



# **Environmental Management System Guide**

January 2010

## **SETTING UP AN ENVIRONMENTAL MANAGEMENT SYSTEM (EMS) IN THE MILLING INDUSTRY**

### **Table of Contents**

<b>Introduction</b>	<b>2</b>
<b>What is an EMS?</b>	<b>2</b>
<b>Why do I need an EMS?</b>	<b>2</b>
<b>ISO 14001, EMAS and other standards</b>	<b>2</b>
<b>Links with Other Management Systems</b>	<b>4</b>
<b>Some Terminology</b>	<b>5</b>
<b>Sources of Further Information</b>	<b>5</b>
<b>Business Benefits of an EMS</b>	<b>7</b>
<b>Getting Started</b>	<b>7</b>
<b>Gaining Commitment for the EMS and the Implementation Team</b>	<b>8</b>
<b>Putting an Implementation Team Together</b>	<b>9</b>
<b>Carrying out an Initial Environmental Review and Planning the Way Forward</b>	<b>9</b>
<b>Developing an Environmental Policy</b>	<b>10</b>
<b>Identification of Environmental Aspects and the Ranking of their Significance</b>	<b>11</b>
<b>Identifying your Aspects</b>	<b>11</b>
<b>Ranking the Significance</b>	<b>12</b>
<b>Identification of Environmental Legislation and Checking Compliance</b>	<b>13</b>
<b>The Register of Legislation</b>	<b>13</b>
<b>Ensuring Legal Compliance</b>	<b>14</b>
<b>Setting Objectives and Targets – and the management programmes to achieve them</b>	<b>14</b>
<b>Objectives and Targets</b>	<b>14</b>
<b>Environmental Management Programmes</b>	<b>16</b>
<b>Defining Structures and Responsibilities</b>	<b>17</b>
<b>Training and Awareness Raising</b>	<b>19</b>
<b>Training</b>	<b>19</b>
<b>Building Awareness among Employees</b>	<b>21</b>
<b>Internal and External Communications</b>	<b>21</b>
<b>Your EMS Manual</b>	<b>23</b>
<b>Records</b>	<b>24</b>
<b>Operational Control and Emergency Situations</b>	<b>25</b>
<b>Operational Control</b>	<b>25</b>
<b>Emergency Preparedness and Response</b>	<b>26</b>
<b>Monitoring and Measuring</b>	<b>26</b>
<b>Auditing your EMS, identifying issues and taking action</b>	<b>27</b>
<b>Auditing your EMS</b>	<b>27</b>
<b>Non-conformances and Corrective and Preventative Action</b>	<b>28</b>
<b>Carrying out a Management Review</b>	<b>28</b>

**Introduction**

This guide has been designed to take you through the stages of implementing and maintaining an Environmental Management System (EMS). The EMS described in these pages has been informally based on the elements of ISO 14001 but has been simplified where possible. Where appropriate, "Additional Requirements for ISO 14001 and EMAS" guidance has been provided for those companies interested in developing an EMS fully compliant to these standards.

Also available are downloadable worksheets (Appendix 1, 2 and 3) that you may wish to complete to help you gain a better understanding of the environmental issues at your site. By storing these worksheets you will have begun to collect the information, records and documents that will form the backbone of your EMS. Some completed industry examples based on a case study company are also available for downloading to demonstrate what is required.

**What is an EMS?**

An Environmental Management System (EMS) is a structured framework for delivering continual improvement in environmental performance. It allows you to identify your main environmental issues and provides an integrated approach to managing them properly. When implementing an EMS companies may wish to develop their own in-house system or partially/fully follow the guidance provided by international management standards such as ISO 14001 and EMAS with the option of seeking certification.

**Why do I need an EMS?**

The benefits of implementing and maintaining an EMS can be many-fold including the financial benefits of waste minimisation schemes, improved company reputation and conformance to current legislative requirements.

The Pollution Prevention and Control Regulations 2000 will provide a particularly strong driver for implementing an EMS. Companies falling under these regulations are required to have a suitable management system in place within three years of an IPPC permit being issued. The implementation of a system based on ISO 14001 will meet this requirement.

**ISO 14001, EMAS and other standards**

ISO 14001 and EMAS (Eco-Management and Audit Scheme) are international standards that lay out requirements for Environmental Management Systems. Companies may choose to follow the requirements of these standards when implementing their EMS and may further choose to become certified/verified to one or both of them.

Certification/verification demonstrates that an EMS meets internationally recognised best practice and provides external credibility to stakeholder groups.

The International Organisation for Standardisation (ISO) is responsible for the development of the ISO 14000 series of international environmental management standards. The Eco-Management and Audit Scheme (EMAS) was developed by the European Union (EU).

Both ISO 14001 and EMAS are built on a “Plan, Do, Check, Act” model that encourages the concept of continual improvement. In the ISO 14001 EMS Standard, these “plan, do, check, act” steps have been expanded into seventeen EMS elements shown in the box below.

- Environmental policy — Develop a statement of your organisation's commitment to the environment. Use this policy as a framework for planning and action.
- Environmental aspects — Identify environmental attributes of your products, activities and services. Determine those that could have significant impacts on the environment.
- Legal and other requirements — Identify and ensure access to relevant laws and regulations (and other requirements to which your organisation adheres).
- Objectives and targets — Establish environmental goals for your organisation, in line with your policy, environmental impacts, views of interested parties and other factors.
- Environmental management programme — Plan actions to achieve objectives and targets.
- Structure and responsibility — Establish roles and responsibilities and provide resources.
- Training, awareness and competence — Ensure that your employees are trained and capable of carrying out their environmental responsibilities.
- Communication — Establish processes for internal and external communications on environmental management issues.
- EMS documentation — Maintain information on your EMS and related documents.
- Document control — Ensure effective management of procedures and other system documents.
- Operational control — Identify, plan and manage your operations and activities in line with your policy, objectives and targets.
- Emergency preparedness and response — Identify potential emergencies and develop procedures for preventing and responding to them.
- Monitoring and measurement — Monitor key activities and track performance.
- Non-conformance and corrective and preventive action — Identify and correct problems and prevent recurrences.
- Records — Keep adequate records of EMS performance.
- EMS audit — Periodically verify that your EMS is operating as intended.
- Management review — Periodically review your EMS with an eye to continual improvement.

