be discussed once the audit has established that the system is indeed in full operation.

# 10

## Reviewing



## In brief

It's time to take stock of the OH&S management system. The management review is the opportunity for top management to carry out a strategic review of the system at planned intervals to decide if any improvements need to be made. This should take place at least once a year. It should consider any feedback from interim reviews, audits, incidents, inspections and employee consultation, as well as information from external sources (such as regulators, trade associations and insurers). Where improvements will benefit the system and can sensibly be made these need to be taken on board and any required actions communicated.

## Key elements – Reviewing

Reviewing management systems is a fundamental requirement in any organization. It ensures that processes and procedures are being applied effectively, as intended, and continue to meet the needs of the organization. Most importantly, it provides the mechanism to drive the continual improvement required of any management system. It is a live process within the organization and is addressed in BS 8800 by the periodic status review and the management review process. In order to ensure a robust OH&S management system, BS OHSAS 18001, 4.6 requires the following:

Top management shall review the organization's OH&S management system, at planned intervals, to ensure its continuing suitability, adequacy and effectiveness. Reviews shall include assessing opportunities for improvement and the need for changes to the OH&S management system, including the OH&S policy and OH&S objectives. Records of the management reviews shall be retained.

BS OHSAS 18001 identifies specific inputs to the management review and what is expected in the form of outputs. This reinforces the vital role of these

reviews in driving the continual improvement cycle required for an effective OH&S management system.

Input to management reviews ... include

- a) results of internal audits and evaluations of compliance with applicable legal requirements and with other requirements to which the organization subscribes;
- b) the results of participation and consultation;
- c) relevant communication(s) from external interested parties, including complaints;
- d) the OH&S performance of the organization;
- e) the extent to which objectives have been met;
- f) status of incident investigations, corrective actions and preventive actions;
- g) follow-up actions from previous management reviews;
- h) changing circumstances, including developments in legal and other requirements related to OH&S, and
- i) recommendations for improvement. (4.6)

'Changing circumstances' referred to in (h) includes both internal and external factors, such as takeovers or mergers, reorganizations, new technology, new projects, etc.

The outputs from management reviews ... consistent with the organization's commitment to continual improvement and ... include any decisions and actions related to possible changes to:

- a) OH&S performance;
- b) OH&S policy and objectives;
- c) resources; and
- d) other elements of the OH&S management system.

Relevant outputs from management review ... made available for communication and consultation.

A frequent misconception is that the management review is carried out annually. It should be carried out at least once a year by organizations seeking to demonstrate to a certifying body that the BS OHSAS 18001 system is operating effectively. In reality, the frequency is determined by circumstances. Changing circumstances, accidents, etc. may necessitate more frequent reviews.

To be truly effective, the management review of the organization's processes should be structured around areas of delivery and involve all parts of the organization. This can involve supervisors periodically reviewing OH&S management within a department or over a process or the senior management team considering business performance against the organization's targets, objectives and KPIs (key performance indicators).

The management review differs from the audit in that it is more strategic in its focus. For example, the audit may conclude that everything is in place to meet the OH&S policy and objectives while the management review may show that internal or external considerations justify a change.

As well as seeking to remedy deficiencies, the management review offers the opportunity for a more proactive approach: to consider where the organization wishes to be in managing health and safety issues and how it can maximize the resulting benefits to improve business performance and employee well-being.

The organization should define the frequency and scope of periodic reviews of the OH&S management system according to its needs.

The following is a checklist of the key issues in reviewing the OH&S management system. A tick box is provided for identifying those issues that are already being addressed (1) and those that need to be considered (2).

### **CHECKLIST: Reviewing OH&S in your organization**

<b>1</b>	<b>2</b>	
<input type="checkbox"/>	<input type="checkbox"/>	Top management periodically reviews the OH&S management system;
<input type="checkbox"/>	<input type="checkbox"/>	Business units within the organization undertake reviews of OH&S within their sphere of responsibility;
<input type="checkbox"/>	<input type="checkbox"/>	Management considers the outputs of any periodic status review to identify opportunities for improvement;
<input type="checkbox"/>	<input type="checkbox"/>	The review considers the adequacy, effectiveness and suitability of the OH&S management system;



- The review considers performance against annual and local targets and objectives;
- The review considers the overall performance of the OH&S management system;
- The review considers the performance of the individual elements of the system;
- The review considers the findings of audits;
- The review considers internal factors affecting OH&S management;
- The review considers communications from external parties to the organization;
- The review is forward-looking, adopting a proactive approach towards improving the OH&S management system and business performance;
- New or revised OH&S objectives are assigned either collectively or to individual functions of the organization that ensure a proactive approach to OH&S management;
- The review considers changing circumstances and recommendations for improvement.

## In practice – Reviewing

The key to success for each of the case study organizations is how they are managing change relating to OH&S as they evolve and meet changing business and statutory demands. In each case the management review should initiate a proactive response. A significant reactive response is a sign that the OH&S management system may be failing, although in practice most organizations will need to consider both types of response.



### *F&L – office*

For F&L this will be fairly straightforward as it is a relatively small organization but any rapid expansion or a move to larger premises may put strain on its OH&S management system.

For instance, if F&L were to win a new contract with a large client then the sudden increase in workload may have serious repercussions. The potential loss of key staff members through stress-related illness could place the contract at risk and there is also the possibility of permanently losing these staff. F&L needs to be proactive and consider these possibilities at a management review.

The output may be to recruit additional temporary resources or to improve the effectiveness of some of the management processes.

## ***UE – engineering workshop***

For UE, the situation is totally different. Developments in systems and technology will dictate the pace and management reviews will need to be more regular. The scope for proactive management will often be greater in industries like UE. A new order, for instance, may result in revised shift arrangements and the OH&S arrangements will need to be reviewed to ensure they meet the needs of the changed circumstances.



## ***LCD – retail***

Similar to F&L but because of the diversity of its activities and the interface with the public and visitors, LCD will need to be continuously alert to any issues relating to OH&S. The implications of wider issues relating to hygiene and interfacing with all public sectors, e.g. persons with disabilities and young children at retail outlets, may necessitate a fresh look at its practices and what investment/training needs to be considered.

LCD may have to respond, sometimes at short notice, to emerging situations such as balancing accessibility for the public with safety issues. When new merchandising arrives or seasonal events such as Christmas occur, the need for more goods to be stacked and displayed may lead to potential safety issues when there are large numbers of customers. LCD may also need to comply with new legislation regulating the sales of goods to, say, those under the age of 18.

## ***B&C – construction***

In the construction industry, the challenge posed by hazardous environments is ever present. While compliance with the CDM regulations and associated legislation is fundamental, the organization needs to learn from how OH&S is successfully implemented from project to project at different work sites. It may need to take account of any best practice being developed and adopted by its competitors.



## ***YYIMT.com – new technology***

The IT sector is fast evolving, often providing little time to review previous performance. For YYIMT to succeed commercially and to ensure the effectiveness of its OH&S management system, time has to be allocated to sensibly question and review its OH&S performance. Failure to do so will place the organization at risk of missing even the most fundamental of review benefits.

YYIMT has recently agreed in principle to allow some staff to work at home. It needs to recognize that this is a change in working practice and that the OH&S considerations need to be reviewed. YYIMT may conclude that certain actions need to be taken before the new agreement can be implemented to ensure the facilities at home are suitable.



## ***H&H – road haulage***

The competition to H&H was such that they needed to compete at the highest level to remain in business. The adoption of an OH&S management system had brought immediate tangible benefits and the managers were keen to exploit this opportunity even further. Employees had made it known that they were very pleased with the organization's efforts to improve the lifestyle of the drivers, particularly while they were on the road, in terms of improved

cab facilities. Absenteeism had decreased and the reliability of H&H's service to customers was much improved. There was still room for improvement and the managers decided employees should be rewarded for their contribution through the OH&S staff suggestion scheme.

## In detail – Reviewing

In essence, the management review should consider the overall OH&S management system alongside what the organization is aiming to achieve and decide what further action may be necessary to remedy any shortfalls or move further forward to improve business performance. The main aim should be to identify what future opportunities for improvement there may be, bearing in mind the lifestyle expectation of employees and society, which may directly impinge on the organization.

There are close parallels with the initial status review and the periodic review recommended by BS 8800, in that these aim to determine where the organization is, where it wants to be and how it is going to get there. The management review should be more proactive in seeking ways to minimize risks even further and improve business performance to the advantage of all stakeholders.

The review should not be carried out in isolation from other management discipline review processes as this can be counterproductive. There is little point, for instance, in addressing an OH&S problem with solvent fumes by using extraction to air if this compromises the environmental management system. Under these conditions two elements of control are required, one for OH&S and one for the environment, each demonstrating compliance.

