



Australian Government

Department of the Environment, Water, Heritage and the Arts

Environmental Management System Tool

Guidance Notes

Acknowledgement

The EMS Tool was developed for the Department of the Environment, Water, Heritage and the Arts by NCSI. It was made publicly available in April 2009.

How to use these guidance notes

These guidance notes have been developed to assist organisations to complete the manual and registers to suit their specific operational requirements. The guidance notes are set out in the same order as the EMS manual and the AS/NZS14001:2004. If downloaded as one complete document, the EMS Tool includes hyperlinks at each section within the manual and guidance notes to enable the reader to jump between the corresponding sections. Hyperlinks have also been included where reference is made to a register.

The documentation provided within the EMS Tool is only the foundation documentation for an environmental management system. In the development of an EMS, an organisation must, at the very least adapt the documentation to suit its particular circumstances, then augment the documentation with further documented operational controls considered necessary, and faithfully implement the processes and controls described by the documentation.

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Introduction

Environmental Management Systems

An Environmental Management System (EMS) is a structured system or management tool which, once implemented, helps an organisation to identify the environmental impacts resulting from its business activities and to improve its environmental performance. The system aims to provide a methodical approach to planning, implementing and reviewing an organisation's environmental management.

Most organisations will have systems for managing their human resources, business objectives and finances as well as occupational health and safety, and security. An Environmental Management System will work more effectively if it is designed to operate in line with an organisation's existing systems and processes, such as the planning cycle, the setting of targets and improvement programs, corrective and preventive action and management review.

The environmental aspects of an organisation are those activities, products and services of an organisation that have or can have an impact on the environment. An EMS enables an organisation to identify its environmental aspects and determines which of them can have a significant impact on the environment. This helps an organisation understand how it interacts with the environment. This in turn guides an organisation in determining where environmental controls or improvements are needed, and in the setting of priorities for action to improve environmental performance.

An environmental policy sits at the top of an organisation's environmental management systems and articulates the overall intentions and direction of an organisation regarding its environmental performance. It provides a formal way for the organisations top management to express commitment to environmental management and improvement. An EMS also provides a way for organisations to plan for and demonstrate that steps have been taken to reduce or prevent environmental harm from occurring as a result of the organisations operations. At the very least, an EMS requires the organisation to assess how it meets its legal and other requirements relating to its environmental aspects.

The documentation provided within the EMS Tool is only the foundation documentation for an Environmental Management System. In the development of an environmental management system, an organisation must, at the very least adapt the documentation to suit its particular circumstances, then augment the documentation with further documented operational controls considered necessary, and faithfully implement the processes and controls described by the documentation. The following steps describe many essential processes involved in establishing and implementing an Environmental Management System within an organisation.

Steps to establishing and implementing an EMS

1. Obtain commitment from top management.
2. Define responsibilities, appoint management representative(s), establish EMS steering committee, develop implementation plan, and undertake initial training on EMS.
3. Undertake an initial environmental review (optional).
4. Identify environmental aspects & legal & other requirements; determine significant aspects; formulate environmental policy; establish environmental objectives, targets & programs.
5. Implementation & operation—develop documentation & processes.
6. Develop processes for monitoring, measurement & corrective & preventive action.
7. Develop and deliver EMS training within the organisation.

8. Establish an internal audit program, including training; conduct initial internal audit to evaluate conformity to requirements of ISO 14001, including evaluation of compliance.
9. Follow up internal audit with improvements to system.
10. Conduct initial management review of EMS.
11. Implement improvements from management review.

Step 3 (initial environmental review) may provide benefit to an organisation looking at environmental management for the first time and usually covers the following:

- Identification of environmental aspects.
- Identification of legal requirements and other requirements to which the organisation subscribes.
- Examination of existing environmental management activities, controls and procedures, including those associated with procurement and contracting.
- Evaluation of previous emergency situations and accidents.

AS/NZS ISO 14001:2004 Environmental Management Systems

The International Organization for Standardization (ISO) is a non-government network of national standards institutes. It develops and publishes international standards. The ISO 14000 series comprises a range of standards on environmental management systems, environmental assessment, environmental performance evaluation, environmental labelling, life cycle analysis and greenhouse gases.

There are two standards on environmental management systems:

1. ISO 14001—*Environmental management systems—Requirements with guidance for use*
2. ISO 14004—*Environmental management systems—General guidelines on principles, systems and support techniques*

Standards Australia & Standards New Zealand adopted both of these ISO standards in 2004. Therefore, in Australia we refer to the standards as AS/NZS ISO 14001:2004 and AS/NZS ISO 14004:2004. AS/NZS ISO 14001:2004 is the standard that sets out the requirements for an environmental management system and is against this standard that the EMS Tool has been based.

The requirements that are the subject of audit for certification of an environmental management system are set out in clause 4 of the standard. AS/NZS ISO 14004:2004 is a more substantial guidance document on how to establish, implement, maintain and improve an Environmental Management System. The guidance document also provides practical help and identifies issues to be considered when implementing a particular requirement of AS/NZS ISO 14001:2004.

The standards mentioned in this model EMS can be purchased online from NCS International at <http://www.ncsi.com.au/standards.html> (printed versions) and SAI Global at <http://www.saiglobal.com/shop> (printed and online versions).

Independent certification of an EMS

Organisations who implement an Environmental Management System based on AS/NZS ISO 14001:2004 may choose to have it independently audited to achieve third party certification. This certification can then be publicly declared as confirmation that all requirements of the standard have been effectively implemented within the organisation. A common reason for seeking certification is that it allows independent verification and it

provides assurance to internal and external stakeholders of the integrity and completeness of the management system.

Certification of Environmental Management Systems may be sought from conformity assessment bodies. In Australia and New Zealand, the competence and independence of conformity assessment bodies to certify management systems is proven by accreditation from the Joint Accreditation System of Australia and New Zealand (JAS-ANZ). JAS-ANZ maintains a register of accredited conformity assessment bodies as well as a register of certified organisations on their website.