EMAS is fully compliant to ISO 14001, following the same 17 elements. However, EMAS goes further in its requirements for performance improvement, employee involvement, legal compliance and communication with stakeholders. Some organisations choose to progress from ISO 14001 to EMAS and maintain certification/registration to both. The differences between EMAS and ISO 14001 include:

- EMAS requires that an Initial Environmental Review be carried out, whilst ISO 14001 only advises it
- EMAS requires a provision for legal compliance, ISO 14001 only specifies a commitment
- EMAS specifies the aspects that must be addressed
- EMAS requires active engagement with employees, suppliers and contractors
- Although ISO 14001 requires auditing, EMAS specifies an audit programme and methodology
- Whereas ISO 14001 applies to any organisation, EMAS only applies to single sites
- EMAS requires an independently verified Environmental Statement to be published every two years. EMAS participants must prepare an environmental statement specific to each site concerned, and provide information to the public about their environmental aspects.

In addition to ISO 14001 and EMAS a third British standard, BS 8555 (Guide to the phased implementation of an environmental management system including the use of environmental performance evaluation) was released in April 2003.

This standard was developed with input from Project Acorn – a DTi funded initiative to assist SMEs in developing environmental performance controls. The standard encourages a phased EMS implementation approach breaking down the EMS implementation process into six levels. The sixth level brings the EMS in line with ISO14001 and EMAS. Companies have the flexibility to undertake as many or a few of the levels as they wish and will still receive recognition of the achievement. The six implementation steps are:

- Commitment and Establishing the Baseline.
- Identifying and Ensuring Compliance with Legal, and other Requirements.
- Developing Objectives, Targets and Programmes.
- Implementation and Operation of the Environmental Management System.
- Checking, Audit and Review.
- Environmental Management System Acknowledgement.

### **Links with Other Management Systems**

An EMS will contain many elements similar to other management systems such as quality (ISO9001) or health and safety (OHSAS 18001). In many cases, where elements of these systems already exist, it may be beneficial to integrate them. In this way,

duplication of effort may be avoided. For example, your company may wish to have an HSE Policy or may wish to draw up procedures covering both quality and environmental considerations.

### **Some Terminology**

**Environmental aspect:** “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 partly resulting from an organisation’s activities, products or services.”

**Significant environmental aspect:** “an environmental aspect that has or could have a significant environmental impact.”

**Environmental objective:** Overall environmental goal, arising from the environmental policy, that an organisation sets itself to achieve, and which is quantified where practicable.

**Environmental performance:** Measurable results of the Environmental Management System, related to an organisation’s control of its environmental aspects, based on its environmental policy, objectives and targets.

**Environmental target:** Detailed performance requirement, quantified where practicable, applicable to the organisation or parts thereof, that arises from the environmental objectives and that needs to be set and met in order to achieve those objectives.

**Interested party:** Individual or group concerned with or affected by the environmental performance of an organisation.

### **Sources of Further Information**

In addition to the information provided on this website, you may wish to refer to some of the following sources when implementing your EMS:

Envirowise – Offers a free range of services through the Environment and Energy helpline. Free publications can also be downloaded from their website.

TEL: 0800 585794

Website: [www.envirowise.gov.uk](http://www.envirowise.gov.uk)

Action Energy – Helps companies save money by reducing their energy consumption.

Website: [www.actionenergy.org.uk](http://www.actionenergy.org.uk)

British Standards Institution (BSI) – Provides standards relating to the environment.

Website: [www.bsi-global.com](http://www.bsi-global.com)

Business in the Environment – Produces publications to assist companies in improving their environmental performance.

Website: [www.business-in-environment.org.uk](http://www.business-in-environment.org.uk)

Environment Agency (EA) – Regulates the implementation of environmental legislation in England and Wales. Contact details for local area offices are provided on their website.

Website: [www.environment-agency.gov.uk](http://www.environment-agency.gov.uk)

The EA maintain web pages targeted at SMEs describing the legislative requirements placed on the milling sector (along with many other sectors). This site is called Netregs. You may find it useful in understanding the environmental legislation that applies to your mill and the practical steps you can take to ensure compliance.

Website: [www.environment-agency.gov.uk/netregs](http://www.environment-agency.gov.uk/netregs)

Department of the Environment, Food and Rural Affairs (DEFRA) – Responsible for drawing up environmental legislation and formulating government policies to protect the environment.

Website: [www.defra.gov.uk](http://www.defra.gov.uk)

EMAS Registration Office – Provides information to companies wishing to participate in the Eco-Management and Audit Scheme (EMAS).

Website: [www.emas.org](http://www.emas.org)

Food and Drink Federation – Provides information on environmental issues relevant to food and drink companies.

Website: [www.fdf.or.uk](http://www.fdf.or.uk)

Northern Ireland Environment and Heritage Service – Implements environmental legislation in Northern Ireland.

Website: [www.irtu-ni.gov.uk](http://www.irtu-ni.gov.uk)

Scottish Environmental Protection Agency (SEPA) – Environmental regulatory body for Scotland.

Website: [www.sepa.org.uk](http://www.sepa.org.uk)

United Kingdom Accreditation Service (UKAS) – Holds a list of accredited certifiers and verifiers for ISO14001 and EMAS.

Website: [www.ukas.com](http://www.ukas.com)

The Acorn Trust – Provides information on the British EMS standard BS 8555.

Website: [www.theacorntrust.org/](http://www.theacorntrust.org/)

Institute of Environmental Management and Assessment (IEMA)- EMAS competent body for England, Wales, Scotland and Northern Ireland.

Website: [www.iema.net](http://www.iema.net) or [www.emas.org.uk](http://www.emas.org.uk)

## **Business Benefits of an EMS**

The financial benefits of implementing an EMS may come from the following areas:

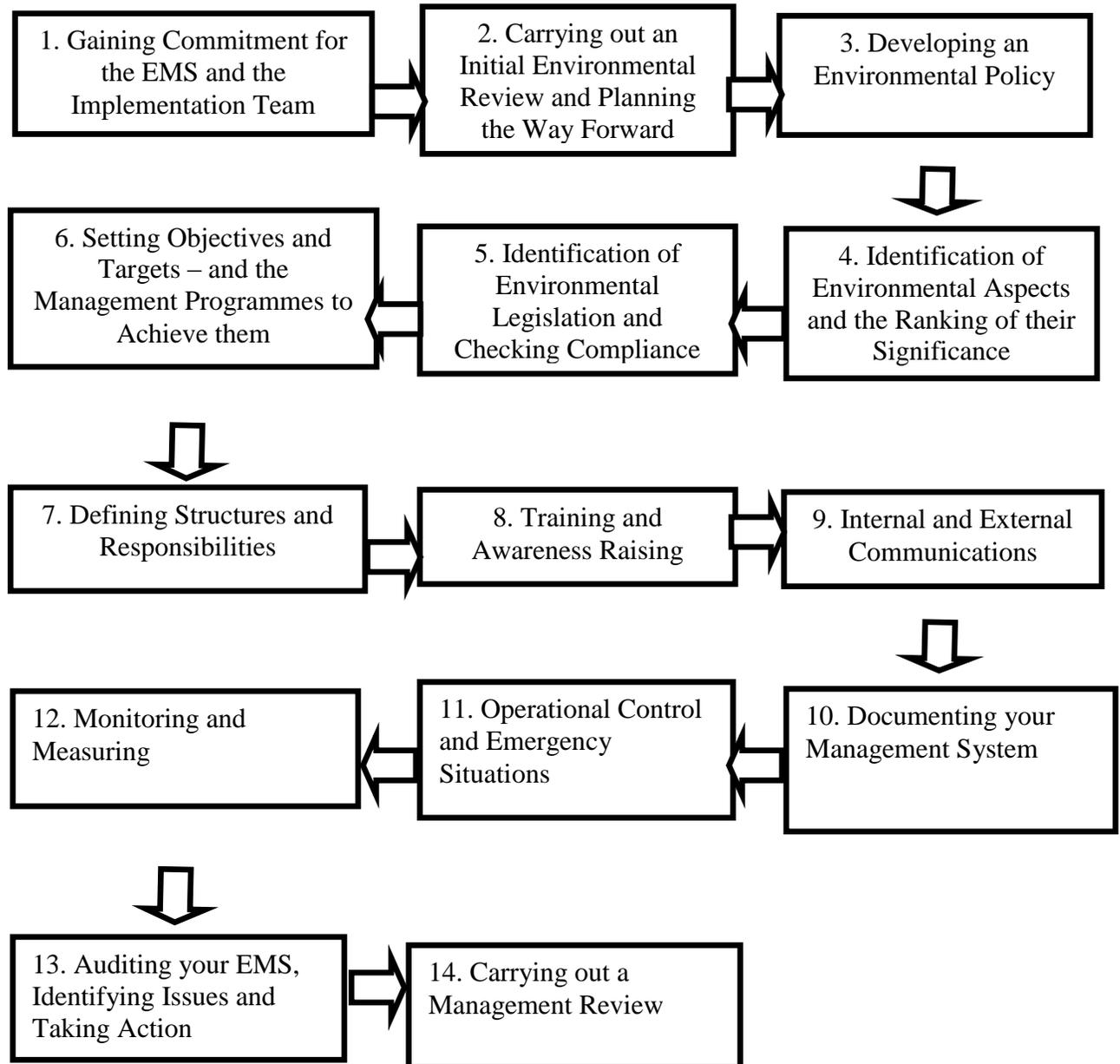
- achieving cost savings by reducing raw material and energy usage through the identification of waste minimisation opportunities and process redesign;
- identifying alternative “cleaner” manufacturing processes, techniques and materials;
- avoiding the unexpected costs associated with regulatory non-compliance. These costs include fines and capital expenditure;
- improved access to external ethical/environmental investment funding and internal corporate funding; and
- acting in a proactive manner to minimise exposure to third party liabilities, thereby improving the insurance policy conditions and obtaining reduced insurance premiums.

The less tangible benefits of an EMS may include:

- enhancing a company’s corporate environmental image, meeting consumer expectations and thus improving market share;
- achieving competitive edge by getting ahead of the competition and meeting supply chain requirements for Environmental Management Systems;
- improved internal communication and relations with staff members and contractors, and external relations with the local community, the general public, and regulatory bodies;
- enhanced staff awareness of environmental issues, often leading to shop floor suggestions for process improvement, improved operating efficiencies and ultimately profitability;
- increasing the likelihood of successful planning applications and pollution control consents and permits;
- protection of a company’s share price via the prevention of major environmental incidents.

## **Getting Started**

The diagram below lays out the elements of the Environmental Management System that you will need to put in place for your mill. Click on each of the boxes to view in more detail what each step involves. Through these links you will also be able to access relevant blank forms to fill in and some completed examples from a case study mill.



### **Gaining Commitment for the EMS and the Implementation Team**

Implementing an EMS will inevitably involve inputs of time and potentially financial resources. Prior to kicking off the implementation, it is therefore beneficial to gain backing from senior management to ensure that these resources will be available to you – and also to raise awareness of the management system at the top level.

To gain this commitment it may be useful to present the business benefits section of this guide to senior management. Alternatively you may wish to carry out a simple cost benefit analysis by establishing the annual cost of utilities, raw materials and waste disposal and estimating the potential savings that could be generated by a waste

minimisation programme.

### **Putting an Implementation Team Together**

Selection of appropriate individuals to implement the management system is key to its success. Overall responsibility for implementing the system should be assigned to an individual sufficiently senior to have the required authority, competence and resources. The number of people involved will depend on the size of the company and resources available. It is worthwhile involving staff from different departments and of different levels of seniority in the planning and implementation process, since a multidisciplinary approach often proves most successful – it also helps to share out the workload! You may wish to consider involving:

- The Health and Safety or Quality manager – is it possible to link your management systems together?
- Human Resource Manager – to assist in assigning roles and responsibilities and for maintaining ongoing training requirements.
- Operational Staff/Maintenance engineers – providing input into operational control and development of procedures.
- Purchasing staff – to assist in data gathering of raw materials and utility costs.

### **Carrying out an Initial Environmental Review and Planning the Way Forward**

An Initial Environmental Review (IER) is the best way to get the implementation of your EMS off the ground by allowing you to establish the current position of your organisation with regard to the environment. The review will largely be an information gathering exercise to help you:

- identify legislative and regulatory requirements and any historic breaches of consents
- identify how your activities, products and services impact on the environment
- assess which of these impacts are significant
- quantify your emissions, discharges, utilities, and raw material consumption to establish a baseline and allow improvement targets to be set
- identify any existing elements of an EMS that have already been implemented e.g. procedures or policies
- identify opportunities for environmental improvements.