The reviews should take note of such issues as:

1. responses by line supervision to remedy failures to implement workplace precautions and risk control systems which they observe in the course of routine activities;
2. responses to remedy specific examples of substandard performance which are identified by both reactive and proactive monitoring;

3. responses to the assessment of plans and objectives either at the individual, department, site, group or organizational level (see BS 8800);
4. results of any consultation with employees, subcontractors, etc.;
5. responses to dealing with change that could impact on the safe operation of the organization.

The approach should be proactive wherever possible, reviewing developments within the organization, changes in equipment, working practices, etc. at the earliest possible stage (preferably at the planning stage), thus avoiding a reactive response to the control of risks when changes are implemented. Deadlines should be set for implementing changes, responsibilities clearly assigned and implementation monitored. The new arrangements need to be reviewed after they have been operating for a while, to assess their effectiveness and value to the organization.

The following checklist provides a guide (though not exhaustive) to some of the sources of information that the management review should consider. A tick box is provided for identifying those that are already covered (1), those the organization may wish to consider (2) and those believed to be irrelevant (3).

### **CHECKLIST: Sources of information for consideration in the OH&S management review**

<b>1</b>	<b>2</b>	<b>3</b>	<b>Inputs</b>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Information from press reports, health and safety literature, etc.;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Information from health and safety studies;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Findings and recommendations of health and safety audits;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Performance of the overall OH&S system;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Performance of individual elements of the OH&S system;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Changes (present and future) to the organizational structure/staffing levels;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Changes (present and future) to the products/services of the organization (including those provided to the organization);
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Changes (present and future) to equipment, plant, buildings, infrastructure, etc.;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Output from OH&S management or other committees;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Information on OH&S performance of similar organizations;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Staff suggestions and concerns;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Risk assessment reviews;

- Competence reports/training needs;
- Reports from other key management discipline areas such as quality, environmental, etc.;
- Trends in accident/incident statistics;
- Final reviews of completed projects – lessons learnt;
- Decisions and actions on OH&S performance;
- Decisions and actions on OH&S policy objectives;
- Decisions and actions on resources;
- Decisions and actions on elements of the OH&S management system;
- Relevant information communicated to interested parties.

# 11

## Integrating your management systems

It is not uncommon for organizations to have a number of management systems operating, some formal and some informal. A difficulty experienced by many organizations is ensuring that the requirements from these separate systems, such as those for managing quality, environment and OH&S, are fully embedded into their operations. Too often they appear as a peripheral attachment. This can lead to conflict and confusion when trying to deal with issues in one discipline independently of others. Such arrangements can be, by their very nature, inefficient and ineffective, particularly if the requirements that are common are handled independently. Every one of these systems should be incorporated and be an integral part of the system for managing the organization.

The manager responsible for the OH&S management system cannot be expected to manage the OH&S risks of the organization in isolation. They should be seen as a support resource to the management team. Managers have many issues they need to manage and these need to be seen as an integral part of the overall management system. Organizations therefore need to recognize that these individual formal management systems are part of this overall management structure. This need not be limited to the fields of quality, environment and OH&S but can also include, for example, financial and human resource management. The aim should be a single defined approach that meets the organization's overall business management needs.

Integration of an OH&S management system can best be achieved by having an integrated business management system or adopting the integrated



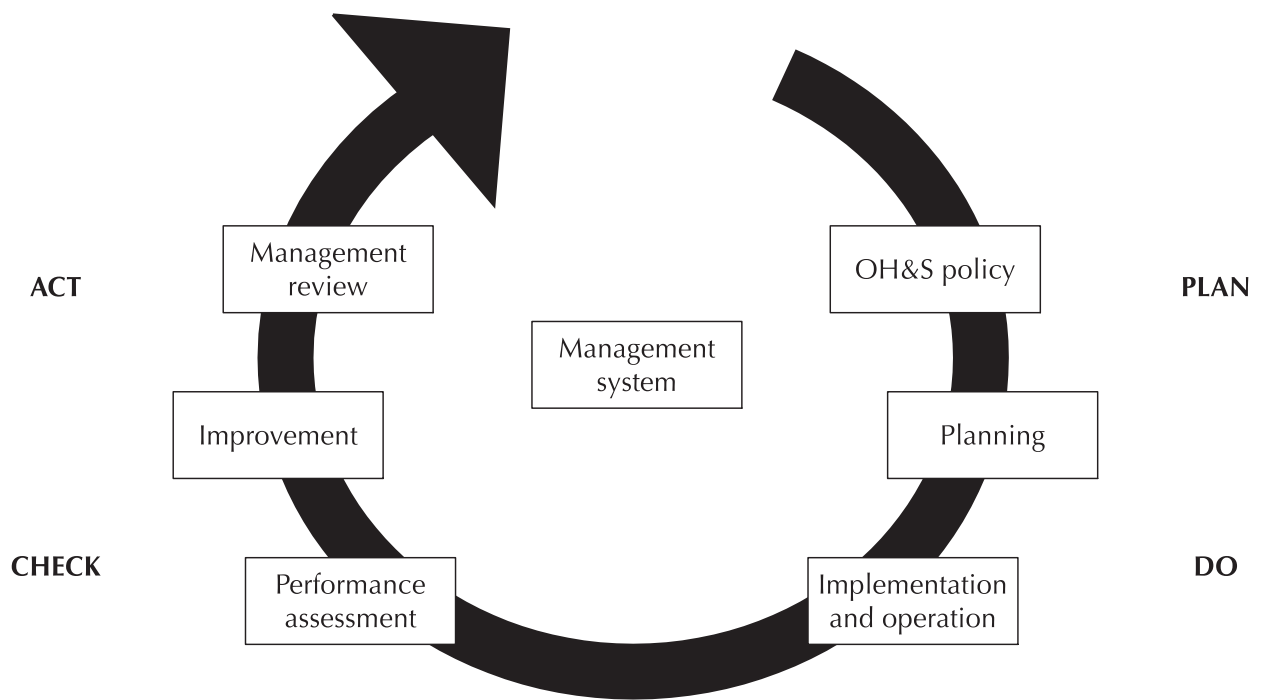
management system (IMS) approach. Although the IMS approach may seem obvious, there has long been a perceived barrier against progressing towards an integrated system when organizations have adopted formal management systems such as BS EN ISO 9001 or BS EN ISO 14001. This is because the approaches in the documented systems appear to differ and the terms and definitions used have also sometimes been different. This has made it difficult for some organizations to determine what they need to do to make it happen.

In fact, there is no real incompatibility between the systems. Although the needs of every organization differ, adopting the IMS approach should satisfy any organization, no matter what systems they currently operate.

PAS 99, *Specification of common management system requirements as a framework for integration* has been produced for those organizations which have adopted multiple management system specifications. PAS 99 has been produced as a framework, setting out requirements that are commonly found in ISO and BS standards and other consortia specifications such as BS OHSAS 18001. This framework covers many of the requirements found in all of the specifications. The particular needs of the individual specifications still have to be addressed but these, in the term of clause requirements, are a small proportion of the whole. The main requirements can be categorized into the following subjects:

- policy;
- planning;
- implementation and operation;
- performance assessment;
- improvement;
- management review.

By configuring the requirements in the specifications in a common manner it is possible to identify the overlaps and redundancy. This then allows the systems to be interfaced or integrated more readily. The approach is shown in the following diagram, which is based on Figure 1 from PAS 99.



What this shows is that by configuring your existing management systems in such a way that they follow the PAS 99 framework, the common requirements can be integrated to whatever extent the organization so wishes. The specific requirements such as customer focus, environmental aspects, occupational health and safety risks, food safety critical control points, etc. may need to be dealt with separately depending on the complexity of the organization.

The same framework shown in the diagram on page 207 (Figure 2 from PAS 99) can be used as a structure for the implementation of an integrated system or business management system, should the organization choose to go down this route. The model is based on the one originally developed as an 'ideal framework' for standards writers. The background for the use of this model is given in *IMS: A Framework for integrated management systems* [20]. It can be used to control the risks an organization needs to manage in its day-to-day operation.

Such approaches have been adopted by organizations when integrating their own systems. Despite the apparent conflict between the 'process' approach (BS EN ISO 9001) and the 'PDCA' approach (BS EN ISO 14001), organizations have found that the common elements in PAS 99 combined

with the process and PDCA approaches, can provide a useful way to effect integration. This model has been successfully implemented in a number of organizations both large and small.

It is suggested that organizations wishing to adopt the IMS approach use one of their existing systems as a starting point. This would normally be the system most established and understood and, perhaps, already subject to certification. This system should be reviewed against Appendix 1, taken from *IMS: A Framework for integrated management systems* [20], and any deficiencies identified and rectified. This then becomes the foundation upon which the other management systems are integrated, using common processes, documentation, etc. as appropriate.

The IMS approach is best followed using a structured time frame and a set of deliverable targets. There may be resistance to the IMS approach, usually from those wishing either to protect or promote the design of their own system. It should be made clear that all elements are working to achieve the same overall aim of the effective and efficient management of the organization.

