NEBOSH Certificate in Environmental Management

Supplement to the RMS Management of Environmental Risks in the Workplace – 3rd Edition

Element 2 – Environmental management systems

2.2 – The key features and appropriate content of an effective EMS based on ISO 14001

Supersedes pages 47 – 48 (up to 'The requirements of BS 8555:2003')

The continual improvement concept for ISO 14001 is illustrated in the standard using an action based schematic based on the PDCA model (see figure below).

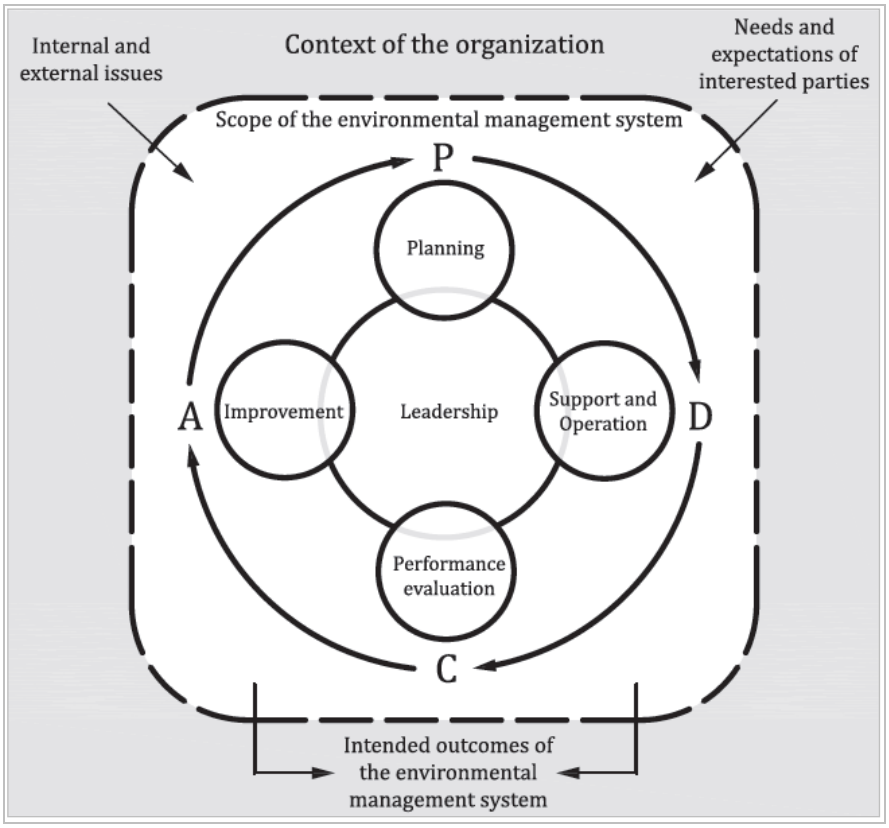

Illustration of the 'Plan, Do, Check, Act' Model. *Source: ISO 14001 2015 standard.*

ENVIRONMENTAL MANAGEMENT SYSTEMS - SPECIFICATION WITH GUIDANCE FOR USE

The ISO 14001 standard specification (BS EN ISO 14001:2015 in the UK) is set out in a series of clauses with supporting guidance. A copy of the standard is essential for any organisation wishing to implement an environmental management system in accordance with ISO 14001.

The main clauses of the standard are a series of phrases that use the following verbal forms:

- "Shall" indicates a requirement.
- "Should" indicates a recommendation.
- "May" indicates a permission.
- "Can" indicates a possibility or a capability.

The standard is applicable to any sector and size of organisation and is therefore not prescriptive and therefore require interpretation dependant on the companies size, structure and activities.