Enquiries about certification can be made to conformity assessment bodies. A conformity assessment body can discuss the organisation's specific certification needs; compile a profile of the organisation, its activities and its risks; and provide a quote for certification.

The certification process commences with a formal application for certification to a conformity assessment body. Certification involves three audits:

1. A review of management system documentation to evaluate whether all documents and records required by an environmental management system are available, and to prepare a checklist for subsequent audits.
2. A preliminary audit to determine preparedness of the organisation for certification and to plan for the certification audit.
3. A certification audit to evaluate implementation, including effectiveness of the environmental management system and conformity to the requirements of the international standard.

Reports are provided on all three audits by the assessment body. Nonconformities or deficiencies raised in the documentation review and preliminary audit must be resolved prior to the certification audit. The time between the documentation review and preliminary audit on the one hand and the certification audit on the other usually depends on the ability of the organisation to resolve such nonconformities.

All reports and other documents prepared by the certification body are reviewed by an independent assessor, and if all requirements are met, certification to the requirements of AS/NZS ISO 14001:2004 is granted.

Initial certification is for three years. Surveillance audits are conducted so that the conformity assessment body can remain confident that the certified management system continues to fulfil requirements. These are not necessarily full system audits, and are conducted 6-monthly or annually depending on level of environmental risk (generally considered low in an office based organisation) and the certified organisation's requirements.

Recertification audits are conducted every three years to evaluate the continued fulfilment of all the requirements of the international standard for the environmental management system.

1. Scope of the EMS AS/NZS ISO 14001 cl.4.1

The important part of this clause is the requirement to define and document the scope of the EMS for which certification to the requirements of the standard is sought. An organisation may choose to implement the standard across the entire organisation, or in specific operating units, or at specific sites.

The following example for the Department of XYZ may help.

Example: The Department of XYZ provides information to the public on the Australian Government's XYZ activities and policies. Its head office is in Parkes, ACT, and there are branch offices in Sydney, Melbourne, Brisbane and Perth. The Department also has staff embedded in other government agencies in Adelaide, Darwin, Hobart and Townsville, as well as in Australian consulates in the UK, USA, Hong Kong and Japan.

The Department decides to apply its environmental management system to its operations and services at its head office and branch offices only. Staff in other offices in Australia and overseas are expected to comply with the spirit of the environmental policy in the context of the organisation in which they work.

2. Environmental policy AS/NZS ISO 14001 cl.4.2

An environmental policy sets the direction for management of the environment. By providing a framework for setting and reviewing environmental objectives and targets, it describes the expectations of top management (and the rest of the organisation) for environmental performance.

Development of the policy requires top management to make critical decisions on what the organisation aims to achieve in environmental management, such as reducing the use of natural resources, increasing the use of renewable energy, or initially just measuring its contribution to the emission of greenhouse gases. The policy is intended to guide the organisation to focus its effort and resources.

The standard requires the policy to be suitable for the nature, scale and environmental impacts of the organisation's activities, products and services. It is therefore helpful if the policy outlines what the organisation does and produces, and where it operates.

The standard also requires the policy to make three commitments:

- a) Compliance with all applicable legal requirements, and with other requirements to which the organisation subscribes relating to its environmental aspects.
- b) Prevention of pollution.
- c) Continual improvement.

To be effective, the policy must be communicated to everyone working in and on behalf of the organisation. The standard also requires an organisation to publicise its environmental policy. Most organisations achieve this through their intranet and website, but display of the policy at head office and other locations through the organisation can also be effective.

Development of a policy can be considered as an opportunity to inspire an organisation's staff and other stakeholders. A search on the Internet for environmental policies of other organisations may also be fruitful.

There is no requirement in the international standard for an environmental policy to be of a particular length. Most organisations certified to AS/NZS ISO 14001:2004 limit their policy to a single page. This facilitates awareness of the policy, and of the commitments in it.

An environmental policy may be integrated with other policies. Similarly, an environmental policy may contain environmental commitments additional to those required by AS/NZS ISO 14001:2004.

3. Planning

3.1 Environmental aspects AS/NZS ISO 14001 cl.4.3.1

Before an organisation can manage its environmental issues, it needs to identify how it interacts with the environment. The standard uses some specific terms in this process.

Environmental aspects are elements of an organisation's activities, products and services that can interact with the environment, that is, have a negative or positive environmental impact.

A *significant* environmental aspect is one that can have a significant environmental impact.

The identification of environmental aspects is best done in a systematic way designed to capture all actual and potential impacts. The process typically involves:

1. Systematic identification of all activities undertaken by the organisation, and all products and services provided. Activities include those that are infrequent, supporting activities such as administration and maintenance, and services provided by contractors.
2. Identification of the ways those activities, products and services can interact with the environment, that is, identification of environmental aspects.
3. Identification of the environmental impacts associated with the environmental aspects.
4. Analysis of the risks to determine risk levels.
5. Evaluation of the risks to determine which environmental aspects and impacts are *significant* risks to the environment and/or the organisation.

Environmental aspects must include those that currently interact with the environment, and those that have potential to interact with the environment. For example, most office based organisations routinely use electricity for lighting, air conditioning, computers and other equipment on a daily basis. These activities continuously interact with the environment through the emission of greenhouse gases from electricity generation (which is still mostly from coal fired power stations in Australia). On the other hand, emergencies such as fire or chemical spills are associated with potential interaction because their likelihood is rare.

Not only must an organisation identify the environmental aspects that it can control, but the international standard requires an organisation to identify those that it can influence. Most large organisations can influence others' environmental management through procurement of goods and services, including motor vehicles, contractors, and office accommodation.

The results of this process to identify, analyse and evaluate environmental aspects are used to establish environmental objectives and targets. The rest of the environmental management system is designed to control the significant environmental aspects and achieve the objectives and targets.

The standard requires information on environmental aspects to be documented and kept up to date. In the EMS Tool, this is done through maintenance of a Register of Environmental Aspects.