For information on how BS EN ISO 14001 (environment), BS OHSAS 18001 and BS EN ISO 9001 align with the IMS framework, see Appendix 1.

For those who have followed this book and wish to align their OH&S system, the table on page 208 identifies where the arrangements fit. As stated before, if you have an existing system based on BS EN ISO 14001 or BS EN ISO 9001, it may be best to align them first and then integrate your arrangements within the IMS framework. This table shows where the various clauses sit within such a framework and where specific issues need to be addressed.

## ACT

### Management review 4.7

- 4.7.1 General
- 4.7.2 Input
- 4.7.3 Output

### Improvement 4.6

- 4.6.1 General
- 4.6.2 Corrective, preventive and improvement action

## CHECK

### Performance assessment 4.5

- 4.5.1 Monitoring and measurement
- 4.5.2 Evaluation of compliance
- 4.5.3 Internal audit
- 4.5.4 Handling of non-conformities

## PLAN

### Management system policy 4.2

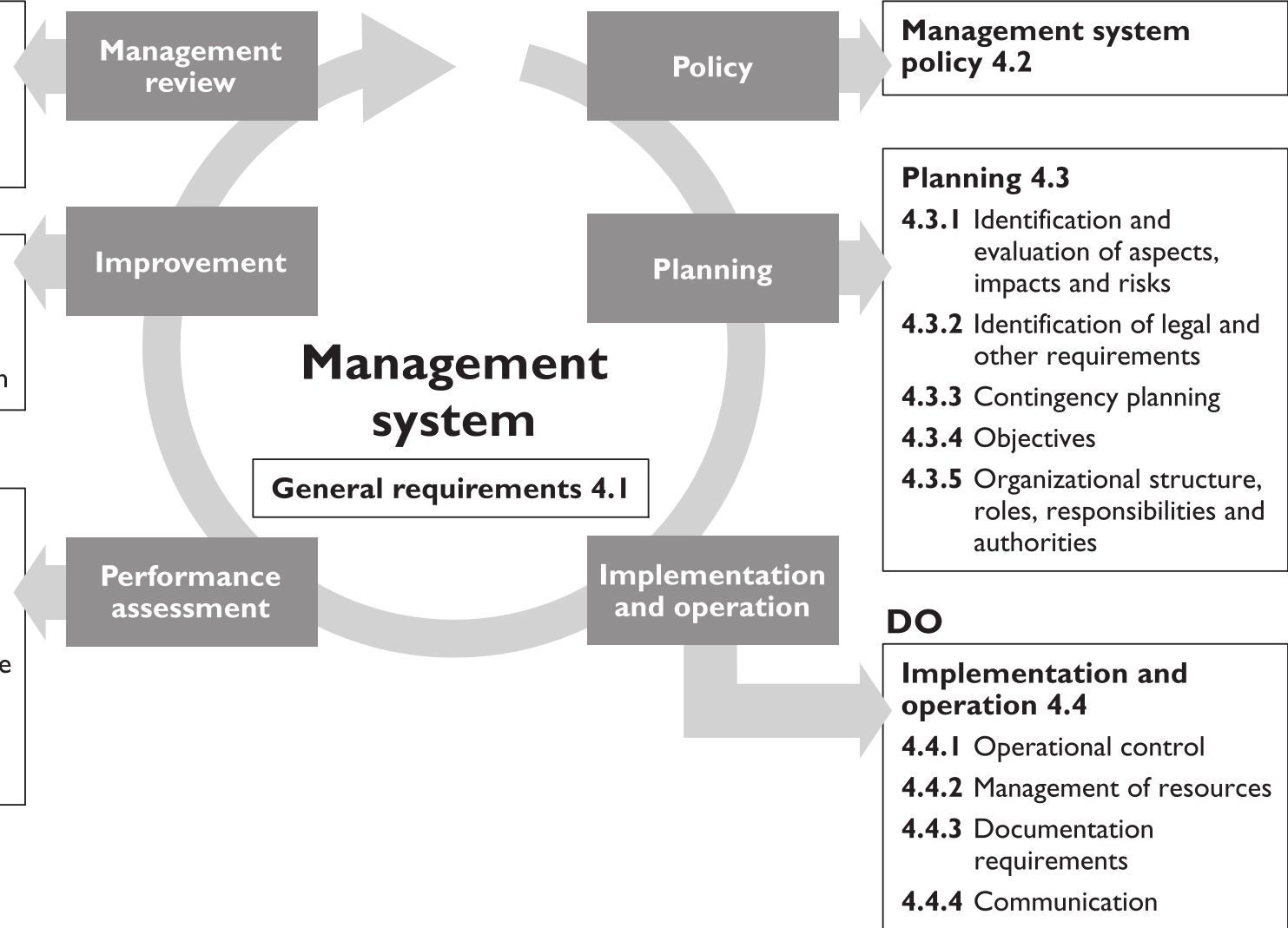
### Planning 4.3

- 4.3.1 Identification and evaluation of aspects, impacts and risks
- 4.3.2 Identification of legal and other requirements
- 4.3.3 Contingency planning
- 4.3.4 Objectives
- 4.3.5 Organizational structure, roles, responsibilities and authorities

## DO

### Implementation and operation 4.4

- 4.4.1 Operational control
- 4.4.2 Management of resources
- 4.4.3 Documentation requirements
- 4.4.4 Communication



## *Comparison of PAS 99 and BS OHSAS 18001:2007 clauses*

<b>Requirements of PAS 99</b>	<b>BS OHSAS 18001:2007</b>
<b>4.1 General requirements</b>	<b>4.1</b>
<b>4.2 Management system policy</b>	<b>4.2</b>
<b>4.3 Planning</b>	<b>4.3</b>
4.3.1 Identification and evaluation of aspects, impacts and risks	<b>4.3.1</b>
4.3.2 Identification of legal and other requirements	<b>4.3.2</b>
4.3.3 Contingency planning	<b>4.4.7</b>
4.3.4 Objectives	<b>4.3.3</b>
4.3.5 Organizational structures, roles, responsibilities and authorities	<b>4.4.1</b>
<b>4.4 Implementation and operation</b>	<b>4.4</b>
4.4.1 Operational control	<b>4.4.6</b>
4.4.2 Management of resources	<b>4.4.1</b>
4.4.3 Documentation requirements	<b>4.4.4, 4.4.5</b>
4.4.4 Communication	<b>4.4.3</b>
<b>4.5 Performance assessment</b>	<b>4.5</b>
4.5.1 Monitoring and measurement	<b>4.5.1</b>
4.5.2 Evaluation of compliance	<b>4.5.2</b>
4.5.3 Internal audit	<b>4.5.5</b>
4.5.4 Handling nonconformities	<b>4.5.3</b>
<b>4.6 Improvement</b>	<b>4.6</b>
4.6.1 General	<b>4.6</b>
4.6.2 Corrective and preventive action	<b>4.5.3</b>
<b>4.7 Management review</b>	<b>4.6</b>
4.7.1 General	<b>4.6</b>
4.7.2 Input	<b>4.6</b>
4.7.3 Output	<b>4.6</b>

# Appendix 1

## Common elements of quality, environmental and OH&S systems

NOTE This table should be taken as a guide only, as correspondence between the clauses is not always precise.

<b>Requirements of PAS 99</b>	<b>ISO 9001:2000</b>	<b>ISO 14001:2004</b>	<b>BS OHSAS 18001:2007</b>
4.1 General requirements	4.1 5.5	4.1	4.1
4.2 Management system policy	5.1 5.3	4.2	4.2
4.3 Planning	5.4	4.3	4.3
4.3.1 Identification and evaluation of aspects, impacts and risks	5.2 5.4.2 7.2	4.3.1	4.3.1
4.3.2 Identification of legal and other requirements	5.3 7.2.1 7.2.2	4.3.2	4.3.2
4.3.3 Contingency planning	5.4 8.3	4.4.7	4.4.7
4.3.4 Objectives	5.4.1 5.4.2 8.5.1	4.3.3	4.3.3
4.3.5 Organizational structure, roles, responsibilities and authorities	5.1 5.5	4.4.1	4.4.1

4.4 Implementation and operation	7	4.4	4.4
4.4.1 Operational control	7	4.4.6	4.4.6
4.4.2 Management of resources	5.1 5.5.1 6	4.4.1 4.4.2	4.4.1 4.4.2
4.4.3 Documentation requirements	4.2	4.4.4 4.4.5 4.5.4	4.4.4 4.4.5 4.5.3
4.4.4 Communication	5.3 5.5.1 5.5.3 7.2.3	4.4.3	4.4.3
4.5 Performance assessment	8	4.5	4.5
4.5.1 Monitoring and measurement	8 7.6	4.5.1	4.5.1
4.5.2 Evaluation of compliance	8.2	4.5.2	4.5.2
4.5.3 Internal audit	8.2.2	4.5.5	4.5.5
4.5.4 Handling of nonconformities	8.3 8.4 8.5	4.5.3	4.5.3
4.6 Improvement	8.5	4.5.3 4.6	4.6
4.6.1 General	8.5	4.5.3 4.6	4.6
4.6.2 Corrective and preventive action	8.3 8.4 8.5	4.5.3	4.5.3
4.7 Management review	5.6	4.6	4.6
4.7.1 General	5.6.1	4.6	
4.7.2 Input	5.6.2	4.6	
4.7.3 Output	5.6.3	4.6	



# Appendix 2

## Self-assessment questionnaire

### How to use the questionnaire

What follows is a series of questions covering the various aspects of OH&S management in your organization. Each of the questions is answered by two statements (1) and (4), which describe two extreme positions. Numbers 2 and 3 should be ticked if your organization occupies the 'middle ground'. Tick one number for each question.