A summary of the main clauses of ISO 14001 is given in the table below:

Subject	***Summary of requirements***	***Standard Reference***
Scope	This International Standard specifies the requirements for an environmental management system that an organisation can use to enhance its environmental performance.	1 and A1
Normative references	There are no normative references for the 2015 standard (there were in 2004 hence inclusion for completeness).	2 and A2
Terms and definitions	Terms and definitions that apply	3 and A3
Context of the organisation	■ Understanding the organisation and its context ■ Understanding the needs and expectations of interested parties ■ Determining the scope of the EMS ■ Environmental management system	4 and A4 4.1 and A4.1 4.2 and A4.2 4.3 and A4.3 4.4 and A4.4
Leadership	■ Leadership and commitment ■ Environmental policy ■ Organisational roles, responsibilities and authority	5 and A5 5.1 and A5.1 5.2 and A5.2 5.3 and A5.3
Planning	■ Risks and opportunities ■ Environmental aspects ■ Compliance obligations ■ Environmental objectives and planning to achieve them	6 and A6 6.1 and A6.1 6.2 and A6.2 6.3 and A6.3 6.4 and A6.4
Support	■ Resources ■ Awareness and competence ■ Communication ■ Documented information	7 and A7 7.1 and A7.1 7.2 and A7.2 7.3 and A7.3 7.4 and A7.4
Operation	■ Operational planning and control ■ Emergency preparedness and response	8 and A8 8.1 and A8.1 8.2 and A8.2
Performance evaluation	■ Monitoring, measurement, analysis and evaluation ■ Evaluation of compliance ■ Internal audit ■ Management review	9 and A9 9.1 and A9.1 9.2 and A9.2 9.3 and A9.3 9.4 and A9.4
Improvement	■ Non-conformance and corrective action ■ Continual improvement	10 and A10 10.1 and A10.1 10.2 and A10.2

Supersedes page 49 (from 'Environmental policy') up to the end of page 53.

ISO 14001

ISO 14001 is an international standard for environmental management systems. It provides a framework for an organisation to identify its significant risks and opportunities, identify key stakeholder needs and expectations and control and influence the environmental impacts of its activities, products and services in order to achieve continual improvements with regards to the organisations environmental performance.

The ISO 14001 standard has recently been updated. The latest version was released in 2015. There are some significant changes to the standard in terms of its framework with additional and/or more specific requirements.

The key changes relate to:

- Increased prominence of environmental management within the organisation's strategic planning processes i.e. greater integration across all processes.
- Greater focus on leadership i.e. senior / top management involvement.
- Addition of proactive initiatives to protect the environment from harm and degradation, such as sustainable resource use and climate change mitigation e.g. greater stakeholder views and supply chain consideration.
- Improving environmental performance e.g. use of key performance indicators and awareness of stakeholder needs and expectations.
- Life cycle thinking when considering environmental aspects e.g. supply chain consideration.
- Addition of a communications strategy.

In addition, the revised standard follows a common structure, with the same terms and definitions as a number of other management system standards such as ISO 9001. This makes them easier, cheaper and quicker for those companies who have systems that are also required to meet, for instance Health and Safety and / or Quality standard requirements.

The transition for all existing ISO 14001: 2004 standard certifications is 2018 which is three years from the introduction of the 2015 standard. Some organisations have already achieved certification or are working towards certification to the current standard. All new certifications of organisational management systems from the ISO 14001: 2015 release date must comply with the current 2015 standard.

The following guide gives a summary of the 2015 standard.

KEY CONCEPTS OF THE STANDARD

Environmental aspect

An activity that the organisation carries out (or that it contracts others to carry out on its behalf) that can have an effect on the environment, for example, producing waste.

Environmental impact

The actual effect on the environment of the environmental aspect. Thus, for the aspect of waste production, one environmental impact might be pollution from landfill operation.

Significance

Significance, as it relates to environmental aspects in ISO 14001, is defined by the organisation itself within the environmental management system. The process of determining which environmental aspects are significant is essentially a priority-setting exercise.

Interested party/stakeholder

Person or organisation that can affect, be affected by, or perceive itself to be affected by a decision or activity, for example, customers, communities, suppliers, regulators, non-governmental organisations, investors and employees.

Risk

Effect (i.e. a deviation from the expected - positive or negative) of uncertainty (a state, even partial, of deficiency of information related to, understanding or knowledge of, an event, its consequence, or likelihood).

Risk is often expressed in terms of a combination of the consequences of an event (including changes in circumstances) and the associated ‘likelihood’ (as defined in ISO Guide 73:2009) of occurrence.

Risks and opportunities

Potential adverse effects (threats) and potential beneficial effects (opportunities).