The first step in carrying out your IER will be to define the physical limits of what you will be reviewing. This means you will need to have a clear overview of the physical layout of the site, the facilities and the boundaries. Check to see if such layout plans already exist. If not check to see what information is already available which could be useful, e.g. a local map, aerial photos or plans of the sewerage system.

It is helpful to use information-gathering techniques such as questionnaires, interviews, site walks and checklists to carry out the review. Alternatively you may wish to draw up

a set of eco-maps. To construct an eco-map you will need several copies of a site diagram. For each copy select a different topic, for example, noise, waste, chemicals etc. Mark up on the map where on the site each issue might have a “hotspot” with some indication of the severity.

Appendix 3.9 is an example of a questionnaire that you could use as a basis for an IER at your mill. Appendix 3.7 is completed example of this questionnaire for a case study flour mill to provide you with further guidance. You will need to make sure you have access to a broad range of documentation to answer these questions – process authorisations, consents to discharge, utilities bills, monitoring data, waste transfer notes, operational procedures, product information, purchasing data, site maps, historic usage information and more.

Once you have collected all the information you may wish to summarise your findings in a short report that provides an overview of the company's current environmental performance. This report can be the basis for deciding what needs to be done to move forward in implementing your EMS. Appendix 3.8 is an example of a summary report prepared for a case study company is attached here for your use. Bear in mind that the actions suggested in this report are based on the case study company and hence may not be exhaustive for your own mill. They are also aimed at implementing the simplified EMS covered in these web pages and hence may not ensure compliance with ISO 14001 and EMAS.

By reading through the information contained in this website you will begin to identify the actions you need to take to implement an effective EMS. This will allow you to draw up an implementation plan to which you should assign resources, responsible parties and timescales.

### **Developing an Environmental Policy**

An environmental policy is a statement of principle setting out your company's intentions towards its environmental performance. Ideally a policy will be short and simple and should focus on the issues that are of relevance to your mill(s), for example, energy consumption or perhaps dust emissions to air. It is good practice to write the policy after conducting a review of your mill's activities so you know which of these aspects are of greatest significance.

A policy should:

- Contain a commitment to -
  - Maintaining compliance with environmental legislation relevant to your mill
  - Preventing pollution
  - A programme of continual improvement
- Be dated and endorsed by Senior Management
- Include a review date (and be reviewed at that date!)

- Be relevant to your activities

The policy can be a stand-alone document or it can be integrated with your health & safety, quality, or other organisational policies.

Appendix 3.4 is an example policy for a flour mill to show the kind of text you may wish to include.

Once you have prepared your policy you will need to plan who you need to communicate it to and the methods of dissemination – both internally to staff (on notice boards, on the intranet site, on site passes) and externally as well (on your internet site, in your annual report, in your advertising).

#### **Additional Requirements of ISO 14001 and EMAS**

ISO 14001 and EMAS require that your company environmental policy be communicated to all staff and contractors and be publicly available to customers and the general public.

#### **Identification of Environmental Aspects and the Ranking of their Significance**

Identifying environmental aspects and ranking their significance is one of the most critical elements of the EMS. Decisions you make in this task can affect many other system elements, such as, setting objectives and targets, establishing operational controls, and defining monitoring needs.

#### **Identifying your Aspects**

To identify your aspects you will need to make use of the information you have gathered as part of the initial environmental review. This will help you to see how and to what degree your activities impact on the environment.

Another particularly useful tool at this stage is a process flow diagram showing the inputs and outputs from your production line – e.g. inputs – fuel, raw ingredients, packaging material and outputs – waste products, emissions to air, packaging waste. Appendix 3.1 is a generic process flow diagram. You may find this useful as a starting point if you do not already have a flow diagram available.

The term “aspects” is neutral, so keep in mind that your environmental aspects could be either positive (such as packaging your flour in recycled materials) or negative (such as discharge of toxic materials to a stream). You should also consider both direct aspects – e.g. water use, energy consumption and indirect aspects e.g. travel between work and home and contractor activities.

The following steps will take you through identifying your aspects:

- i. Identify all the organisation's current and relevant past activities, products and services
- ii. Determine for each whether they have an interaction with the environment and what the nature of that interaction is under normal, abnormal and emergency situations
- iii. Decide which of these aspects the organisation can control or reasonably influence
- iv. For each controllable aspect (or where the organisation has some influence) determine the environmental impact

To simplify the development of your EMS, an aspect register applicable to Mills has been compiled for your use; Appendix 1. It lists aspects and impacts that were identified as part of an initial environmental review carried out at a case study site. You will need to review the register to identify which of the aspects are relevant to your activities and modify as appropriate. A few examples of the format you may like to follow if you are working towards ISO 14001 or EMAS have also been included which review each aspect in more detail.

### **Ranking the Significance**

To complete the register you will need to assess the significance of each aspect/impact at your mill using a selected methodology. Neither EMAS nor ISO 14001 prescribe a methodology for assessing significance – it is left up to the individual companies to use an appropriate system.

For mills starting to implement an EMS, the evaluation technique explained below is recommended. This technique is used to decide significance by assigning a numerical score to each aspect. Aspects which score more than an agreed amount are considered significant.

This system reviews the aspect in terms of:

- Environmental impact
- Financial impact on the company
- Reputation impact on the company
- Compliance with legislation

This provides four scores, which are then added together giving a total aspect score. It is then up to the company to decide where to set the threshold score for significance. The assigned score should take into account the management controls currently in place to control the aspect. For each aspect you will also need to think how the score will be effected under normal, abnormal (e.g. plant shutdown) and emergency situations (e.g. spills or leaks).

The table below lays out how you can score in this way with the text in the boxes providing some interpretation of what the scores mean.

Criteria	0	1	2	3	4	5	Score
Environmental	(no impact)					(known impact)	
Financial	(no financial implication)					(major financial implication)	
Reputation	(no reputation damage)					(significant negative public interest)	
Legislation	(no legislation)					(existing legislation)	
<b>TOTAL</b>							

Some companies choose to weight the criteria scores to reflect the overall importance of a particular criterion to their company.

You will need to review your scoring over time as, for example new legislation may increase the importance of one aspect in relation to another.

**Additional Requirements of EMAS and ISO14001**  
 EMAS specifies aspects that need to be considered as part of this review. You should check these details to ensure you have full coverage.

ISO14001 requires that the aspects be clearly evaluated under normal abnormal and emergency situations to decide significance.