A large, complex agency may find it useful to firstly establish the context for this process in accordance with AS/NZS 4360:2004—*Risk management*. In particular, it may be useful to identify all external and internal stakeholders, as these stakeholders will often perceive the agency to have certain environmental aspects with associated risks. The following list of stakeholders is adapted from HB 436:2004—*Risk management guidelines, a companion to AS/NZS 4360:2004* (pp. 31-32) and HB 203:2006—*Environmental Risk management—Principles and process* (pp. 21-22):

- The portfolio minister, other ministers, and other members of Parliament whose electorates may be affected by activities of the agency
- The board or committee or management of the agency
- Senior managers of the agency
- Staff, their families, unions and professional associations
- Clients of the agency
- Regulators and government agencies
- The general community
- Special interest groups, such as environmental lobby and community groups
- Contractors and suppliers
- Emergency service organisations
- Financial institutions
- Insurers
- The media
- Other groups likely to be affected by the activities of the organisation.

Each environmental aspect is subject to a risk analysis based on consequences and likelihood. A risk analysis matrix is provided in the EMS manual—this is based on the qualitative risk analysis matrix in HB 203:2006—*Environmental Risk management—Principles and process* (p. 36). The matrix has four risk levels, and the manual assigns aspects that are assessed as *extreme* and *high* risk as *significant*.

The Register of Environmental Aspects provided within the EMS Tool is already populated with some environmental aspects that are likely to be identified in an office based organisation. A risk analysis is also completed for the environmental aspects. An organisation can add or delete environmental aspects as appropriate, and change any of the ratings for likelihood or consequences.

The determination of significance is relative to an individual organisation, an environmental aspect that is regarded as significant in one organisation may be regarded as not significant in another. Ideally, it is useful to conduct risk analysis in a way that results in a range of risk level from *extreme* through *high* through *medium* to *low*, so that some but not all aspects are regarded as significant.

In accordance with the importance placed by the international standard on compliance with legal requirements, it is also very common practice to ensure that any environmental aspects associated with a legal requirement are considered to be significant. This can be done as an overriding criterion in the risk analysis, or by incorporating legal requirements into the definitions of ratings for consequence (which is done in the manual).

Irrespective of an organisations impact on the environment, it is generally expected that at least some of an organisations environmental aspects will be rated as significant when compared with its remaining aspects. If the risk analysis and evaluation results in no aspects being considered significant, the risk assessment matrix could be modified to

provide for more than four risk ratings if thought appropriate, and/or the definitions of likelihood or consequences can be adapted to suit the organisation.

If the agency already has a well-established process for risk analysis, such as for occupational health and safety or financial risk, this process could be used in place of the risk analysis matrix in the EMS manual, with suitable adaption to an environmental management context.

3.2 Legal and other requirements *AS/NZS ISO 14001 cl.4.3.2*

The environmental policy must include a commitment to compliance with legal and other requirements in order to meet the requirements of the standard.

Organisations are usually subject to a number of environmental legal requirements through legislation, regulations, permits, licences and contracts. These requirements must be thoroughly identified and understood so that they can be included in the environmental management system.

Organisations also commonly subscribe to a number of other non-legal requirements relating to environmental issues. These could include internal policies, government policies and programs, requirements of industry or professional bodies, agreements with industry associations, and agreements with local communities. These commitments can be as important as legal requirements. Therefore, they need to be identified and referenced in the environmental management system.

The standard requires an organisation to identify and have access to the legal and other requirements applicable to its environmental aspects, and to determine how these requirements apply to the environmental aspects. In the EMS Tool, this is done through maintenance of a Register of Legal and Other Requirements. This register requires specific sections and clauses of legislation, regulations, permits, agreements, etc. to be listed to facilitate the evaluation of compliance. The register in the EMS Tool is filled out with several legal and other requirements which relate to office-based organisations as suggested examples.

The standard also requires an organisation to ensure that its legal and other requirements are taken into account in establishing, implementing and maintaining its environmental management system.

A list of Commonwealth and State legislation, policies and guidelines that may apply to many organisations is provided as a *starting point* for the identification of legal requirements that apply to an organisation's environmental aspects, and other requirements that an organisation may subscribe to. Each organisation should analyse in what way these legal and other requirements apply to its environmental aspects, and list the *specific* applicable requirements in the Register of Legal and Other Requirements. Listing of specific legal and other requirements applicable to an agency is critical for the evaluation of compliance required by ISO 14001.

It must be emphasised that it is important that the register of legal and other requirements is kept up-to-date. Several commercial services are available to assist with identification of legislative requirements.

3.3 Objectives, targets and program(s) AS/NZS ISO 14001 cl.4.3.3

Environmental objectives are the overall goals that an organisation sets itself to achieve. Environmental targets are detailed performance requirements that arise from the environmental objectives. Environmental objectives and targets must be consistent with the framework for setting and reviewing objectives and targets, and commitments to the prevention of pollution, compliance with legal and other requirements and continual improvement in the environmental policy.

When setting objectives and targets, an organisation must consider its legal and other requirements, its significant environmental aspects, its technological options, its financial, operational and business requirements and the views of interested parties.

The standard requires an organisation to establish a program or multiple programs for achieving its environmental objectives and targets. Such programs are also commonly known as environmental action plans, environmental management plans, environmental improvement programs and environmental management programs. Programs must include a designation of responsibility for achieving the objectives and targets as well as means and timeframes.

The EMS Tool uses a Register of Environmental Objectives and Targets. This register can include links to individual environmental actions plans or improvement programs, or procedural controls. The register accompanying the EMS Tool is filled out with many of the environmental aspects identified for office based organisations to provide some examples.

4 Implementation and operation

4.1 Resources, roles, responsibility and authority AS/NZS ISO 14001 cl.4.4.1

An environmental management system requires top management to provide sufficient resources for it to be effective. Resources typically include people, specialised skills and knowledge, organisational infrastructure, technology and money.

Various positions in an organisation may have roles, responsibilities and authorities for managing environmental aspects and the environmental management system. The standard requires these roles, responsibilities and authorities to be documented and communicated.