Once you have answered each question, add your score to the box on page 220, total the score and then see how your organization rates using the performance rating system on pages 220–221.

#### a. Management commitment

Does your organization recognize OH&S as an integral part of business performance by allocating responsibility at the most senior level for ensuring continual improvement in OH&S performance?

1. There is no clear management responsibility.
4. We have defined and documented responsibility and authority for OH&S management. Ultimate responsibility is allocated to a manager at the most

senior level but all managers and staff are actively involved and encouraged in the continual improvement of OH&S performance.

<b>a.</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
-----------	----------	----------	----------	----------

For guidance please see page 64.

### **b. Integrated approach**

Has your organization integrated its occupational health and safety arrangements into its business management system?

1. We have a limited stand-alone system that is operated independently of our other business systems.

4. We have a business risk management system and an integrated approach to the management of OH&S, where everyone sees OH&S as part of their duties integrated with their other day-to-day responsibilities.

<b>b.</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
-----------	----------	----------	----------	----------

For guidance please see page 113.

### **c. Policy**

Does your organization define and document its OH&S policy?

1. We do not have an OH&S policy.

4. We have a comprehensive and documented policy which clearly defines the organization's commitment to OH&S. It is communicated to employees and those who work on behalf of the organization as well as other relevant, interested parties. It expresses a clear commitment by top management to continual improvement of OH&S performance and minimizing the risk of harm.

<b>c.</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
-----------	----------	----------	----------	----------

For guidance please see page 63.

**d. Resources**

Does your organization provide adequate resources to OH&S management?

- 1. We do not allocate any resources.
- 4. We allocate resources and make budget provisions to ensure continual cost-effective improvement in OH&S performance.

<b>d.</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
-----------	----------	----------	----------	----------

For guidance please see page 42.

**e. Hazard identification**

Has your organization carried out a thorough identification of hazards associated with its activities?

- 1. We have not carried out a thorough identification of our hazards.
- 4. We have reviewed all our processes, sites, work areas, activities, including those services that we contract in, and have undertaken a comprehensive identification of the associated hazards. We have also considered what hazards we may pose to the public and what external hazards may affect our workforce.

<b>e.</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
-----------	----------	----------	----------	----------

For guidance please see page 25.

**f. Risk assessment**

Does your organization carry out risk assessments?

- 1. We do not carry out risk assessments.
- 4. We identify priority areas through a comprehensive risk assessment programme covering all activities and processes undertaken by the organization using the hazard identification programme as an input to the process.

<b>f.</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
-----------	----------	----------	----------	----------

For guidance see page 103.

**g. Control measures**

Does the organization implement controls on a hierarchal basis with PPE as the last resort?

- 1. We use PPE whenever we find we have a problem following an incident.
- 4. We try to eliminate the hazard or reduce the risk with control measures, only using PPE as a last resort.

<b>g.</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
-----------	----------	----------	----------	----------

For guidance please see page 84.

**h. Legal and other requirements**

Does your organization identify all legal and other requirements which apply to it?

- 1. We have little knowledge about legislation which might apply to our activities.
- 4. We operate procedures and implement controls to ensure regulatory compliance and continually review our compliance performance as per 4.5.2.

<b>h.</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
-----------	----------	----------	----------	----------

For guidance please see pages 48 and 64.

**i. Best practice**

Does your organization identify and embrace any codes of practice and/or other guidance relevant to its activities?

- 1. We have no knowledge about codes of practice or other guidance which may be relevant to our activities.
- 4. We have embraced within our procedures what we consider to be the best practice on the basis of relevant guidance from the HSE, industrial associations, professional bodies and suppliers.

<b>i.</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
-----------	----------	----------	----------	----------

For guidance please see page 57.

### **j. Objectives**

Does your organization set objectives to ensure continual improvement of OH&S performance?

1. We set production targets but we never set OH&S objectives.
4. We set and publish objectives consistent with our policy to ensure continual improvement of OH&S performance, and these are regularly reviewed. The objectives are SMART.

<b>j.</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
-----------	----------	----------	----------	----------

For guidance please see page 92.

### **k. Roles and responsibilities**

Has a top management representative been appointed at the most senior level of the organization and are those with management functions aware of their role, responsibilities and accountabilities?

1. We have a nominal safety representative position, though there is no one in the post at the moment.
4. An executive member of the board is accountable for occupational health and safety and he has ensured that all managers and supervisors understand their role, responsibilities and accountabilities.

<b>k.</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
-----------	----------	----------	----------	----------

For guidance please see page 149.

### **l. Employee responsibility**

Does the organization assign OH&S responsibility to its employees?

1. We do not assign any OH&S responsibility to our employees.
4. Every employee is aware of their responsibility for the health and safety of those they manage, themselves, others with whom they work and anyone else who visits the site.

<b>l.</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
-----------	----------	----------	----------	----------

For guidance please see page 66.

### **m. Competency**

Does the organization ensure that those working for or on behalf of the organization are competent for the work they undertake?

1. If we think they can do the job and they don't complain about it, that is sufficient for us.
4. We establish the competency needs for the various activities and ensure that only those deemed competent are employed on all activities.

<b>m.</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
-----------	----------	----------	----------	----------

For guidance please see page 150.

### **n. Training**

Does your organization carry out training to increase the awareness and knowledge of employees about OH&S issues?

1. We do carry out any OH&S training.
4. We have a continual training programme to ensure our employees are aware of OH&S issues, as well as their own health and safety responsibilities, and are competent for the tasks they have to undertake.

<b>n.</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
-----------	----------	----------	----------	----------

For guidance please see page 150.

### **o. Internal communications**

Does your organization provide information about OH&S matters to employees?

1. We do not provide employees with information on any OH&S issue.
4. We have an established communication system to keep employees informed about OH&S issues, including policy, objectives and targets, performance, remedial actions and future plans.

<b>o.</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
-----------	----------	----------	----------	----------

For guidance please see page 151.

**p. External communications**

Does your organization provide information about OH&S matters to relevant interested parties, i.e. other than employees?

- 1. We do not disclose information.
- 4. We have established procedures to inform all relevant interested parties about the organization’s OH&S-related matters.

<b>p.</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
-----------	----------	----------	----------	----------

For guidance please see page 67.

**q. Worker participation**

Do you encourage worker participation in determining the risks and control measures and identifying improvements?

- 1. We do not encourage workers as they come up with outrageous ideas that are not financially viable and consultation costs time.
- 2. We encourage workers to participate in the whole process and have found their involvement has brought great benefits to the business with innovative ways of improving productivity and OH&S.

<b>q.</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
-----------	----------	----------	----------	----------

For guidance please see page 151.

**r. Documentation**

Does your organization have a system for gathering relevant OH&S information?

- 1. We do not have a system.
- 4. We maintain a comprehensive system, appropriate to the organization, including an OH&S management manual. Each sector of our organization has a controlled and updated copy of this manual.

<b>r.</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
-----------	----------	----------	----------	----------

For guidance please see page 153.



### **s. Operational control**

Does your organization embrace OH&S issues in its operational control system?

1. We focus exclusively on 'business' issues, e.g. products, processes or services.
4. We integrate OH&S issues into every procedure and instruction covering our activities, processes and tasks and ensure we control our contractors.

<b>s.</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
-----------	----------	----------	----------	----------

For guidance please see page 141.

### **t. Performance measuring and monitoring**

Does the organization commit to measuring performance and monitoring?

1. We only make a fuss when things have gone wrong and then inspect to make sure it does not happen again.
4. We have both objective and subjective performance measurement programmes and ensure that our approach is proactive and minimizing the risk of harm to those affected by our activities.

<b>t.</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
-----------	----------	----------	----------	----------

For guidance please see page 158.

### **u. Emergency response**

Does your organization have a procedure(s) for responding to emergency situations which might endanger health and safety?

1. We do not have any procedures for responding to emergency situations.
4. We have an emergency response plan which is tested to prevent and minimize any negative OH&S impacts. Employees are aware of their role and responsibilities in implementing the plan.