**Identification of Environmental Legislation and Checking Compliance**

**The Register of Legislation**

Keeping abreast of the latest environmental legislation where it applies to your mill is obviously an important issue for any company – EMS or not. However, it is not always a simple task. Life can be made easier though by maintaining a register of legislation to help you find your way through the maze of UK environmental legislation.

Ideally, the register will cover all acts and regulations relevant to the aspects you have identified in your aspects register. Consideration should also be given to ‘other’ requirements such as approved codes of practice e.g. process guidance notes (PGNs). You do not necessarily need to keep copies of each act or regulation at your mill. However it is good practice to know how to access them.

To simplify the development of your EMS, a register of legislation applicable to Mills has been compiled for your use, which is accurate as of January 2010; Appendix 2. It lists acts and regulations applicable to aspects that were identified as part of an initial environmental review carried out at a case study mill. You will need to modify the register to align with the activities occurring at your own mill. A few examples of the format you may like to follow if you are working towards ISO 14001 or EMAS have also been included which review the requirements of each piece of legislation in more detail.

In addition to the register of legislation provided it is always advisable to contact your Regulator to obtain the most up to date legislation for your mill. The Environment Agency website also provides guidance on how to meet your legal requirements [www.environment-agency.gov.uk/netregs](http://www.environment-agency.gov.uk/netregs) .

Bear in mind that legislation is constantly being updated and the activities at your mill may change in light of developments. You should ensure that someone in your company is responsible for keeping the register updated and for communicating the changes to the relevant people in your mill.

### **Ensuring Legal Compliance**

Setting up your register of legislation will help you identify the legal obligations placed on your mill. But how do you check that you are meeting all these requirements? It is good practice for a mill setting up its EMS to develop a comprehensive questionnaire covering all the requirements the environmental legislation is placing on the company. This will help you to systematically review compliance. Any gaps or weaknesses you identify in your legal compliance should filter through to your objective setting and should be addressed by developing an environmental management plan leading to compliance.

The questionnaire can also be used in an ongoing fashion as part of your auditing cycle to ensure you are complying. Don't forget to update this questionnaire in light of any changes to your register of legislation.

#### **Additional Requirements of EMAS**

ISO 14001 requires a 'commitment' to legal compliance. EMAS takes this a step further requiring 'provision' to be made for legal compliance. The result is that EMAS certification could be lost if procedures are not in place in your mill to ensure ongoing legal compliance.

### **Setting Objectives and Targets – and the management programmes to achieve them** **Objectives and Targets**

Objectives and targets act as the driving force to deliver your mill's commitment to continued environmental improvement made in its environmental policy.

Environmental objectives are your company's overall goals for environmental performance. Objectives should be challenging and achieve a demonstrable improvement in your mill's management of the significant environmental aspects identified in your initial environmental review.

Objectives must be accompanied by clear targets that provide the stepping-stones to success. Targets should always be SMART:

- Specific – address one issue
- Measurable – expressed quantitatively where possible e.g. 5% reduction/unit
- Achievable – e.g. a zero waste target is probably not achievable for most mills
- Realistic – challenging but not overly ambitious
- Time-bound – assign a date for the target to be met

When setting your objectives and targets you will need to take into account some or all of the following issues:

- Commitments you have made in your policy
- Your significant environmental aspects
- Legal requirements (particularly if you have identified any areas of non-compliance)
- Available technology
- Operational constraints
- Available finance
- Other business issues

It is advisable to bring a group of people together to help set your targets. Their expertise should cover:

- Someone who understands the operations in question to keep the targets realistic and achievable
- Someone who is aware of the financial situation of the company who will appreciate resource constraints
- Someone with the authority to allocate resources if required.

Examples of objectives and targets relevant to flour mills are provided in the table below.

Objectives	Targets
Reduce energy use	<ul style="list-style-type: none"> <li>• Reduce electricity use by 2% in 2004</li> <li>• Reduce natural gas use by 5% in 2004</li> </ul>
Reduce emissions of dust to the atmosphere	<ul style="list-style-type: none"> <li>• Ensure dust socks are used during wheat delivery by the end 2003</li> <li>• Implement a dust filter maintenance programme by the end 2003</li> </ul>
Reduce packaging waste generation	<ul style="list-style-type: none"> <li>• Reduce packaging wastes in the bag packing area by 3% in 2004</li> </ul>
Improve employee awareness of environmental issues	<ul style="list-style-type: none"> <li>• Hold monthly awareness training courses</li> <li>• Train 100% of employees by end of year</li> </ul>

In the first year of your EMS, you may find it difficult to set clearly quantified objectives and targets because of the lack of baseline data. Initial objectives may therefore be focused on establishing monitoring programmes and achieving relatively modest improvements until the opportunities within your mill are more clearly understood. For example:

Policy commitment		Objective	Target
To reduce waste that is sent to landfill	Year 1	To measure and record all sources of waste	<ul style="list-style-type: none"> <li>• To prepare an inventory of waste generated throughout the site by Q2</li> <li>• To measure the proportion of waste in Department X which is recycled or reused by Q3</li> </ul>
	Year 2	To increase the proportion of waste that is recycled or reused by 20%	<ul style="list-style-type: none"> <li>• To establish a returnable packaging scheme with Supplier Y by Q2</li> <li>• To identify and commission a contractor who will recycle waste lubricating oil by Q3</li> </ul>

Appendix 3.10 will help you to lay out your objectives and targets.

### Environmental Management Programmes

Once your objectives and targets are in place you will need to demonstrate how you plan to achieve them. This is coordinated through your environmental management programmes (EMPs). Each target should have an associated EMP that should be treated as a project plan, with a dedicated and realistic budget, timescale, progress review process and project manager. You will need to ensure that these EMPs are communicated effectively to the people carrying out the improvement actions – ideally by getting them involved on the EMP planning from the beginning.

There is no standard concerning the rate at which you should improve your environmental performance, so a programme may be short term or could continue over several years.

The development and implementation of effective EMPs is a key element of the Environmental Management System, and should you be working towards certification, is one that certifiers will pay particular attention to.

Appendix 3.5 is an example management programme applicable to a mill and Appendix 3.12 is a blank copy of the Environmental Management Programme.

### **Defining Structures and Responsibilities**

The way in which you organise responsibility for environmental management in your mill will depend on its size and available resources. You may wish to appoint a full time environmental manager, allocate responsibility for environmental management to an existing manager, or assign responsibility for environmental aspects of specific departments/functions to the person in charge of each department. Irrespective of how you organise your EMS responsibilities, company management will always bear the main responsibility and liability in relation to environmental protection, in particular, in the legal sense.