A special role identified in the standard is that of *management representative*. This role can be carried out by one person or shared between several people. Irrespective of other responsibilities, the management representative(s) must have responsibility and authority for ensuring the overall establishment, implementation and maintenance of the environmental management system and reporting to top management on its performance, including recommendations for improvement. As this is largely a co-ordination role, the EMS Tool refers to a role of *environmental co-ordinator*.

The EMS Tool uses a Responsibility Matrix to document positions, roles, responsibilities and authorities relevant to the EMS.

4.2 Competence, training and awareness *AS/NZS ISO 14001 cl.4.4.2*

The Responsibility Matrix is also used to document those positions or roles that have potential to cause a significant environmental impact, that is, are working in areas or jobs associated with the agency's significant environmental aspects.

Competence refers to the knowledge, understanding, skills or abilities required for a person to effectively and efficiently carry out a job. Competence can be determined through appropriate education, training, experience and assessment.

The Responsibility Matrix also provides for recording the competence requirements of all positions and roles relevant to an EMS, the title and position number of each role and the name of the person in each position or role. Also recorded is the actual competence determined as relevant for each position, training needs to fill any competence gap, planned training or other development and actual training undertaken. The Responsibility Matrix therefore needs to be kept up-to-date for changes to organisational structure, staff changes and training planned and undertaken.

Although the Responsibility Matrix partially fulfils the requirement of the standard to maintain records of training, comprehensive training records for all staff and contractors, including copies of training and educational qualifications, are usually best kept by the Human Resources section of an organisation.

The standard requires a procedure to be established, implemented and maintained to raise awareness of the environmental management system. Awareness is about ensuring that all people working on behalf of the organisation are aware that environmental management is important, that the agency has an environmental management system and that everyone is expected to support it. The EMS Tool approaches this through an EMS awareness package, which can be delivered in staff and contractor inductions and refresher sessions. The Assessment of General EMS Awareness form is available to record the awareness outcome of EMS training.

4.3 Communication *AS/NZS ISO 14001 cl.4.4.3*

The standard requires a certified organisation to have a procedure for communicating internally on its environmental aspects and environmental management system and managing communication on environmental aspects from external parties.

Internal communication is critical to an effective environmental management system. Intranets are more commonly used for internal communication, but regular meetings of work groups, newsletters, notice boards and emails are also useful. Communication on environmental aspects should be two-way, using clear channels. For most organisations, existing communication processes should be easily adapted to cater for the needs of the environmental management system.

Organisations are expected to have sound procedures for outlining how comments or complaints regarding environmental issues from external interested parties are received, documented and followed up.

An organisation must also decide whether to proactively communicate externally about its significant environmental aspects and then document its decision. This requirement reflects an international push for transparency, with the aim of encouraging understanding

and acceptance of an organisation's environmental management efforts and promoting dialogue with interested parties.

If the decision is made to proactively communicate externally about its significant environmental aspects, then the organisation must establish and implement a way of doing this. The Internet and annual reports are the most commonly used methods. External communication required during response to emergency situations and accidents is usually documented in an emergency response plan.

The EMS manual provides three options for proactively communicating externally about significant environmental aspects:

1. Publication of significant environmental aspects on the Internet, or in annual reports, or in some other form.
2. No publication of significant environmental aspects.
3. Dealing with significant environmental aspects on a case-by-case basis.

4.4 Documentation *AS/NZS ISO 14001 cl.4.4.4*

The standard stipulates a minimum list of documentation to be included in an environmental management system:

1. Environmental policy, objectives and targets
2. Description of the scope of the environmental management system
3. Description of the main elements of the environmental management system and their interaction, and reference to related documents
4. Documents and records required by the standard
5. Documents and records determined by the organisation to be necessary to ensure the effective planning, operation and control of processes that relate to its significant environmental aspects.

Point (4) refers to documents and records specifically required by the standard, other than those listed in points (1) to (3):

- Documented roles, responsibilities and authorities
- Records of competence assessment of persons or roles performing tasks that have potential to cause a significant environmental impact
- Records of training
- Records of external communication
- Documented decision about external communication about significant environmental aspects
- External documents
- Records of monitoring and measurement
- Records of calibration or verification of monitoring and measuring equipment
- Records of evaluations of compliance with legal and other requirements
- Records of results of corrective and preventive action
- Records of management review.

Many other documents and records could also be appropriate to an organisation for effective management of its environmental management system, and this is the intent behind point (5). The extent of documents and records required for any environmental management system depends on the size and complexity of the organisation and the environmental risks associated with its activities, products and services. Rather than being overly prescriptive on requirements for documents and records, the international standard puts the onus on an organisation to determine which documents and records are

necessary to ensure the effective planning, operation and control of processes that relate to its *significant* environmental aspects. This minimal documentation approach is usually done using risk management (see clause 4.4.6).

The EMS manual, environmental policy, register of environmental objectives and targets and other documents in the EMS Tool provide most of this documentation including references to the remaining documentation required by the standard and determined by the organisation to be necessary for the EMS.

A Register of Documents and Records lists policies, manuals, procedures, plans, external documents, registers, forms, templates and records relevant to the model environmental management system for government agencies.

4.5 Control of documents *AS/NZS ISO 14001 cl.4.4.5*

Documents required by the environmental management system must be controlled according to the requirements of AS/NZS ISO 14001:2004. The procedure for controlling documents in the *strict sense* must include the same requirements as AS/NZS ISO 9001:2000 for quality management:

- Document approval
- Document review, update and re-approval
- Identification of changes and current revision status
- Availability at points of use
- Legibility and identification
- Identification and distribution of external documents
- Management of obsolete documents.

The EMS Tool outlines a procedure for controlling environmental management system documents (in the strict sense) in accordance with the requirements of the standard. This can be adapted to suit an agency's existing process, as appropriate.

Control of records is dealt with in a separate procedure (see below).