Life cycle

Consecutive and interlinked stages of a product (or service) system, from raw material acquisition or generation from natural resources to final disposal. The life cycle stages include acquisition of raw materials, design, production, transportation/delivery, use, end-of-life treatment and final disposal.

Out source

Where an arrangement by an organisation with an external organisation is made to perform part of an organisation’s function or process, for example, broker, supplier or subcontractor.

REQUIREMENTS OF AN ISO 14001: 2015 MANAGEMENT SYSTEM

In order for an organisation to achieve certification against the ISO 14001:2015 management system standard the following requirements must be met:

Context of the organisation

Understanding the organisation and its context

The organisation must identify and understand the issues that can affect (positively and negatively) how the organisation manages its environmental responsibilities.

Issues affect the organisations ability to achieve the EMS's intended outcomes. Issues could include, for example, legal requirements and internal characteristics, such as staff behaviour and knowledge.

Understanding the needs and expectations of interested parties

The organisation must identify interested parties and their needs and expectations. The organisation should then decide on which needs and expectations they will adopt (i.e. take actions). Those that are adopted then become compliance obligations for the organisation.

Determining the scope of the EMS

The organisation must determine the scope of the EMS i.e. what it will cover in terms of the organisations boundaries, considering what it can control and what it can influence (think supply chain).

The company will need to consider the life cycle aspects of its activities, products and services when setting the scope i.e. how far along the supply chain, for example, from extraction of raw materials or just immediate supplier (this will depend on the level of control/influence as above).

Environmental management system

The organisation must establish, implement, maintain and continually improve the EMS. The organisation shall establish the EMS to meet requirements via processes i.e. integrate the EMS across the organisation (for example, house building, from design, through to build, through to sales).

The EMS should incorporate issues identified with regard to the organisation and its interested parties needs and expectations as adopted (detailed earlier).

PLAN

Leadership

Leadership and commitment

Top management shall demonstrate leadership and commitment by:

- Setting policy.
- Ensuring provision of resources.
- Ensuring integration of the EMS across the organisation.
- Communicating the importance of the EMS.
- Directing and supporting individuals and key roles associated with the EMS.
- Promoting continual improvement.
- Ensuring the EMS meets its intended outcomes.

Environmental policy

- Defined by senior management.
- Appropriate to the organisation to which it applies.
- Must include commitments to continual improvement, environmental protection and to fulfil its compliance obligations.
- Must be a basis for establishing and reviewing objectives and targets.
- Must be documented (on paper or electronically), maintained, communicated to all in the organisation and implemented.
- Available to the general public.
- Communicated within the organisation.

Organisational roles, responsibilities and authority

To comply with ISO 14001 responsibilities must be assigned in order to ensure the effective operation of the EMS in accordance with the Standard and to report on environmental performance to senior management so that the EMS can be reviewed and improved.

Planning

Risks and opportunities

The organisation must determine the risks and opportunities related to its environmental aspects, compliance obligations and other issues and requirements (i.e. issues and interested parties needs and expectations as discussed earlier) that need to be addressed in order to achieve the EMS intended outcomes, prevent or reduce undesired effects and achieve continual improvement.

Environmental aspects

The organisation must identify significant environmental aspects related to its activities, products and services. The organisation must consider aspects, and therefore activities, over which it has influence as well as those which it controls directly. It must consider normal, abnormal and emergency conditions and apply a life cycle perspective.

Compliance obligations

The organisation must identify legal and other requirements (for example, Trade Association Codes of Practice) applicable to the organisation and its aspects, compliance obligations and risks and opportunities. The organisation shall plan to take actions to address its significant environmental aspects, compliance obligations and risks and opportunities as discussed earlier. The organisation must also be able to show they have evaluated the effectiveness of these actions.

Environmental objectives and planning to achieve them

The organisation must set objectives at relevant functions and levels, taking into account the organisation's significant environmental aspects and associated compliance obligations and considering its risks and opportunities. There must be a programme for achieving the objectives and targets. This programme must specify requirements, resources, responsibilities, timescales and relevant monitoring measures such as key performance indicators.