Overall responsibility for implementing and maintaining your EMS should be assigned to one individual who will usually be supported by a cross functional team. This is discussed further under the 'Gaining Commitment for the EMS and the Implementation Team'. You also need to decide and document who will be responsible for the following issues:

- ensuring environmental legal compliance
- co-ordinating measures to improve environmental performance
- environmental training
- developing and monitoring EMS documentation
- internal environmental communication
- external environmental communication
- auditing

The table below outlines some functions that you may find in your mill and the areas of responsibility they may have for maintaining the EMS.

<b>Functions</b>	<b>EMS Support</b>
Top Management	<ul style="list-style-type: none"> <li>• Establish the overall direction of your EMS and input to your policy</li> <li>• Communicate the importance of the EMS throughout the organisation, including reports to your board</li> <li>• Provide necessary resources</li> <li>• Track and review EMS performance</li> <li>• Personally liable for a company's non-compliance with environmental legislation!!</li> </ul>
Engineering	<ul style="list-style-type: none"> <li>• Consider environmental impacts of new or modified products and processes</li> <li>• Identify pollution prevention opportunities</li> <li>• Input to plant monitoring and measuring programmes</li> </ul>
Quality or Health & Safety Manager	<ul style="list-style-type: none"> <li>• Identify areas where there is overlap with requirements under your quality management system such as document control, record-keeping, audits etc</li> <li>• Help integrate your environmental and quality or H&amp;S systems and procedures</li> </ul>
Department Heads	<ul style="list-style-type: none"> <li>• Take responsibility for their department's environmental performance</li> </ul>
Line Workers	<ul style="list-style-type: none"> <li>• Provide first-hand knowledge of the environmental aspects of their operations</li> <li>• Support training for new employees</li> </ul>
Purchasing	<ul style="list-style-type: none"> <li>• Develop environmental purchasing guidelines</li> <li>• Liaison with suppliers</li> </ul>
Sales	<ul style="list-style-type: none"> <li>• Identify customer requirements/expectations</li> </ul>
Human Resources	<ul style="list-style-type: none"> <li>• Define competency requirements and job descriptions for various EMS roles</li> <li>• Integrate environmental management into reward, discipline and appraisal systems</li> <li>• Determine training needs and schedule training events</li> </ul>
Maintenance	<ul style="list-style-type: none"> <li>• Implement preventive maintenance programmes for key equipment</li> </ul>
Finance	<ul style="list-style-type: none"> <li>• Track data on environmental management costs</li> <li>• Prepare budgets for the environmental management programme</li> <li>• Evaluate economic feasibility of environmental projects</li> </ul>

Organograms and charts summarising the different environmental responsibilities according to function and the company organisational structure are simple methods of showing at a glance where responsibility lies for different issues. The information can then be communicated throughout your mill and should be included in your EMS Manual, see the 'Documenting your EMS' section.

### **Additional Requirements of ISO 14001 and EMAS**

ISO 14001 requires that you:

- develop functional statements and/or job descriptions for all relevant employees;
- include relevant capital and revenue allocations within the organisations budgets to ensure environmental management responsibilities can be undertaken.

ISO 14001 also requires that a company formally assign an Environmental Management Representative (EMR). The EMR should have defined roles, responsibilities and authority for:

- ensuring that Environmental Management System requirements are established, implemented and maintained in accordance with the standard;
- reporting on the performance of the Environmental Management System to management for review and as a basis for improvement of the Environmental Management System.

The performance of each person with an environmental responsibility should also be part of your review process.

### **Training and Awareness Raising**

#### **Training**

As each person and function within an organisation can play a role in environmental management, your mill's environmental training programme should cast a wide net. Obviously though, the degree of training required will vary according to the individual job role. As a general rule, all personnel should receive training appropriate to their job, which may include:

- the environmental policy and associated objectives and targets
- key EMS roles and responsibilities
- the significant environmental impacts of the individual's activities and procedures that apply to them (such as measurements they will need to make etc) and;
- the importance of conformance with EMS requirements.

Other job roles such as the Environmental Management Representative may require more formal training, for example in how to audit the EMS. This will particularly apply if you are working towards achieving ISO 14001 or EMAS. Records of all training activities should be kept, including course content, date and duration. The table below contains some suggestions for training by role.

<b>Focus of training</b>	<b>Who should attend</b>	<b>Purpose</b>
Raising awareness of the strategic importance of EMS implementation	Top Management	Gain commitment and alignment to EMS implementation
Raising general environmental awareness	All employees	Gain commitment to the EMS objectives and targets Develop a sense of individual responsibility
Skills enhancement	Employees with environmental responsibilities	Improve performance in specific areas, such as the environmental task group, action team and assessment team or work specific areas such as engineering
Compliance	Employees responsible for ensuring compliance	Ensure internal requirements for implementing changes, such as in operations and engineering

Don't forget contractors who may work at your mill. They can often be the cause of incidents due to unfamiliarity with the location and working practices. As a minimum you should supply them with a copy of your environmental policy, provide them with a short introduction to your company procedures and highlight key environmental issues around the site. As with your own staff, you should keep a record (signed by the contractor) to show what training they have received.

Appendix 3.3 is a PowerPoint presentation you may wish to use to help train your staff and contractors. It covers the various elements of an EMS and is a good basis from which to start your awareness raising.

**Additional requirements of ISO 14001 and EMAS**

The standards require that training needs are formally identified and that all personnel whose work may have a significant impact on the environment are trained. ISO 14001 also encourages that methods for establishing competency of staff are in place. EMAS takes this further stating that 'personnel performing tasks should also be competent on the basis of appropriate education, training and/or experience' (for management to determine).

**Contractors**

Contractors should also be able to demonstrate that their employees are adequately trained, be aware of their potential to cause pollution and the potential to benefit from your EMS. They should be given a copy of your environmental policy as a minimum and training may be necessary for specific site issues or procedures. Contractors will need to sign for the training they have received.

EMAS requires procedures related to the identifiable significant environmental aspects of goods and services used by the organisation to be communicated to suppliers and contractors.