4.6 Operational control *AS/NZS ISO 14001 cl.4.4.6*

Point (5) above under *Documentation* is about providing documented procedures to control processes and operations which do or could have a significant environmental impact. This requirement is repeated in the clause of the standard relating to operational control. It is a risk based approach to documentation designed to minimise documentation. A *documented* procedure is required to control an operation associated with a significant environmental aspect if there is a risk of deviation from the organisation's environmental policy, objectives and targets without it. In other words, if a documented procedure will add value to a control, then it should be created. Equally, a documented procedure that does not add value to a control or the environmental management system generally, is unnecessary and may be deleted to avoid having to maintain it.

A documented operational procedure must stipulate the operating criteria, such as normal operations, emergency situations, shut down, and maintenance.

Procedures are also required for significant environmental aspects of goods and services used by the organisation. These do not strictly have to be documented, but documentation

facilitates communication of applicable procedures and requirements to suppliers, including contractors. Again, this documentation of procedures is risk based.

The criteria that could be considered when adopting a risk based approach to documenting procedures include:

- Likelihood and consequences of environmental impact
- Legal and other requirements
- Size and complexity of the organisation and the need to ensure that a procedure is undertaken consistently throughout the organisation
- Benefits for training.

Documented procedures may be referred to as work procedures, standard operating procedures (SOPs), safe work method statements (SWMSs), environmental work method statements, or anything else. Operational procedures can range from text based to pictorial.

In office based organisations, an evacuation procedure is an example of a documented operational procedure that would be required. This may be a part of the emergency response plan (see below). If an organisation occupies an entire building with an emergency generator, a documented procedure for receiving and storing fuel, and filling and testing the generator may be appropriate. If land and air travel are monitored, a documented work instruction for recording details of fuel use, distance driven, and air miles flown, may help to ensure that high quality data is recorded.

If a government agency handles dangerous goods such as chemicals or explosives, then a procedure on controls for receiving, storing, transporting, using and disposing of dangerous goods would be expected in an environmental management system.

An example of a standard operating procedure for waste segregation is provided within the Tool. This can be adapted for use in an agency, or used as the basis for devising similar procedures for controlling other significant environmental aspects.

The EMS Tool requires such documented operational procedures to be recorded in the manual and in the Register of Documents and Records.

4.7 Emergency preparedness and response *AS/NZS ISO 14001 cl.4.4.7*

The standard requires an organisation to identify potential emergency situations and potential accidents that can have environmental impact and determine how it will respond to them. This is similar to the requirement for safety management systems in AS/NZS 4801:2001, except the emphasis is on emergencies and accidents that can have an environmental impact rather than an impact on occupational health and safety.

For effective emergency preparedness and response, an organisation may already conduct the following tasks that are required by the international standard for environmental management:

- Identify potential (environmental) impacts from all possible emergencies and accidents.
- Devise controls to prevent emergencies and accidents.
- Develop responses to emergencies and accidents that can still happen despite the implementation of controls.
- Prepare and distribute an emergency preparedness and response plan.
- Train people in emergency response, especially those people with key roles.
- Test the robustness of emergency preparedness and response with periodic drills.

- Review and, as appropriate, revise the emergency preparedness and response plan after each test and each actual emergency and accident.

The approach used in the EMS Tool is to identify environmental emergency situations and accidents as environmental aspects and in turn subject them to determination of environmental significance. Most organisations already maintain an emergency preparedness and response plan as a matter of course, so this plan is used in the EMS Tool to satisfy the standard's requirement for a procedure for responding to emergencies and accidents—there may be no need to create a new or separate procedure.

The standard requires an organisation to respond to actual environmental emergencies and accidents and prevent or mitigate associated adverse environmental impact. The EMS Tool therefore treats actual environmental emergencies and accidents as environmental non-conformities requiring correction and preventative action (see section 5.3 below).

The standard also requires periodic review and appropriate revision of emergency preparedness and response. The EMS Tool requires such review after each test and the occurrence of emergencies or accidents and revision of the emergency preparedness and response plan as appropriate.

For many agencies, many of the requirements in the international standard for emergency preparedness and response will already be fulfilled and all that is required is to formally integrate them into the environmental management system, that is, ensure that they make appropriate reference to environmental impacts.

On the other hand, if establishing an environmental management system has highlighted deficiencies in emergency preparedness and response, or the organisation itself has only recently been established, the organisation could obtain useful guidance from the Australian Standard AS 3745:2002 *Emergency control organisation and procedures for buildings, structures and workplaces*.

5 Checking

5.1 Monitoring and measurement AS/NZS ISO 14001 cl.4.5.1

In the context of an environmental management system, *environmental performance* is the measurable results of an organisation's management of its environmental aspects.

The standard requires an organisation to have a procedure for monitoring and measuring, on a regular basis, the key characteristics of its operations that can have a significant environmental impact. The procedure must include the recording of information to monitor environmental performance, operational controls, and progress on achieving the organisation's environmental objectives and targets.

Any monitoring or measuring equipment that requires calibration or verification must have its calibration and verification maintained, as evidenced by records.

Although a *documented* procedure for monitoring and measurement is not required by the standard, it can help to provide consistency in measurements and enhance the reliability of data produced.

The EMS Tool uses an annual Schedule of Monitoring and Measurement in which data relevant mostly to an office based organisation are collected on a monthly basis. Other objectives, targets and key performance indicators relevant to an organisation's EMS can be added. The schedule is provided as a table in a Microsoft Word document, but an organisation could convert the table to a Microsoft Excel spreadsheet that facilitates charting trends.

The manual within the EMS Tool provides for listing any monitoring or measuring equipment that requires calibration or verification. This may not be relevant in a wholly office-based organisation, in which case the section on monitoring and measurement in the EMS manual should state this. Records of calibration or verification are intended to be scanned and saved in a *Calibration Records* folder to facilitate retrieval.