<b>u.</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
-----------	----------	----------	----------	----------

For guidance please see page 126.

#### **v. Internal audits**

Does your organization carry out OH&S audits?

1. We do not carry out audits.

4. We have a programme of regular audits undertaken by an auditor (or auditors) who is both competent and independent. Remedial action is initiated where deficiencies are found or the system can be improved.

<b>v.</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
-----------	----------	----------	----------	----------

For guidance please see page 183.

#### **w. Management review**

Does your organization carry out management reviews of its OH&S activities?

1. We do not carry out management reviews of OH&S activities.

4. We undertake regular reviews using a designated senior manager to ensure the efficiency and effectiveness of our OH&S management system. The review considers audit results, OH&S performance and other relevant internal/external factors, including overall business performance as required under 4.6. The output is communicated to the workforce.

<b>w.</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
-----------	----------	----------	----------	----------

For guidance please see page 194.

## Assessment of performance

TOPIC	SCORE
a. Management commitment	<input type="text"/>
b. Integrated approach	<input type="text"/>
c. Policy	<input type="text"/>
d. Resources	<input type="text"/>
e. Hazard identification	<input type="text"/>
f. Risk assessment	<input type="text"/>
g. Control measures	<input type="text"/>
h. Legal and other requirements	<input type="text"/>
i. Best practice	<input type="text"/>
j. Objectives	<input type="text"/>
k. Roles and responsibilities	<input type="text"/>
l. Employee responsibility	<input type="text"/>
m. Competency	<input type="text"/>
n. Training	<input type="text"/>
o. Internal communications	<input type="text"/>
p. External communications	<input type="text"/>
q. Worker participation	<input type="text"/>
r. Documentation	<input type="text"/>
s. Operational control	<input type="text"/>
t. Performance measuring and monitoring	<input type="text"/>
u. Emergency response	<input type="text"/>
v. Internal audits	<input type="text"/>
w. Management review	<input type="text"/>
<b>Overall performance</b>	<input type="text"/>

## Performance rating

### Score

- 0–23      Your organization has little commitment at present to OH&S. You are likely to be in breach of current UK health and safety legislation and open to prosecution.
- 24–69      A level of OH&S management exists but full commitment and the necessary arrangements are not present throughout the organization.



# Appendix 3

## Legal requirements for health and safety

There is a large number of UK Acts of Parliament, Codes of Practice and Guidance Notes, well over 400 in total. These are constantly changing and being updated. Providing a full list here would not be helpful to those using this book because it would quickly be out of date (a list of those specifically referenced in this book is given at the end of this appendix). It has been documented in Chapter 2 that trying to establish a system based on compliance is not going assist the organization in moving forward and can mislead those involved to overlook risks that do not attract specific regulation etc. As a starting point, it is more sensible and practical to identify legal and other requirements that apply to the organization's:

- industry sector,
- activities,
- products, processes, facilities, equipment, materials, personnel and
- location.

There is a need, however, as specified in OHSAS 18001, 4.3.2, to identify and access 'legal and other requirements' that apply to the organization. There are a number of ways of doing this and for keeping abreast of new and

forthcoming legal requirements. It is important to recognize how legal requirements arise internationally that become enshrined within UK law.



### *How United Kingdom legal requirements evolve*

The development of Directives and Regulations in Europe impacts directly on UK requirements in this field and organizations need to be aware of EU developments as they could affect the way they operate in the future.

One way of keeping abreast is to use a CD-based system such as CEDREC that is updated every few months and allows an organization to quickly identify what might apply to it. The HSE website at [www.hse.gov.uk/legislation](http://www.hse.gov.uk/legislation) is also useful and has a section dedicated to forthcoming legislation.

Institutions such as those listed below may also help in specific areas:

Institute of Occupational Health IOSH: [www.iosh.co.uk/](http://www.iosh.co.uk/)

Royal Society for Prevention of Accidents RoSPA: [www.rosipa.com/](http://www.rosipa.com/)

British Safety Council: [www.britishsafetycouncil.co.uk/](http://www.britishsafetycouncil.co.uk/)

The following legal requirements are referenced in this book:

- Great Britain (1994) *The Chemicals (Hazard Information and Packaging for Supply) Regulations 1994*, London: The Stationery Office
- Great Britain (2007) *The Construction (Design and Management) Regulations 2007*, London: The Stationery Office
- Great Britain (2006) *The Control of Asbestos Regulations 2006*, London: The Stationery Office
- Great Britain (2005) *The Control of Noise at Work Regulations 2005*, London: The Stationery Office
- Great Britain (1980) *The Control of Pollution (Special Waste) Regulations 1980*, London: The Stationery Office
- Great Britain (2002) *The Control of Substances Hazardous to Health Regulations 2002 (COSHH)*, London: The Stationery Office
- Great Britain (2007) *Corporate Manslaughter and Corporate Homicide Act 2007*, London: The Stationery Office
- Great Britain (1995) *The Disability Discrimination Act 1995*, London: The Stationery Office
- Great Britain (1989) *The Electricity at Work Regulations 1989*, London: The Stationery Office
- Great Britain (1971) *The Fire Precautions Act 1971*, London: The Stationery Office
- Great Britain (1995) *The Food Safety (General Food Hygiene) Regulations 1995*, London: The Stationery Office
- Great Britain (1974) *The Health and Safety at Work etc. Act 1974 (HASWA)*, London: The Stationery Office
- Great Britain (1996) *The Health and Safety (Consultation with Employees) Regulations 1996*, London: The Stationery Office
- Great Britain (1992) *The Health and Safety (Display Screen Equipment) Regulations 1992*, London: The Stationery Office
- Great Britain (1981) *The Health and Safety (First-Aid) Regulations 1981*, London: The Stationery Office
- Great Britain (1996) *The Health and Safety (Safety Signs and Signals) Regulations 1996*, London: The Stationery Office



- Great Britain (1972) *The Highly Flammable Liquids and Liquefied Petroleum Gases Regulations 1972*, London: The Stationery Office
- Great Britain (1999) *The Ionising Radiations Regulations 1999*, London: The Stationery Office
- Great Britain (1998) *The Lifting Operations and Lifting Equipment Regulations 1998 (LOLER)*, London: The Stationery Office
- Great Britain (1999) *The Management of Health & Safety at Work Regulations 1999*, London: The Stationery Office
- Great Britain (1992) *The Manual Handling Operations Regulations 1992*, London: The Stationery Office
- Great Britain (1992) *The Personal Protective Equipment at Work Regulations 1992*, London: The Stationery Office
- Great Britain (1989) *The Pressure Systems and Transportable Gas Containers Regulations 1989*, London: The Stationery Office
- Great Britain (1998) *The Provision and Use of Work Equipment Regulations 1998 (PUWER II)*, London: The Stationery Office
- Great Britain (2005) *The Regulatory Reform (Fire Safety) Order 2005*, London: The Stationery Office
- Great Britain (1995) *The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (RIDDOR)*, London: The Stationery Office
- Great Britain (1977) *The Safety Representatives and Safety Committee Regulations 1977*, London: The Stationery Office
- Great Britain (1992) *The Workplace (Health, Safety and Welfare) Regulations 1992*, London: The Stationery Office
- EUROPEAN COMMUNITIES. Council Directive 89/391 EEC of 12 June 1989 on the introduction of measures to encourage improvements in the safety and health of workers at work. Official Journal of the European Communities No. L183/1–8, 12.6.1989

# Appendix 4

## British standards publications relating to health and safety

This list comprises many of the most used British, European and International Standards, together with other BSI publications. (Please note: this list is not exhaustive and new publications produced by BSI are appearing all the time. Visit [www.bsigroup.com](http://www.bsigroup.com) for the latest publications and news.) You may find it useful to tick those that are applicable to you (1), those that are not applicable (2) and those that may apply (3).