**Building Awareness among Employees**

Building awareness of the environmental commitments the company has made can make sure the momentum behind your EMS is maintained. You may want to think about carrying out some of the following initiatives at your mill:

- Waste reduction programmes such as a "zero waste campaign" and recycling programmes
- Community programmes, encouraging employees to broaden their concerns beyond the mill
- Publishing a newsletter and/or providing a panel exhibit etc in the company premises
- Holding an environmental quiz or competition.

**Internal and External Communications**

Dialogue with interested parties (regulators, employees, the local community etc) and response to their concerns is an important part of the process of improvement for your mill. For each interested party you will need to think through the format and content of your communications on environmental issues. For example, how do you respond to external enquiries or complaints about your environmental performance? Some commonly used methods of delivery include:

Internal Communication	External Communication
<ul style="list-style-type: none"> <li>• Newsletters</li> <li>• Staff meetings</li> <li>• Notice boards</li> <li>• Internal Web pages/emails</li> <li>• Workshops and seminars</li> </ul>	<ul style="list-style-type: none"> <li>• Response letters</li> <li>• Environmental reports</li> <li>• Press releases</li> <li>• Organisation brochures, newsletters etc</li> <li>• Internet web sites</li> <li>• Open house visits for employees, local community representatives and public officials</li> <li>• Advertising.</li> </ul>

Whatever method you choose, your communication should be focused and clear. Wherever possible your communications should also be two way to ensure you get feedback. You should document your approach on communications in your EMS Manual or in a separate procedure.

#### **Additional Requirements of ISO 14001 and EMAS**

ISO 14001 requires that you have a focal point and procedures in place for communications on environmental matters from internal and external sources. Although the standard does not require you to report externally on your environmental performance it does require you to consider and record your position with regard to external reporting of your aspects.

EMAS requires that employees are actively involved in the process of continually improving the EMS. Suggested forms of participation are a suggestion-book system, project based group works and environmental committees.

EMAS also requires that companies produce an environment report (or statement). This statement needs to include:

- A description of the company and its activities products and services.
- A copy of the company environmental policy and a brief description of the EMS.
- A description of your significant environmental aspects, the objectives and targets and the management programmes to improve on them.
- Performance data showing comparison with previous years where possible and relevant regulatory standards.
- Name of the verifier who has checked these data.

Operational procedures: procedures demonstrating how you are managing your significant aspects for example waste management, storage and handling of chemicals or procedures covering your monitoring requirements. Operational procedures can be supported by work instruction (WI). Whereas operational procedures are generally

companywide in their application (for example chemical storage and handling), work instructions are activity specific (for example, safe emptying of the diesel storage tank bund).

Whether they are system or operational, your procedures should be simple and clear and are usually best written with input from those who will be using them. Appendix 3.6 is an example of a procedure for document control. You may wish to lay out your procedures in a similar fashion.

### **Your EMS Manual**

The way you have set up your EMS needs to be documented usually in the form of an EMS Manual. This documentation can be held either on paper or electronically and should:

- describe the core elements of your EMS (and how these elements relate to each other)
- provide direction to related documentation such as procedures

An easy way to order this can be to structure your information based on the headings in the ISO 14001 standard (which are closely mirrored here). Under each heading you should state what you are doing in this area and should also reference related documentation. You will need to cover topics such as:

- the environmental policy, objectives and targets
- the means of achieving environmental objectives and targets
- the key roles and responsibilities
- provide direction to related documentation and procedures that demonstrate how you control your activities that have significant environmental impacts

Try and keep your system as simple as possible by making use of flow diagrams and referring to other documents wherever possible. Appendix 3.2 is an example EMS Manual and will allow you to see the types of information you should include in your manual.

Bear in mind that all documentation associated with your EMS should be subject to some level of document control – i.e. it should have a version number, review date and document owner.

### **Additional Requirement of ISO 14001 and EMAS**

EMAS and ISO 14001 have additional requirements for document control:

- to have a system in place (procedures) for controlling the issue, revision and withdrawal of all environmental procedures and specifications;
- to enable any procedures and specifications to be easily retrieved and filed;
- to ensure that all documents are approved by authorised personnel only;
- to ensure that all documents are legible, dated (including revision dates), readily identified, maintained and retained for a specific period.

EMAS is very specific in its requirement for procedures to locate, periodically review, revise and approve documents by authorised personnel. Procedures are also required to ensure that current versions are available at locations essential to the functioning of the EMS, with obsolete documents removed or identified as so.

### **Records**

Another important set of documentation associated with your EMS is your records. Records provide evidence of the on-going effective operation of the EMS and are particularly important if you are working towards certification.

Basic records management is actually very straightforward - you need to decide what records you will keep, how you will keep and access them and for how long. You should also think about how you will dispose of records once you no longer need them.

### **Examples of Environmental Records**

- Legal, regulatory and other code requirements
- Permits, licences and other approvals
- Results of environmental aspects identification
- Reports of progress towards meeting objectives and targets
- Training records
- EMS and regulatory compliance audit reports and results of management reviews
- Reports of identified non-conformances, corrective action plans and corrective action tracking data
- Information on accidents, emergency preparedness and response
- Communications with customers, suppliers, contractors and other external parties, including complaints records
- Key supplier and contractor information
- Sampling and monitoring data
- Equipment calibration, maintenance and inspection records
- Product information (composition etc...)
- Information on your processes

### **Additional Requirements of ISO 14001 and EMAS**

ISO 14001 and EMAS require procedures for identification, maintenance and disposal of environmental records, including training records and results of audits and reviews.

## **Operational Control and Emergency Situations**

### **Operational Control**

An important element of your EMS is being able to demonstrate that you are controlling your significant environmental aspects. You can do this by developing operational procedures that state how you carry out the activities associated with your significant environmental aspects. For example you may need to develop procedures to cover the management of packaging waste or dust emissions.

Through the implementation of operational controls and procedures, you will be able to ensure that your level of environmental performance is consistent with your policies, objectives and targets. To do this you should firstly:

Identify operations associated with your significant environmental impacts. These are the activities that require additional operational control. Don't forget to include activities performed by contractors.

Plan methods to control these operations and ensure compliance with your environmental requirements. For example if solid waste is generated, the organisation should plan methods for its handling and storage.

Prepare a working procedure. This would include understanding the job that is carried out and methods used to monitor key indicators of compliance with your EMS. Include a maintenance programme if any equipment is being used.

Document procedures and operating criteria. Effective working procedures can be produced in the form of a flowchart, table, diagrams, symbols, photographs and so on. They should be written using simple terms to enable easy understanding of the tasks it requires. Responsibilities should be clearly defined especially for those procedures relating to handling or emergency situations. Identify and communicate operating procedures to relevant employees, suppliers and contractors.