DO

Support

Resources

Management must provide the resources necessary to operate the environmental management system and implement the programmes within it.

Awareness and competence

Competence of persons under the organisations control must be assessed, taking into consideration the organisations compliance obligations. Following this, training needs of persons under their control must be identified and actioned to ensure they have the relevant training, knowledge and experience.

Persons under their control must be aware of the policy and procedures within the environmental management system; the significant environmental impacts of their work; their roles and responsibilities for achieving environmental objectives and the potential consequences of departure from specified operating procedures.

Communication

The organisation will need to establish processes for internal communication about environmental issues and the EMS, and for registering and responding to communications about environmental issues from outside the organisation. Communications must take into account compliance obligations and persons under the organisations control in order to work towards continual improvement.

Documented information

The core elements of the management system and their interaction must be documented, either on paper or in electronic form. It must be possible to track related documents from this core documentation.

Document control is required to ensure that documents are kept in the right place and up-to-date; that current versions are available in relevant operational areas and that obsolete documents are removed from places of use and, if kept, identified as obsolete.

Operation

Operational planning and control

Activities and operations linked to the organisation's significant environmental aspects, compliance obligations and risks and opportunities must be planned and controlled. Documented procedures for operation are required if deviation from correct operation could breach environmental policy or adversely affect progress towards objectives and targets.

Where there are significant environmental aspects / risks associated with outsourced goods and services used by the organisation, it must control or influence the procedures relating to these goods and services and ensure communication with the relevant suppliers and subcontractors.

A life cycle approach is to be applied to ensure that the organisations environmental requirements are addressed in the design and development process for the products or services, considering each life cycle stage.

Emergency preparedness and response

A procedure must be in place to identify potential for accidents and emergencies, to respond to them should they occur and to mitigate any environmental impacts that might stem from them. This plan must be tested periodically where practicable.

CHECK

Performance evaluation

Monitoring, measurement, analysis and evaluation

The organisation must monitor and measure the key characteristics of operations and activities relevant to its significant aspects, issues, risks and opportunities as discussed earlier. Monitoring equipment must be calibrated and maintained and these actions recorded.

Following the collection of data, the organisation will evaluate its environmental performance and therefore determine the effectiveness of the environmental management system. The environmental performance information shall then be communicated both internally and externally, as identified by the organisation in the communication process and as required by its compliance obligations.

Evaluation of compliance

The organisation shall evaluate compliance against its identified compliance obligations periodically and take appropriate action where required.

Internal audit

The organisation shall establish and maintain programmes for audits of the EMS to be conducted periodically. The purpose of these audits is:

- To determine whether or not the system conforms to the organisation's planned arrangements for environmental management including the requirements of ISO 14001.
- To determine whether or not the system has been properly implemented and maintained.
- To provide this information to management in the form of audit results.

The audit programme must take into account the environmental importance of the activity and the results of previous audits. The audit process shall cover the audit scope, frequency and methodologies, the responsibilities and competency for conducting audits as well as reporting and communicating the results.

Management review

Senior management is required to review the entire environmental management system at appropriate intervals, considering its suitability, adequacy and effectiveness. This review must be documented.

The management review shall include consideration of:

- The status of actions from previous management reviews.
- External and internal issues that are relevant to the environmental management system.
- The needs and expectations of interested parties, including compliance obligations.
- Its significant environmental aspects.
- Risks and opportunities.
- The extent to which environmental objectives have been achieved.
- Nonconformities and corrective actions.
- Monitoring and measurement results.
- Audit results including compliance audits.
- Adequacy of resources.
- Relevant communications from interested parties.
- Opportunities for continual improvement.

The outputs of the management review shall include conclusions, decisions, actions and implications with regards to the effectiveness of the EMS.

ACT

Improvement

Non-conformance and corrective action

The organisation must identify, react and take action with regards to nonconformities in order to control and correct the nonconformity. Nonconformities need to be analysed to determine whether they are likely to happen again and if so, relevant actions taken to prevent reoccurrence. The effectiveness of corrective actions must be assessed and appropriate actions taken where actions have not been found to be ineffective.

Continual improvement

The organisation shall continually improve the suitability, adequacy and effectiveness of the environmental management system to enhance environmental performance.