5.2 Evaluation of compliance *AS/NZS ISO 14001 cl.4.5.2*

In addition to monitoring and measurement of operational activities, the standard requires an organisation to periodically evaluate its compliance with applicable legal requirements and with other requirements to which it subscribes, and keep records of the results of the evaluations. The distinction between monitoring and measurement on the one hand and periodic evaluation of compliance on the other is not always appreciated by organisations certified to the requirements of AS/NZS ISO 14001:2004. In most cases, monitoring and measurement is an ongoing process to collect data required by legal and other requirements. Evaluation of compliance is about analysing and comparing the data collected over a period of time with legal and other requirements.

The evaluation can be conducted in a compliance audit. In the audit, questions can be asked such as:

- Have the sampling frequency and sites complied with requirements?
- Have the results of monitoring and measurement been reported accurately and on time to the appropriate authority?
- Do the results of monitoring and measurement fall in the allowable ranges?
- Has appropriate action been taken when results have fallen outside the allowable ranges?

The evaluation of compliance is critically dependent on knowing the legal and other requirements and how they apply to environmental impacts in some detail. This is why the Register of Legal and Other Requirements is important. In the EMS Tool, this register is used to facilitate the evaluation of compliance.

5.3 Nonconformity, corrective & preventive action *AS/NZS ISO 14001 cl.4.5.3*

Nonconformity is non-fulfilment of a requirement, that is, when something does not go to plan. In the context of an environmental management system, environmental nonconformity occurs when an environmental control is not implemented or is ineffective, an environmental emergency or accident happens, a licence condition is breached, acceptable levels of a monitored or measured characteristic are exceeded, an environmental objective or target is not met, a neighbour or member of the public complains about an environmental issue from your site, a documented procedure or work instruction is not followed, and so on.

At first thought, nonconformity may be associated with negative consequences, a problem, or a concern that has to be dealt with. However, nonconformity should more importantly be considered as an opportunity for improvement. Organisations that are serious about continual improvement of their management system encourage the identification of nonconformity as well as suggestions for improvement among staff and other stakeholders.

AS/NZS ISO 14001:2004 provides a mechanism for identification of actual nonconformity and potential nonconformity to contribute to continual improvement of the environmental management system through corrective action and preventive action, respectively.

The process for identifying nonconformity and taking corrective and preventive action leading to system improvement as intended by AS/NZS ISO 14001:2004 is depicted in a Corrective and Preventive Action Flowchart. The steps in the flowchart are consistent with those required by AS/NZS ISO 9001:2008 for dealing with nonconforming products and services in a quality management system, and those required by AS/NZS 4801:2001 for dealing with occupational health and safety incidents. This facilitates integration with other management systems that provide for corrective and preventive action.

The standard requires action taken to be appropriate to the magnitude of the problems and environmental impact encountered in association with nonconformity. It also clarifies that changes should be made to the environmental management system documentation as necessary from dealing with nonconformity and taking appropriate action.

The EMS Tool provides a Register of Environmental Nonconformity and Suggestions for Improvement to Environmental Management. It also provides a Corrective and Preventive Action Form for managing the analysis of actual and potential nonconformity and suggestions for improvement, and the taking of appropriate action.

5.4 Control of records *AS/NZS ISO 14001 cl.4.5.4*

Documentation in the *general sense* includes records. However, AS/NZS ISO 14001:2004 distinguishes between control of documents in the *strict sense* and control of records. A record is a historical piece of information—results achieved from a process or otherwise evidence of an activity performed. Documents in the strict sense, on the other hand, are live pieces of information—they usually provide guidance on what to do, and need to be kept up to date.

Sometimes the distinction between a document in the strict sense and a record is unclear in the context of an environmental management system. For example, a register could be regarded as a document consisting of a snapshot of records. In the end it does not matter much—the important thing is that documents and records required by an environmental management system are controlled by being available or retrievable, legible and identifiable. All documents in the strict sense become records when they are made obsolete.

Environmental management usually results in the need to keep a wide range of records. Some records are mandated by the standard, while others are a natural result of conducting an activity. They are relied on by internal and external auditors as evidence of conformity to the requirements of the environmental management system and AS/NZS ISO 14001:2004.

Records for the environmental management system must be stored in a manner that protects them but facilitates retrieval when records are required. It is expected that organisations would apply this principle to records generally and already employ a formal records management system that manages paper and/or electronic records.

Regardless of whether an organisation's records management system is paper and/or electronic based, it is expected that records required by an environmental management system would be managed in the organisation's records management system. The establishment of an environmental management system therefore provides an opportunity to ensure that the organisation's records management system is robust.

It is expected that an organisation's records management systems will have records retention periods defined. Some records can be disposed of after a certain period, occasionally prescribed in regulations, while others are required to be kept effectively indefinitely. Most organisations retain noncritical environmental management system records for five to seven years.

The EMS Tool provides a Register of Documents and Records required by the environmental management system.

An Archives Register is also provided for paper based records relevant to the EMS. This is optional and is provided in case an agency's records management system does not provide for archival storage.

To assist an agency in establishing a system for storing records required by the environmental management system, the EMS manual (section 5.4) provides a list of folders with intuitive names. This folder structure can be simply set up in the records management system, or used to store hardcopy records.

5.5 Internal audit *AS/NZS ISO 14001 cl.4.5.5*

Internal audits of an environmental management system provide information to management on whether the system conforms to planned arrangements and has been properly implemented and maintained. Ideally, an internal audit looks forward and evaluates the effectiveness of a management system in fulfilling the commitments made in the management system policy and in achieving the objectives and targets established for the management system. For an environmental management system, the important high level commitments are the prevention of pollution, compliance with legal and other requirements, and continual improvement.

AS/NZS ISO 14001:2004 requires an organisation to plan, establish, implement and maintain an internal audit program. This should be done on a risk basis by considering the environmental importance of an organisation's operations in terms of its environmental aspects and impacts, and the results of previous audits.

AS/NZS ISO 14001:2004 does not require a documented procedure for internal audit of environmental management systems. However, to ensure consistency and rigour in the conduct of internal audits, a documented procedure is a good idea in most organisations. The EMS Tool includes a documented procedure in the section 5.5 of the manual.