- | 1                        | 2                        | 3                        |  |
|--------------------------|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS EN 3, Portable fire extinguishers (all parts);  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS EN 138, 139, 269, Respiratory protective devices;   |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS EN 165:2005, Personal eye-protection – Vocabulary;  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS EN 166:2002, Personal eye protection – Specifications;  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS EN 172:1995, Specification for sunglare filters used in personal eye-protectors for industrial use;                                       |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS EN 175:1997, Personal protection – Equipment for eye and face protection during welding and allied processes;                             |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS EN 250:2000, Respiratory equipment – Open-circuit self-contained compressed air diving apparatus – Requirements, testing, marking;        |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS EN 280:2001, Mobile elevating work platforms – Design calculations – Stability criteria – Construction – Safety – Examinations and tests; |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS EN 340:2003, Protective clothing – General requirements;  |

1	2	3
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS EN 342:2004, Protective clothing – Ensembles and garments for protection against cold;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS EN 343:2003, Protective clothing – Protection against rain;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS EN 349:1993, Safety of machinery – Minimum gaps to avoid crushing of parts of the human body;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS EN 353-2:2002, Personal protective equipment against falls from a height – Guided type fall arresters including a flexible anchor line;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS EN 354, 355, 360, 361, 362, 364, 365, Personal protective equipment against falls from a height;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS EN 358:2000, Personal protective equipment for work positioning and prevention of falls from a height – Belts for work positioning and restraint and work positioning lanyards;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS EN 367, Protective clothing;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS EN 374:2003 (Parts 1–3), Protective gloves against chemicals and micro-organisms;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS EN 378:2000, Refrigerating systems and heat pumps – Safety and environmental requirements (all parts);
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS EN 381, Protective clothing for users of hand-held chain saws (all parts);
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS EN 388:2003, Protective gloves against mechanical risks;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS EN 397:1995, Specification for industrial safety helmets;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS EN 407:2004, Protective gloves against thermal risks (heat and/or fire);
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS EN 414:2000, Safety of machinery – Rules for the drafting and presentation of safety standards;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS EN 415-3: 2000, Safety of packaging machines – Form, fill and seal machines;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS EN 420:2003, Protective gloves – General requirements and test methods;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS EN 421:1994, Protective gloves against ionizing radiation and radioactive contamination;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS EN 464:1994, Protective clothing – Protection against liquid and gaseous chemicals, including liquid aerosols and solid particles – Test method – Determination of leak-tightness of gas-tight suits (Internal Pressure Test);
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS EN 469:2005, Protective clothing for firefighters – Requirements and test methods for protective clothing for firefighting;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS EN 471:2003, High-visibility warning clothing for professional use – Test methods and requirements;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS EN 481:1993 (BS 6069-3.5:1993), Workplace atmospheres – Size fraction definitions for measurement of airborne particles;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS EN 482:2006, Workplace atmospheres – General requirements for the performance of procedures for the measurement of chemical agents;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS 499-1: Supplement: 1992, Welding terms and symbols – Part 1: Glossary for welding, brazing and thermal cutting – Supplement: Definitions for electric welding equipment;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS EN 500-1:2006, Mobile road construction machinery – Safety – Common requirements;

1 2 3

- BS ISO 509:1996, Pallet trucks – Principal dimensions;
- BS EN 510:1993, Specification for protective clothing for use where there is a risk of entanglement with moving parts;
- BS EN 511:2006, Protective gloves against cold;
- BS EN 531:1995, Protective clothing for workers exposed to heat;
- DD ENV 581-2:2000, Outdoor furniture – Seating and tables for camping, domestic and contract use – Mechanical safety requirements and test methods for seating;
- BS EN 614-1:2006, Safety of machinery – Ergonomic design principles – Terminology and general principles;
- BS EN 626-1:1995, Safety of machinery – Reduction of risks to health from hazardous substances emitted by machinery – Principles and specifications for machinery manufacturers;
- BS EN 626-2:1996, Safety of machinery – Reduction of risks to health from hazardous substances emitted by machinery – Methodology leading to verification procedures;
- BS 638-4:1996, Arc welding power sources, equipment and accessories – Part 4: Specification for welding cables;
- BS 638-5:1988, Arc welding power sources, equipment and accessories – Part 5: Specification for accessories (Partially replaced by BS EN 60974-12:1996 and BS EN 60974-5:2002);
- BS EN 702:1995, Protective clothing – Protection against heat and flame – Test method – Determination of the contact heat transmission through protective clothing or its materials;
- BS EN 792, Hand-held non-electric power tools – Safety requirements – Fastener driving tools (all parts);
- BS EN 795:1997, Protection against falls from a height – Anchor devices – Requirements and testing;
- BS 807:1955, Specification for spot welding electrodes;
- BS EN 818-7:2002, Short link chain for lifting purposes – Safety – Fine tolerance hoist chain, Grade T (Types T, DAT and DT);
- BS EN 840-6:2004, Mobile waste containers – Safety and health requirements;
- BS EN 863:1996, Protective clothing – Mechanical properties – Test method: puncture resistance;
- BS EN 894-3:2000, Safety of machinery – Ergonomics requirements for the design of displays and control actuators – Control actuators;
- BS 950-1:1967, Specification for artificial daylight for the assessment of colour – Part 1: Illuminant for colour matching and colour appraisal;
- BS EN 976-2:1997, Underground tanks of glass-reinforced plastics (GRP) – Horizontal cylindrical tanks for the non-pressure storage of liquid petroleum based fuels – Transport, handling, storage and installation of single wall tanks;
- BS EN 1052-1:1999, Methods of test for masonry – Part 1: Determination of compressive strength;
- BS 1089:1973, Specification for Workhead spindle noses for grinding machines: cylindrical external, internal and universal types;

1	2	3	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	BS 1129:1990, Specification for portable timber ladders, steps, trestles and lightweight stagings;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	BS EN 1272:1998, Child care articles – Table mounted chairs – Safety requirements and test methods;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	BS EN 1335-2:2000, Office furniture – Office work chair – Part 2: Safety requirements;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	BS EN 1335-3:2000, Office furniture – Office work chair – Part 3: Safety test methods;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	BS EN 1417:1997, Rubber and plastics machines – Two roll mills – Safety requirements;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	BS EN 1444:2001, Fibre-cement pipelines – Guide for laying and on-site work practices;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	BS EN 1537:2000, Execution of special geotechnical work – Ground anchors;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	BS EN 1598:1998, Health and safety in welding and allied processes – Transparent welding curtains, strips and screens for arc welding processes;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	BS EN 1612-1:1997, Rubber and plastics machines – Reaction moulding machines – Safety requirements for metering and mixing units;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	BS EN 1645-1:2004, Leisure accommodation vehicles – Caravans – Habitation requirements relating to health and safety;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	BS EN 1647:2004, Leisure accommodation vehicles – Caravan holiday homes – Habitation requirements relating to health and safety;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	BS EN 1755:2000, Safety of industrial trucks – Operation in potentially explosive atmospheres – Use in flammable gas, vapour, mist and dust;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	BS EN 1845:1999, Footwear manufacturing machines – Footwear moulding machines – Safety requirements;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	BS EN 1870-4:2001, Safety of woodworking machines – Circular sawing machines – Multiblade rip sawing machines with manual loading and/or unloading;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	BS EN 1870-5:2002, Safety of woodworking machines – Circular sawing machines – Circular sawbenches/up-cutting cross-cut sawing machines;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	BS EN 1915-1:2001, Aircraft ground support equipment – General requirements – Basic safety requirements;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	BS EN 1949:2002, Specification for the installation of LPG systems for habitation purposes in leisure accommodation vehicles and in other vehicles;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	BS EN 1953:1999, Atomizing and spraying equipment for coating materials – Safety requirements;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	BIP 2010, IMS: The Excellence Model;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	BIP 2011, IMS: Continual Improvement Through Auditing;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	BIP 2012, IMS: Risk Management for Good Governance;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	BIP 2016, IMS: Managing Food Safety;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	BS 2037:1994, Specification for portable aluminium ladders, steps, trestles and lightweight stagings;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	BS 2830:1994, Specification for suspended access equipment (suspended chairs, traditional steeplejack's seats, work cages, cradles and platforms) for use in the building, engineering construction, steeplejack and cleaning industries;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	BS 2881:1989, Specification for cupboards for the storage of medicines in health care premises;

- | 1                        | 2                        | 3                        |  |
|--------------------------|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS 3044:1990, Guide to ergonomics principles in the design and selection of office furniture;  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS EN ISO 3457:2003, Earth-moving machinery – Guards – Definitions and requirements;   |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS 3632:2005, Residential park homes – Specification;  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS ISO 3776-1:2006, Tractors and machinery for agriculture – Seat belts – Anchorage location requirements;   |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS ISO 3776-2:2007, Tractors and machinery for agriculture – Seat belts – Anchorage strength requirements;   |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS 4142:1997, Method for rating industrial noise affecting mixed residential and industrial areas;   |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS 4163:2007, Health and safety for design and technology in schools and similar establishments – Code of practice;  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS 4211:2005, Specification for permanently fixed ladders;   |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS 4422:2005, Fire – Vocabulary;   |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS 4465:1989, Specification for design and construction of electric hoists for both passengers and materials;  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS 4676:2005, Protective clothing – Footwear and gaiters for use in molten metal foundries – Requirements and test methods;  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS 5080-1:1993, Structural fixings in concrete and masonry – Part 1: Method of test for tensile loading;   |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS 5080-2:1986, Structural fixings in concrete and masonry – Part 2: Method for determination of resistance to loading in shear;   |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS 5228, Noise and vibration control on construction and open sites (all parts);   |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS 5234-2:1992, Partitions (including matching linings) – Part 2: Specification for performance requirements for strength and robustness including methods of test;                              |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS 5243:1975, General principles for sampling airborne radioactive materials;  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS 5266-6:1999, Emergency lighting – Code of practice for non-electrical low mounted way guidance systems for emergency use – Photoluminescent systems;  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | PD 5304:2005, Guidance on safe use of machinery;   |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS 5306, Fire extinguishing installations and equipment on premises (all parts);   |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS 5330:1976, Method of test for estimating the risk of hearing handicap due to noise exposure;  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS EN ISO 5349-1:2001, Mechanical vibration – Measurement and evaluation of human exposure to hand-transmitted vibration – General requirements;   |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS 5395-1:2000, Stairs, ladders and walkways – Code of practice for the design, construction and maintenance of straight stairs and winders;   |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS 5395-2:1984, Stairs, ladders and walkways – Code of practice for the design of helical and spiral stairs;   |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS 5395-3:1985, Stairs, ladders and walkways – Code of practice for the design of industrial type stairs, permanent ladders and walkways (partially replaced by BS EN ISO 14122-1, -2, -3:2001); |