CORRESPONDENCE BETWEEN ISO 14001:2015 AND ISO 14001:2004

The table below shows the correspondence between the ISO 14001:2015 standard and the previous revision ISO 14001:2004 in order to aid organisations making the transition from the 2004 standard to the current 2015.

ISO 14001:2015		ISO 14001:2004	
Clause title	Clause number	Clause number	Clause title
Introduction			Introduction
Scope	1	1	Scope
Normative references	2	2	Normative references
Terms and definitions	3	3	Terms and definitions
Context of the organisation (title only)	4		
		4	Environmental management system requirements (title only)
Understanding the organisation and its context	4.1		
Understanding the needs and expectations of interested parties	4.2		
Determining the scope of the environmental management system	4.3	4.1	General requirements
Environmental management system	4.4	4.1	General requirements
Leadership (title only)	5		
Leadership and commitment	5.1		
Environmental policy	5.2	4.2	Environmental policy
Organisational roles, responsibilities and authorities	5.3	4.4.1	Resources, roles, responsibility and authority
Planning (title only)	6	4.3	Planning (title only)
Actions to address risks and opportunities (title only)	6.1		
General	6.1.1		
Environmental aspects	6.1.2	4.3.1	Environmental aspects
Compliance obligations	6.1.3	4.3.2	Legal and other requirements
Planning actions	6.1.4		
Environmental objectives and planning to achieve them (title only)	6.2	4.3.3	Objectives, targets and programme(s)
Environmental objectives	6.2.1		
Planning actions to achieve environmental objectives	6.2.2		
Support (title only)	7	4.4	Implementation and operation (title only)
Resources	7.1	4.4.1	Resources, roles, responsibility and authority
Competence	7.2	4.4.2	Competence, training and awareness
Awareness	7.3		
Communication (title only)	7.4	4.4.3	Communication
General	7.4.1		
Internal communication	7.4.2		
External communication	7.4.3		
Documented information (title only)	7.5	4.4.4	Documentation
General	7.5.1		
Creating and updating	7.5.2	4.4.5	Control of documents
		4.5.4	Control of records
Control of documented information	7.5.3	4.4.5	Control of documents
		4.5.4	Control of records
Operation (title only)	8	4.4	Implementation and operation (title only)
Operational planning and control	8.1	4.4.6	Operational control
Emergency preparedness and response	8.2	4.4.7	Emergency preparedness and response
Performance evaluation (title only)	9	4.5	Checking (title only)
Monitoring, measurement, analysis and evaluation (title only)	9.1	4.5.1	Monitoring and measurement
General	9.1.1		
Evaluation of compliance	9.1.2	4.5.2	Evaluation of compliance

ISO 14001:2015		ISO 14001:2004	
Clause title	Clause number	Clause number	Clause title
Internal audit (title only)	9.2	4.5.5	Internal audit
General	9.2.1		
Internal audit programme	9.2.2		
Management review	9.3	4.6	Management review
Improvement (title only)	10		
General	10.1		
Nonconformity and corrective action	10.2	4.5.3	Nonconformity, corrective action and preventive action
Continual improvement	10.3		
Guidance on the use of this International Standard	Annex A	Annex A	Guidance on the use of this International Standard
Correspondence between ISO 14001:2015 and ISO 14001:2004	Annex B		
		Annex B	Correspondence between ISO 14001:2004 and ISO 9001:2008
Bibliography			Bibliography
Alphabetical index of terms			