An important point to realise is that a single internal audit does not need to cover the whole environmental management system. In particular, a single annual internal audit the day before an external audit does not demonstrate a strong commitment to continual improvement of the system. It is better to devise an audit program that ensures that all organisational units and functions, environmental management system elements, and the full geographical scope of the environmental management system are audited over a period of time. The timeframe could range from a year for an organisation with a relatively limited range of activities over a small number of sites, to three years for a large, complex organisation with many sites around Australia and perhaps even overseas. This approach

facilitates following up findings with effective corrective and preventive action across the whole organisation.

A Internal Audit Schedule is provided with the EMS Tool. This lists all the broad elements of AS/NZS ISO 14001:2004, and provides for the elements to be scheduled for audit on a monthly basis in an agency with a single site. Audit scheduling could be quarterly if that suits the organisation.

The complexity of the organisation may require a more complex approach to internal auditing. Further thought may be required to devise an effective internal audit program in such a case.

Internal audits of environmental management systems may also be integrated with internal audits of occupational health and safety and quality management systems. In general, integration of management systems will improve management system efficiency, and possibly also effectiveness.

The standard requires that auditors are selected for internal audits with a view to ensuring objectivity and impartiality of the audit process. That is, an auditor cannot audit the section in which he or she normally works.

Another standard, AS/NZS ISO 19011:2003, provides useful guidance on the auditing of environmental management systems. It recommends that the management of an audit program follow the Plan-Do-Check-Act cycle of continual improvement.

It is common to hear that effective auditing is about adding value to an organisation. Conversely, it is rather narrow minded to consider auditing as the same as inspections. As mentioned above, auditing looks forward and is about evaluating the effectiveness of a management system to achieve its planned outcomes. Inspections, on the other hand, are more about looking backwards to simply identify nonconformities. Auditors, therefore, must be competent in auditing, and ISO 19011 emphasises the importance of ensuring auditor competence. The training of auditors is in turn a critical issue in an effective internal audit program, and the EMS manual suggests an approach to training.

Ultimately, an effective internal audit program will find actual and potential environmental nonconformities for follow-up with corrective and preventive action. This process will in turn improve the environmental management system, reduce environmental risks, and improve environmental performance.

The EMS Tool uses an internal audit to evaluate compliance with legal and other requirements, which should be done at least annually. The Register of Legal and Other Requirements may facilitate this. Other internal audits of the environmental management system elements can use an Internal Audit Checklist, which has been compiled to cover *all* the requirements in clause 4 of AS/NZS ISO 14001:2004, including the requirement for evaluation of compliance. Specific requirements from the EMS manual may be added to this checklist to further facilitate internal audits. Conducting a full internal audit using the generic checklist would be a good way to evaluate readiness for certification of the environmental management system.

The EMS Tool provides an Internal Audit Report Template to record the findings of an audit that uses the Internal Audit Checklist.

6 Management review *AS/NZS ISO 14001 cl.4.6*

Management review is an opportunity for top management to take a holistic and strategic look at the continuing suitability, adequacy and effectiveness of the environmental management system, and approve actions to improve the system, thereby reducing exposure to environmental risk and improving the environmental performance of the organisation.

AS/NZS ISO 14001:2004 is very prescriptive about the input to management reviews. This is designed to ensure the effectiveness of the Plan-Do-Check-Act cycle (or spiral) in achieving continual improvement.

The standard does not stipulate the frequency of management reviews or their format. They do not have to be in the form of a meeting. However, it is suggested in AS/NZS ISO 14004:2004 that the information for management reviews is compiled and presented by the environmental management representative or team. Management reviews can therefore be conducted without meetings, but the standard requires records to be kept. Most organisations with effective management review conduct them annually, half-yearly or quarterly. Management reviews conducted any more frequently than quarterly tend to be more operational than holistic and strategic. Quarterly management reviews may be appropriate while an environmental management system is being established and implemented. Management review frequency can usually be reduced to half-yearly and eventually annually as the management system matures.

Management review of an environmental management system can be integrated with management review of an occupational health and safety, quality, and/or financial management system. Annual management reviews can be most effective if conducted as part of an organisation's normal business planning cycle.

The EMS Tool provides a template for a management review briefing that facilitates conformity with the requirements of the environmental management international standard for input. It also provides for recording decisions on changes to the environmental policy, environmental objectives, targets and programs/plans, risk assessment, environmental aspects and other elements of the environmental management system.

Glossary

Most of the following definitions are adapted from AS/NZS ISO 14001:2004 and other standards. The terms are defined in the context of an environmental management system.

accreditation: endorsement of a conformity assessment body's competence, credibility, independence and integrity in carrying out conformity assessment

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

audit criteria: set of policies, procedures or requirements

audit evidence: records, statement of facts or other information, which are relevant to the audit criteria and verifiable

auditor: person with the competence to conduct an audit

authority: justification and right to exercise a power

carbon footprint: measure of the impact that human activity has on the environment in terms of the amount of greenhouse gases produced

certification: verification by a conformity assessment body that a management system conforms to the requirements of a standard

competence: demonstrated personal attributes and demonstrated ability to apply knowledge and skills

compliance: AS 3806:2006: adhering to the requirements of laws, industry and organisational standards and codes, principles of good governance and accepted community and ethical standards

