

## TIER III – ENVIRONMENTAL PIONEER

The groundwork for Tier III is laid out in Tiers I and II. Many of the activities that are incorporated in Tier III are built from components of Tiers I and II. Refer back to Tiers I and II as necessary. Since Tier III requires a complete “plan, do, check, act” model, it is suggested that the model environmental management system for meat and poultry processors developed in cooperation with USEPA be used as a reference. This model can be found on the Internet or contact the American Meat Institute for information on how to obtain a copy.

### Setting Objectives and Targets

Objectives and targets help an organization translate purpose into action. These environmental goals should be factored into the strategic plans and can facilitate the integration of environmental management with the other management processes.

First the terms environmental objective and environment target will be defined. An environmental objective refers to an overall environmental goal, arising from the environmental policy, that an organization sets itself to achieve, and which is quantified where practicable. An environmental target refers to a detailed performance requirement, quantified where practicable, applicable to the organization or parts thereof, that arises from the environmental objectives and that needs to be set and met in order to achieve those objectives. Example of both objectives and targets is given in the Table 3 below.

**Table 3: Comparing Objectives and Targets - Some Examples**

<b>Objectives</b>	<b>Targets</b>
Reduce energy usage	Reduce electricity use by 10% in 2001 Reduce natural gas use by 15% in 2001
Reduce usage of hazardous chemicals	Eliminate use of CFCs by 2002 Reduce use of high-VOC paints by 25%
Improve employee awareness of environmental issues	Hold monthly awareness training courses Train 100% of employees by end of year
Improve compliance with wastewater discharge permit limits	Zero permit limit violations by the end of 2001

In setting environmental objectives and targets, keep in mind not only the significant environmental aspects and the reduction of adverse impacts, (see Figure 6), but also:

- The environmental policy commitments;

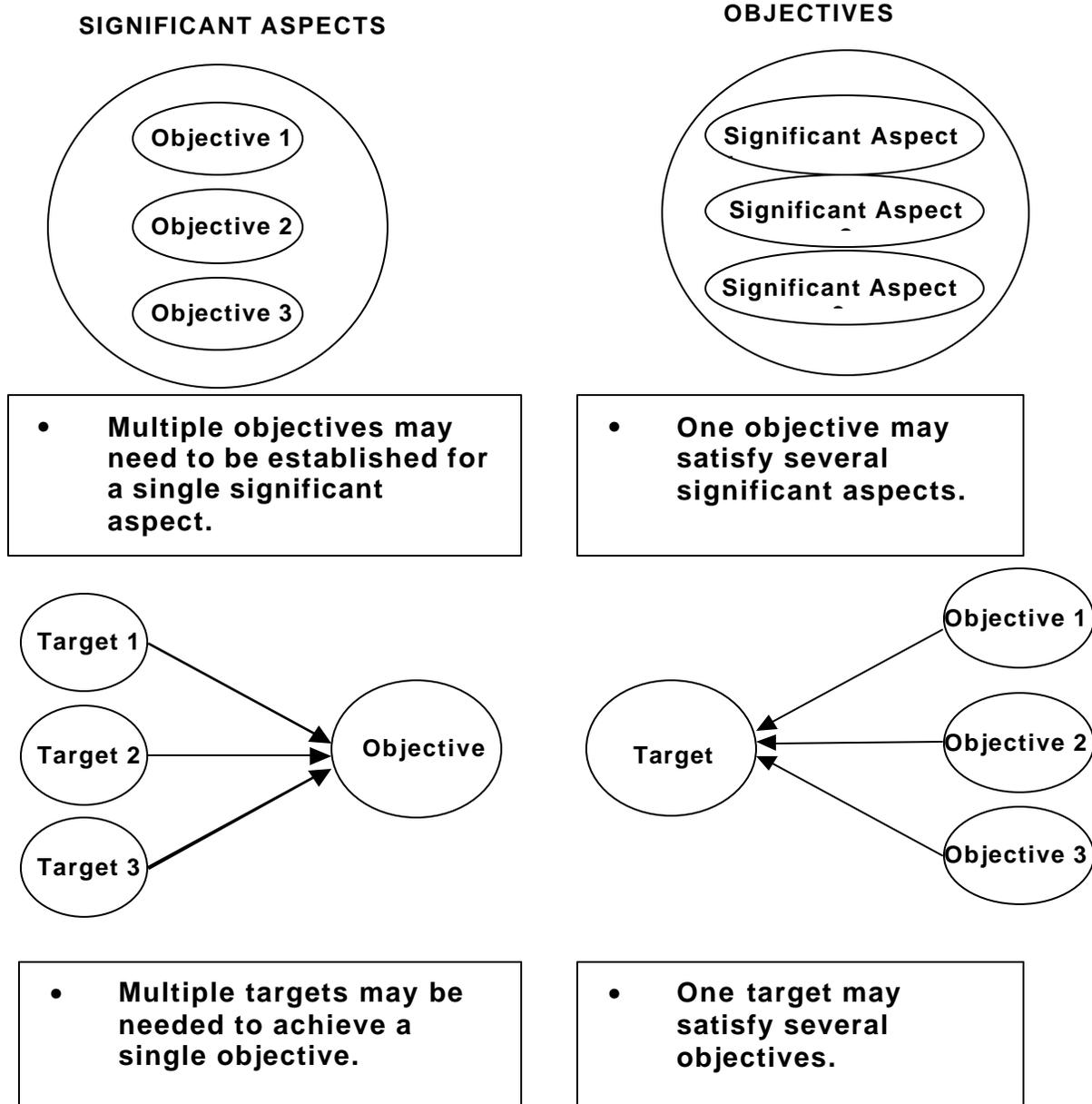
- Preventing non-compliance with applicable legal and other requirements;
- Performance commitments the facility has made and improving performance;
- Pollution prevention;
- Minimizing cross media pollutant transfers (for example reducing a waste-water impact only to increase a solid waste disposal issue);
- The views of interested parties;
- Technological options;
- Financial, operational; and other organizational considerations.