Source: IS0 14001 standard

EU/UK specific references – changes and withdrawals

Legislation	*Comment*	*Related pages*
Chemicals (Hazard Information and Packaging for Supply (Regulations) 2009 (CHIP4)	Revoked from 1 June 2015 and replaced by the European CLP Regulation	77, 143
Control of Major Accident Hazards Regulations 1999 (COMAH)	Now revoked by the Control of Major Accident Hazards (COMAH) Regulations 2015 which came into effect on 1 June 2015. The 2015 Regulations implement European Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances (Seveso III)	34, 196, 207
The Environmental Damage (Prevention and Remediation) Regulations 2009	Revoked and replaced by the Environmental Damage (Prevention and Remediation) (England) Regulations 2015	
Environmental Permitting (England and Wales) (Amendment) Regulations 2015	Amend the Environmental Permitting (England and Wales) Regulations 2010 as follows: Regulations 3 (interpretations) and 35 (specific provisions applying to environmental permits); Part 2 of Schedule 1 (activities); Schedule 8 (Part B installations and Part B mobile plant) and Insertion of Schedule 8A relating to efficiency in heating and cooling.	
Environmental Permitting (England and Wales) (Amendment) (England) Regulations 2015	Amend the Environmental Permitting (England and Wales) Regulations 2010 as follows: Minor amendments to Regulations 2 and 44 and inserts a new Schedule 23A regarding enforcement undertakings in England.	
Environmental Permitting (England and Wales) (Amendment) (No. 2) Regulations 2016	Environmental permits are now required for flood risk activities. The amendments include: exempt flood risk activities; amend definitions in order to bring flood risk activities within the class of operations requiring an environmental permit; extend current provision so that they cover flood risk activities; require the EA and NRW to consult each other before using a function relating to a flood risk activity.	
Energy Information and Energy Efficiency (Miscellaneous Amendments) Regulations 2001	Revoked by the Energy Information Regulations 2011	
The Environmental Protection (Controls on Ozone-Depleting Substances) Regulations 2011	Replaced by the Ozone-Depleting Substances Regulations 2015	
Hazardous Waste (England and Wales) Regulations 2005	The Hazardous Waste (England and Wales) (Amendment) Regulations 2016 revokes Part 5 of the Hazardous Waste (England and Wales) Regulations 2005. This revocation means that from 1 April 2016, you'll no longer have to register in England as a hazardous waste producer if your premises produces or holds hazardous waste.	160
The List of Wastes (England) (Amendment) Regulations 2005	These Regulations have been revoked by the Hazardous Waste (Miscellaneous Amendments) Regulations 2015. The aim of the Regulations is to identify and classify wastes.	

Legislation	*Comment*	*Related pages*
	The list of wastes set out in Schedule 1 to the Regulations is a reproduction of the list of wastes from Decision 2000/532/EC.	
The Packaging (Essential Requirements) Regulations 2003	Revoked and replaced by the Packaging (Essential Requirements) Regulations 2015. They give a definition of 'plastic' and 'plastic carrier bag'. The Regulations place a duty on a responsible person who places packaging on the market to ensure that it satisfies the relevant essential requirements.	76, 77
Pollution prevention guidelines (PPGs)	Withdrawn December 2015	77, 78, 129, 195
Producer Responsibility Obligations (Packaging Waste) (Miscellaneous Amendments) Regulations 2016	The Regulations amend both the Producer Responsibility Obligations (Packaging Waste) Regulations 2007 AND the Producer Responsibility Obligations (Packaging Waste) Regulations (Northern Ireland) 2007. The amendments are: ■ The provision requiring an operational plan has been removed; ■ Conditions around approval and withdrawal of and registration to schemes.	
Planning (Control of Major-Accident Hazards) Regulations 1999	Replaced by the Planning (Hazardous Substances) Regulations 2015	
Radioactive Substances Act 1993	Mostly repealed, amended and replaced by Environmental Permitting (England and Wales) Regulations 2010	
REACH Enforcement (Amendment) Regulations 2014	Amend the REACH Enforcement Regulations 2008. Insert a new regulation and schedule relating to placing on the market and use of paint strippers containing dichloromethane (Regulation 8 and Schedule 5B).	
Surface Waters (Fishlife) (Classification) Regulations 1997 (as amended 2003)	Repealed under Water Framework Directive (Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy)	
Surface Waters (Fishlife) (Classification) (Amendment) Regulations 2009		
Surface Waters (Dangerous Substances) (Classification) Regulations 1998		
Surface Waters (River Ecosystem) (Classification) Regulations 1994		
Water Resources Act 1991	Part 4 (flood defence) of the act has been repealed. Consents for building in, over or under a watercourse, for carrying out alterations or repairs to structure in, over or under a watercourse and to erect or alter a structure designed to contain or divert the floodwaters of a main river now fall under the Environmental Permitting (England and Wales) Regulations 2010.	