1	2	3
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS 5415-2.2: Supplement no. 1:1986, Safety of electrical motor-operated industrial and commercial cleaning appliances – Particular requirements – Specification for type H industrial vacuum cleaners for dusts hazardous to health;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS 5426:1993, Specification for workwear and career wear;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS 5459-2:2000, Specification for performance requirements and tests for office furniture – Office pedestal seating for use by persons weighing up to 150 kg and for use up to 24 hours a day, including type-approval tests for individual components;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS 5499, Graphical symbols and signs – Safety signs, including fire safety signs;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS 5588-8:1999, Fire precautions in the design, construction and use of buildings – Code of practice for means of escape for disabled people;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS 5628-1:2005, Code of practice for use of masonry – Structural use of unreinforced masonry;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS 5628-2:2005, Code of practice for use of masonry – Structural use of reinforced and prestressed masonry;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS 5667-1:1979 (ISO 1819:1977), Specification for continuous mechanical handling equipment – Safety requirements – General;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS 5744:1979, Code of practice for safe use of cranes (overhead/underhung travelling and goliath cranes, high pedestal and portal jib dockside cranes, manually-operated and light cranes, container handling cranes and rail-mounted low carriage cranes) (partially replaced by BS 7121, Parts 1–3);
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS 5944, Measurement of airborne noise from hydraulic fluid power systems and components (all parts);
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS 5974:1990, Code of practice for temporarily installed suspended scaffolds and access equipment;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS 6037-1:2003, Suspended access equipment;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS 6037-2:2004, Code of practice for the planning, design, installation and use of permanently installed access equipment – Travelling ladders and gantries;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS 6132:1983, Code of practice for safe operation of alkaline secondary cells and batteries;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS 6133:1995, Code of practice for safe operation of lead-acid stationary batteries;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS 6165:2002, Specification for small disposable fire extinguishers of the aerosol type;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS 6166-1:1986, Lifting slings – Methods of rating;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS 6166-2:1986, Lifting slings – Specification for marking;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS 6166-3:1988, Lifting slings – Guide to the selection and safe use of lifting slings for multi-purposes;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS 6180:1999, Barriers, in and about buildings – Code of practice;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS ISO 6393:1998, Acoustics – Measurement of exterior noise emitted by earth-moving machinery – Stationary test conditions;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS ISO 6394:1998, Acoustics – Measurement at the operator’s position of noise emitted by earth-moving machinery – Stationary test conditions;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS 6458-2.1:1984 (IEC 60695-2-1:1980), Fire hazard testing for electrotechnical products – Test methods – Glow-wire test;



1 2 3

- BS 6458-2.3:1985, (IEC 60695-2-3:1984), Fire hazard testing for electrotechnical products – Test methods – Bad-connection test with heaters;
- BS EN ISO 6529:2001, Protective clothing – Protection against chemicals – Determination of resistance of protective clothing materials to permeation by liquids and gases;
- BS ISO 6534:2007, Forestry machinery – Portable chain-saw hand-guards – Mechanical strength;
- PD 6576:1995 (CR 1100:1993), Memorandum on health and safety standardization in support of ‘New Approach’ Directives – Application in the field of machinery;
- PD 6585-2:1996, Hand-arm vibration – Guidelines for vibration hazards reduction – (CR 1030-2:1995) Management measures at the workplace;
- BS 6604:1985, Code of practice for safe operation of starter batteries;
- BS 6626:1985, Code of practice for maintenance of electrical switchgear and controlgear for voltages above 1 kV and up to and including 36 kV;
- BS 6643-1:1985, Recharging fire extinguishers (manufactured to BS 5423 ‘Specification for portable fire extinguishers’) – Specification for procedure and materials;
- BS 6643-2:1985, Recharging fire extinguishers (manufactured to BS 5423 ‘Specification for portable fire extinguishers’) – Specification for powder refill charges;
- BS 6655:1986 (EN 26189:1991, ISO 6189:1983), Specification for pure tone air conduction threshold audiometry for hearing conservation purposes;
- BS EN ISO 6683:2005, Earth-moving machinery – Seat belts and seat belt anchorages – Performance requirements and tests;
- BS 6812-3:1991 (ISO 6395:1988), Airborne noise emitted by earth-moving machinery – Method of measurement of exterior noise in dynamic test conditions;
- BS 6841:1987, Guide to measurement and evaluation of human exposure to whole-body mechanical vibration and repeated shock;
- BS EN ISO 6942:2002, Protective clothing – Protection against heat and fire – Method of test: Evaluation of materials and material assemblies when exposed to a source of radiant heat;
- BS 7083:1996, Guide to the accommodation and operating environment for information technology (IT) equipment;
- BS 7085:1989, Guide to safety aspects of experiments in which people are exposed to mechanical vibration and shock;
- BS 7121, Code of practice for safe use of cranes (all parts);
- BS 7135-2:1989 (EN 29295:1991, ISO 9295:1988), Noise emitted by computer and business equipment – Method of measurement of high-frequency noise;
- BS 7135-3:1989 (ISO 9296:1988), Noise emitted by computer and business equipment – Method for determining and verifying declared noise emission values;
- BS 7212:2006, Code of practice for the safe use of construction hoists;
- BS 7255:2001, Code of practice for safe working on lifts;
- BS 7518:1995 (IEC 61017-2:1994), Radiation protection instrumentation – Portable, transportable or installed equipment to measure x or gamma radiation for environmental monitoring – Integrating assemblies;

- | 1                        | 2                        | 3                        |  |
|--------------------------|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS 7570:2000, Code of practice for validation of arc welding equipment;  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS 7669-3:1994, Vehicle restraint systems – Guide to the installation, inspection and repair of safety fences;   |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS 7671:2008, Requirements for electrical installations – IEE Wiring Regulations – Seventeenth edition;  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS EN ISO 7779:2001, Acoustics – Measurement of airborne noise emitted by information technology and telecommunications equipment;   |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS 7801:2004, Escalators and moving walks – Code of practice for safe working on escalators and moving walks;  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS 7863:1996, Recommendations for colour coding to indicate the extinguishing media contained in portable fire extinguishers;  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS 7885:1997, Code of practice for safe entry into silos;  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS 7899-1:1997, Code of practice for assessment of hazard to life and health from fire – General guidance;   |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS 7899-2:1999, Code of practice for assessment of hazard to life and health from fire – Guidance on methods for the quantification of hazards to life and health and estimation of time to incapacitation and death in fires; |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS 7963:2000, Ergonomics of the thermal environment – Guide to the assessment of heat strain in workers wearing personal protective equipment;   |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS 8081:1989, Code of practice for ground anchorages (Partially replaced by BS EN 1537:2000);  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS 8206-2:1992, Lighting for buildings – Code of practice for daylighting;   |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS 8213-1:2004, Windows, doors and rooflights – Design for safety in use and during cleaning of windows, including door-height windows and roof windows – Code of practice;  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS 8216:1991, Code of practice for use of sprayed lightweight mineral coatings used for thermal insulation and sound absorption in buildings;  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS 8800:2004, Occupational health and safety management systems – Guide;   |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS EN ISO 9185:2007, Protective clothing – Assessment of resistance of materials to molten metal splash;   |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS EN ISO 9241-5:1999, Ergonomic requirements for office work with visual display terminals (VDTs) – Workstation layout and postural requirements;   |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | HB 10190, IMS: The Framework;  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | HB 10191, IMS: Implementing and Operating;   |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS EN ISO 11111, Textile machinery safety requirements (all parts);  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS EN ISO 11611:2007, Protective clothing for use in welding and allied processes;   |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS EN 12012-1:2007, Plastics and machines – Size reduction machines – Safety requirements for blade granulators;   |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | HB 10215:2002, CDM Regulations – Procedures manual – 2nd edition;  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS EN ISO 10882-1:2001, Health and safety in welding and allied processes – Sampling of airborne particles and gases in the operator’s breathing zone – Sampling of airborne particles;  |