AS/NZS ISO 14001:2004: adhering to legal or other requirement

Conformity: fulfilment of a specification or requirement; synonymous with *conformance* which has been deprecated by ISO

conformity assessment: checking that products, materials, services, systems, processes or people measure up to the specifications of a relevant standard or specification; conformity assessment of management systems involves conducting audits

conformity assessment body: an accredited body that performs conformity assessment

continual improvement: recurring process of enhancing the environmental management system to achieve improvements in overall environmental performance consistent with the organisation's environmental policy

control: process for achieving an objective; also referred to as *internal control*

correction: action to eliminate a detected nonconformity

corrective action: action to eliminate the *cause* of a detected nonconformity in order to avoid recurrence of the nonconformity

document: information and its supporting medium

documentation: a set of documents, e.g. procedures and records

effectiveness: extent to which planned activities are realized and planned results achieved

efficiency: relationship between the result achieved and the resources used

element: a generic component of an environmental management system required by a clause of the international standard; could also be referred to as a *process*

environment: surroundings in which an organisation operates, including air, water, land, natural resources, flora, fauna, humans and their interrelation

environmental aspect: an element of an organisation's activities, products or services that can interact with the environment

environmental impact: any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organisation's environmental aspects

environmental management system: part of an organisation's management system used to develop and implement its environmental policy and manage its environmental aspects; often abbreviated to *EMS*

environmental objective: overall environmental goal, consistent with the environmental policy, that an organisation sets itself to achieve

environmental performance: measurable results of an organisation's management of its environmental aspects

environmental policy: overall intentions and direction of an organisation related to its environmental performance as formally expressed by top management

environmental target: detailed performance requirement applicable to the organisation, that arises from the environmental objectives and that needs to be set in order to achieve those objectives

evaluation: systematic determination of merit, worth and significance of something using criteria, e.g. evaluation of effectiveness

greenhouse gases: gases in the atmosphere that absorb and emit radiation in the thermal infrared range; give rise to the greenhouse effect; water vapour is the most abundant greenhouse gas, followed by carbon dioxide, others are methane, nitrous oxide, various man-made fluorine compounds and ozone; increasing concentration of carbon dioxide due to human activity is believed to be the main contributor to global warming

initial environmental review: a review of environmental aspects of an organisation's activities, products and services as a basis for establishing an environmental management system

internal audit: audit conducted by, or on behalf of, an organisation itself for management review and other internal purposes

internal audit program: set of one or more internal audits planned for a specific timeframe and directed towards a specific purpose

ISO: International Organization for Standardisation, but abbreviated to ISO (from the Greek *isos* which means *equal*)

JAS-ANZ: Joint Accreditation System of Australia and New Zealand, accredits conformity assessment bodies

legal requirement: requirement of legislation, a regulation, a licence, a permit, or a contract

management review: holistic and strategic determination by top management of the suitability, adequacy and effectiveness of an environmental management system to fulfil commitments made in the environmental policy and achieve the established environmental objectives

manual: document specifying the requirements of an environmental management system

nonconformity: non-fulfilment of a requirement; synonymous with *nonconformance* which has been deprecated by ISO

operational control: process employed to manage environmental aspects, ensure compliance with legal and other requirements, achieve environmental objectives and targets and consistency with commitments in the environmental policy, or avoid or minimise environmental risks

other requirement: a requirement, not necessarily legally enforced, that an organisation voluntarily subscribes to, e.g. codes of practice, industry or professional associations, support for environmental groups, AS/NZS ISO 14001:2004

prevention of pollution: use of processes, practices, techniques, materials, products, services or energy to avoid, reduce or control (separately or in combination) the creation, emission or discharge of any type of pollutant or waste, in order to reduce adverse environmental impacts; can include source reduction or elimination, process, product or service changes, efficient use of resources, material and energy substitution, reuse, recovery, recycling, reclamation and treatment

preventive action: action to eliminate the cause of a potential nonconformity in order to avoid occurrence of the nonconformity

procedure: specified way to carry out an activity or a process

program: a planned set of tasks to achieve environmental objectives and targets, specifying responsibility, means and timeframe; also spelt *programme*; also referred to as *action plan* or *environmental improvement program*

process: set of interrelated or interacting activities which transforms inputs into outputs

record: document stating results achieved or providing evidence of activities performed

requirement: need or expectation that is stated, generally implied or obligatory

responsibility: accountability for something within one's power, control or management

risk: a measure of the likelihood and consequences of an event that will impact on achievement of objectives; can be adverse or beneficial

risk analysis: systematic process to understand the nature of and to deduce the level of risk; provides the basis for risk evaluation and the treatment of risk

risk assessment: overall process of identifying risks, risk analysis, and risk evaluation

risk evaluation: process of comparing the level of risk against risk criteria, e.g. the process used in determining significant environmental aspects

risk management: the culture, processes and structures that are directed towards realising potential opportunities whilst managing adverse effects

role: a specific part played by someone in an organisation, usually associated with responsibility, e.g. role of management representative

scope: boundaries of an environmental management system in terms of location, activities, products and services

significant environmental aspect: an environmental aspect that has or can have a *significant* environmental impact in the context of an organisation

standard: a set of requirements for a management system, e.g. AS/NZS ISO 14001:2004

References

The following standards and handbooks are referenced in the EMS Tool:

AS 3745:2002, *Emergency control organisation and procedures for buildings, structures and workplaces*, Standards Australia.

AS 3806:2006, *Compliance programs*, Standards Australia.

AS ISO/IEC 17021:2006, *Conformity assessment—Requirement for bodies providing audit and certification of management systems*, Standards Australia.

AS/NZS 4360:2004 , *Risk management*, Standards Australia/Standards New Zealand.

AS/NZS 4801:2001, *Occupational health and safety management systems—Specification with guidance for use*, Standards Australia/Standards New Zealand.

AS/NZS ISO 9001:2008, *Quality management systems—Requirements*, Standards Australia/Standards New Zealand.

AS/NZS ISO 14001:2004, *Environmental management systems—Requirements with guidance for use*, Standards Australia/Standards New Zealand.

AS/NZS ISO 14004:2004, *Environmental management systems—General guidelines on principles, systems and support techniques*, Standards Australia/Standards New Zealand.

AS/NZS ISO 19011:2003, *Guidelines for quality and/or environmental management systems auditing*, Standards Australia/Standards New Zealand.

HB 203:2006, *Environmental risk management—Principles and process*, Standards Australia/Standards New Zealand.

HB 436:2004, *Risk management guidelines, companion to AS/NZS 4360:2004*, Standards Australia/Standards New Zealand.