Remember that these procedures should be reviewed and updated where necessary and should be covered by some level of document control (have a review date, issue number, document owner etc).

## **Emergency Preparedness and Response**

Your mill will need to maintain plans and procedures to prevent and respond to accidents and emergencies. When forming these plans and procedures you should think about managing:

- accidental emissions to the atmosphere
- accidental discharges to water (including groundwater and storm drains)
- accidental discharges to land

Consider incidents arising from both abnormal operating conditions and from accidents. This may involve performing a risk assessment of your aspects to judge the consequences of accidents and emergencies. Any consequences identified to be significant will need to have a planned response. You may find it necessary to involve the emergency services in your planning.

Where possible you also need to test your emergency procedures i.e. with a drill, a desktop simulation, or a full-scale exercise. You will need to provide evidence of this if you seek certification to ISO 14001 or EMAS.

### **Additional Requirements of ISO 14001 and EMAS**

Both standards require a written procedure for dealing with emergencies.

- Procedures should enable the organisation to predict, respond to, prevent and mitigate environmental impacts of accidents, emergencies and abnormal operating conditions.
- The procedure should also be subjected to revision and review after an incident.

## **Monitoring and Measuring**

An EMS without an effective monitoring and measurement program is like driving at night without the headlights on - you know that you are moving but you can't tell where you are going! Monitoring and measurement enables you to:

- gauge your environmental performance and track it over time
- highlight successes
- identify variations from planned performance before they turn into a problem
- analyse root causes of problems to allow corrective action/fine tuning
- optimise environmental performance.

The challenge is to identify the key characteristics to be monitored. This usually will be information about the activities where, if something went wrong, there may be a significant impact on the environment. The parameters you track should also be consistent with assessing progress against your policy, objectives and targets.

In addition to process parameters, the organisation should periodically monitor more general activities such as compliance with legislation. Checking compliance with legislation can be undertaken through a compliance audit which is discussed under 'Identification of Environmental Legislation and Checking Compliance'.

#### **Additional Requirements of ISO 14001 and EMAS**

This clause requires that documented procedures should be established and maintained for monitoring and measurement. This should include:

- identifying the measurements to be made and specifying the accuracy required of the results
- specifying the locations and times of measurement
- establishing the acceptance criteria and action to be taken when these are not met
- ensuring that all equipment is maintained and calibrated, and records kept, according to documented procedures
- establishing quality control procedures for the measurement, testing, analysis, recording/reporting and calibration/equipment maintenance processes, where appropriate.

#### **Auditing your EMS, identifying issues and taking action**

##### **Auditing your EMS**

An audit is a way of ensuring that problems in your EMS are identified. It involves systematically looking at your actual operating methods and comparing them with what you have specified in your procedures. Only by addressing your problems in this way will you highlight the strengths and weaknesses of your EMS and ensure that it is continually improved.

Individuals performing the audits of your EMS should be independent enough of the procedure/area involved to be objective. Auditors should also be trained to perform the task, be familiar with the EMS and the activities involved and have some auditing experience.

When deciding the frequency of auditing you should take into account the levels of significance you have assigned to each of your aspects – the higher the significance the more often the aspect/activity should be audited. Ideally however you should cover your whole system at least once a year. Having taken the significance into account, you should then draw up an audit timetable.

Prior to carrying out your audit, you may wish to draw up an audit checklist to prompt you on the areas of questioning you should cover. It is also good practice to familiarise yourself with the procedures relevant to the area/activities you will be auditing.

Audits are not performed to catch people out. By informing each manager of an approaching audit you ensure that you will have access to the required documentation, equipment and staff. Try to keep questions simple and focused on significant areas, making observations and recording your findings as you go. All audit findings should be written up and reported back to the relevant parties.

Appendix 3.13 is an example audit form you can use as a basis for your auditing.

#### **Additional Requirement of ISO 14001 and EMAS**

Both standards require a written procedure documenting your EMS auditing. EMAS also lays out specific requirements for the auditing process that your company will need to be aware of and adhere to should you be working towards certification.

#### **Non-conformances and Corrective and Preventative Action**

Your audit will show you where activities in your mill are not being conducted according to procedures. These are known as non-conformances. When non-conformances are encountered you will need a process to:

- identify the cause(s) of each non-conformance
- develop and implement a solution
- add or modify controls to avoid repetition of the non-conformance i.e. preventive action
- document the solution e.g. recording any changes in written procedures resulting from the corrective action
- communicate the solution.

In practice this means the person conducting an audit should make suggestions for actions that would correct each non-conformance and prevent it reoccurring in the future. These suggestions should be put into a non-conformance report/corrective action request form (CAR) that describes the problem and its cause, the corrective and preventative to be taken, by whom and when. Appendix 3.11 is an example form for your use.

#### **Carrying out a Management Review**

It is good practice to hold periodic reviews of your EMS to check that it is “fit for purpose”. This review should be minuted and be attended by senior management and key staff involved in maintaining the system.

In addition to learning lessons from audit findings and environmental incidents the review should involve:

- assessing the mill’s environmental performance against its policy, objectives and targets

- assessing the continued suitability of the EMS, including, in light of any operational changes to your mill such as a new process being introduced, changing legislation etc

ISO 14001 also suggests reviewing the suitability of your policy in light of changing expectations of interested parties, advances in science and technology, market preferences and reporting and communication requirements.

#### **Additional Requirements of ISO 14001 and EMAS**

The standards state that the review should:

- be conducted at defined intervals
- consider concerns of interested parties e.g. customers, regulators etc
- be documented
- include the impact of the environmental dimensions of all activities, products, services including the impact on financial performance and possibly competitive position.

The review of the policy, objectives and procedures should be carried out by the level of management that defined them.

#### **Certification**

Once you have got your EMS up and running you may wish to think about becoming certified to ISO 14001 or EMAS. To ensure your EMS is ready for certification you should obtain a copy of the appropriate standard and use the “Additional Requirements for ISO 14001 and EMAS” boxes on these web pages to check you comply with the requirements.

You will need to get in contact with a certifier/verifier who will take you through the process of assessing your EMS for compliance with the standards. The United Kingdom Accreditation Service (UKAS) holds a list of accredited certifiers and verifiers for ISO 14001 and EMAS.