- | 1                        | 2                        | 3                        |  |
|--------------------------|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS EN ISO 10882-2:2000, Health and safety in welding and allied processes – Sampling of airborne particles and gases in the operator’s breathing zone – Sampling of gases;                 |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS EN ISO 10993-17:2002, Biological evaluation of medical devices – Establishment of allowable limits for leachable substances;  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS EN 12001:2003, Conveying, spraying and placing machines for concrete and mortar – Safety requirements;  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS EN 12043:2000, Food processing machinery – Intermediate provers – Safety and hygiene requirements;  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS EN 12077-2:1999, Cranes safety – Requirements for health and safety – Limiting and indicating devices;  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS EN 12198-1:2000, Safety of machinery – Assessment and reduction of risks arising from radiation emitted by machinery – General principles;  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS EN 12267:2003, Food processing machinery – Circular saw machines – Safety and hygiene requirements;   |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS EN 12268:2003, Food processing machinery – Band saw machines – Safety and hygiene requirements;   |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS EN 12492:2000, Mountaineering equipment – Helmets for mountaineers – Safety requirements and test methods;  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS EN 12514-1:2000, Installations for oil supply systems for oil burners – Safety requirements and tests – Parts, oil feed pumps, control and safety devices, supply tanks;                |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS EN 12574-3:2006, Stationary waste containers – Safety and health requirements;  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS EN 12811-1:2003, Temporary works equipment – Scaffolds – Performance requirements and general design;   |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS EN 13000:2004, Cranes – Mobile cranes;  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS EN ISO 13090-1:1998, Mechanical vibration and shock – Guidance on safety aspects of tests and experiments with people – Exposure to whole-body mechanical vibration and repeated shock; |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS EN 13157:2004, Cranes – Safety – Hand powered lifting equipment;  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS ISO/TR 13387-1:1999, Fire safety engineering – Application of fire performance concepts to design objectives;   |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS ISO/TR 13387-8:1999, Fire safety engineering – Life safety – Occupant behaviour, location and condition;  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS EN 13390:2002, Food processing machinery – Pie and tart machines – Safety and hygiene requirements;   |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS EN 13557:2003, Cranes – Controls and control stations;  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS EN 13621:2004, Food processing machinery – Salad dryers – Safety and hygiene requirements;  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS EN ISO 13850:2006, Safety of machinery – Emergency stop – Principles for design;  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS EN ISO 14001:2004, Environmental management systems – Requirements with guidance for use;   |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | BS EN ISO 14122, Safety of machinery – Permanent means of access to machinery (all parts);   |

1	2	3
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS EN 14175-2:2003, Fume cupboards – Safety and performance requirements;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS EN 14594, Respiratory protective devices – Continuous flow compressed air line breathing apparatus – Requirements, testing, marking;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS EN 14605:2005, Protective clothing against liquid chemicals – Performance requirements for clothing with liquid-tight (type 3) or spray-tight (type 4) connections, including items providing protection to parts of the body (types PB [3] and PB [4]);
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS EN 14988-1:2006, Children’s high chairs – Safety requirements;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS EN 14988-2:2006, Children’s high chairs – Test methods;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS EN ISO 15011-2:2003, Health and safety in welding and allied processes – Laboratory method for sampling fume and gases generated by arc welding – Determination of emission rates of gases, except ozone;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS EN ISO 15025:2002, Protective clothing – Protection against heat and flame – Method of test for limited flame spread;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS EN 15090:2006, Footwear for firefighters;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS OHSAS 18001:2007, Occupational health and safety management systems – Requirements;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> OHSAS 18002:2000, Occupational health and safety management systems – Guidelines for the implementation of OHSAS 18001;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS EN ISO 20344:2004, Personal protective equipment – Test methods for footwear;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS EN ISO 20345:2004, Personal protective equipment – Safety footwear;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS EN ISO 20346:2004, Personal protective equipment – Protective footwear;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS EN ISO 20347:2004, Personal protective equipment – Occupational footwear;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS EN ISO 21281:2005, Construction and layout of pedals of self-propelled sit-down rider-controlled industrial trucks – Rules for the construction and layout of pedals;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS EN 24869-1:1993 (ISO 4869-1:1990), Acoustics – Hearing protectors – Sound attenuation of hearing protectors – Subjective method of measurement;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS EN 29367-2:1995 (ISO 9367-2:1994), Lashing and securing arrangements on road vehicles for sea transportation on RO/RO ships – General requirements – Semi-trailers;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS EN 60079, Electrical apparatus for explosive gas atmospheres (all parts);
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS EN 60598-2-25:1995 (IEC 60598-2-25:1994), Luminaires – Particular requirements – Luminaires for use in clinical areas of hospitals and health care buildings;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS EN 60695-4:2006, Fire hazard testing – Terminology concerning fire tests for electrotechnical products;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS EN 60745-1:2003, Hand-held motor-operated electric tools – Safety – General requirements;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS EN 60950-1:2002, Information technology equipment – Safety – General requirements;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS EN 61252:1997 (IEC 61252:1993), Electroacoustics – Specifications for personal sound exposure meters;
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BS EN 61285:2004, Industrial-process control – Safety of analyser houses;

1 2 3

- BS EN 61310-1:1995 (IEC 61310-1:1995), Safety of machinery – Indication, marking and actuation – Requirements for visual, auditory and tactile signals;
- BS EN 61310-2:1995 (IEC 61310-2:1995), Safety of machinery – Indication, marking and actuation – Requirements for marking;
- DD CLC/TS 62081:2002, Arc welding equipment – Installation and use.

# Bibliography

- [1] HSE (2001) *Reducing risks, protecting people: HSE's decision-making process*, Sudbury: HSE Books
- [2] HSE (2007) INDG417, Institute of Directors and Health and Safety Commission: *Leading health and safety at work – leadership actions for directors and board members*, Sudbury: HSE Books
- [3] HSE (1997) HSG65, *Successful health and safety management*, Sudbury: HSE Books
- [4] ILO (2001) ILO-OSH 2001, *Guidelines on occupational health and safety management systems*, Geneva: International Labour Office
- [5] BSI (2006) PAS 99:2006, *Specification of common management system requirements as a framework for integration*, London: British Standards Institution
- [6] HSE (2000) *Management of health and safety at work. Management of Health and Safety at Work Regulations 1999. Approved Code of Practice and guidance L21* (second edition), Sudbury: HSE Books
- [7] Robens, Lord. (1972), *Safety and Health at Work: Report of the Committee 1970–72*, Cmnd 5034, London: HMSO
- [8] FRC (2006) *The Combined Code on Corporate Governance*, London: Financial Reporting Council
- [9] HSE (2005) *Control of Substances Hazardous to Health. The Control of Substances Hazardous to Health Regulations 2002. Approved Code of Practice and Guidance L5* (fifth edition), Sudbury: HSE Books
- [10] HSE (2006) *Essentials of health and safety at work*, Sudbury: HSE Books
- [11] BCF (2001), *Code of Safe Practice: Application of Powder Coatings by Electrostatic Spraying*, Leatherhead: The British Coatings Federation

- [12] HSE (2002) INDG261(rev1), *Pressure systems – safety and you*, Sudbury: HSE Books
- [13] HSE (2002) HSG231, *Working safely with metalworking fluids. Good practice manual*, Sudbury: HSE Books
- [14] HSE (1986) PM56, *Noise from pneumatic systems*, Sudbury: HSE Books
- [15] HSE (2006) INDG163(rev2), *Five steps to risk assessment*, Sudbury: HSE Books
- [16] HSE (2000) HSG202, *General ventilation in the workplace*, Sudbury: HSE Books
- [17] HSE *Health and Safety Climate Survey Tool*, Sudbury: HSE Books
- [18] BSI (2003) Carter, N, BIP 2006:2003, *Auditing the ISO 19011 Way*, London: British Standards Institution
- [19] BSI (2003) IMS Risk Solutions Ltd, BIP 2011:2003, *Continual Improvement through Auditing (Integrated Management Systems Series)*, London: British Standards Institution
- [20] BSI (2007) Smith, D and Politowski, R, BIP 2119:2007, *IMS: A framework for integrated management systems. Background to PAS 99 and its application (Integrated Management Systems Series)*, London:



# OHSAS Standards and Guidance Collection

## Occupational Health and Safety Systems

An interactive and searchable health and safety management system collection, featuring the full up-to-date text of OHSAS 18001, OHSAS 18002, BS 18004, plus the bestselling guide book *Managing Safety the Systems Way*.

This easy-to-use package provides the framework and guidance to enable an organization to put in place a standards-based system for occupational health and safety management that is effective but not burdensome.



**BSI Group**  
389 Chiswick High Road  
London W4 4AL  
United Kingdom

[www.bsigroup.com](http://www.bsigroup.com)

**BSI order ref: BIP 3094**

ISBN 978-0-580-75043-4