Not all of these factors will necessarily apply to a specific objective or target. Use judgment on a case-by-case basis. Begin by reviewing the facility's significant environmental aspects. In developing objectives and targets, it is important to gain an overview of the significant aspects at the facility, as these will be the main source for the objectives and targets.

The degree and complexity of objectives and targets developed for each of the significant aspects on the list will vary. Therefore, the next task is to establish a review process in which information is gathered and analyzed regarding the significant aspects in order to identify the ones for which more detailed objectives and targets will be developed. In reviewing the identified significant aspects for potential objective and target development, consider the feasibility of implementation. How feasible would it be to implement potential objectives and targets and management programs for the significant aspects? With consideration of the current operating procedures and their feasibility, determine the associated aspects for which objectives and targets will be developed and the associated aspects that will be monitored without creating formal objectives and targets.

Do not expect to develop one objective and target for each significant aspect. One aspect may have several objectives associated with it and likewise one objective may have a number of targets associated with it. (See Figure 6)

Figure 6: Significant Aspects and Objectives and Targets



As the objectives and targets become clearer, the next step is to decide what specific measurable indicators are to be used in gauging progress towards meeting them. For each target, identify a measurement for success (e.g., volume of waste produced or percent of water recycled, etc). These measurements should be:

- Simple and understandable;
- Objective;

- Verifiable;
- Linked to production; and
- Relevant to the objectives.

Targets should be sufficiently clear as to indicate if the objective was achieved. Objectives and targets should be documented and posted regularly. In addition, employees should be made aware of the objectives and targets that directly affect their work. It is recommended that this documentation be combined, with the corresponding management programs (See section on Management Programs) in a single document. It is important to keep in mind that the objectives and targets that have been determined only represent a first draft of the final objectives and targets. As a more thorough understanding of the resources that are needed for achieving the objectives and targets is determined, they objectives and targets may change. Keep in mind that the process of determining objectives and targets is an iterative one, and subject to change as progress in achieving improved environmental management is made.

Appendix K provides a template for linking aspects with objectives and targets.

Once the objectives and targets have been established and measurements towards progress set, the next task is to set up Management Programs (MPs) to implement these objectives and ensure achievement of the targets.

### **Management Programs (MPs)**

The management program should be linked directly to the objectives and targets. The program should describe how the organization will translate its goals and policy commitments into concrete actions so that environmental objectives and targets are achieved. Operational controls and a plan for monitoring and measurement are also needed to ensure that the objectives and targets established are being met.

A Management Program (MP) translates goals of the organization into concrete actions that ensure objectives and targets are met. In addition, responsibilities are designated; the means and time for achieving goals is defined; progress is monitored and measured; and allows for adequate adjustment, changes, and acts based on reviews. The program brings the systems together.

To ensure its effectiveness, the management program should define:

- The responsibilities for achieving goals;
- The means for achieving goals; and
- The time frame for achieving those goals.

The management programs need not be detailed "how-to" manuals, but they should outline specific tasks and assignments of responsibility. It is not necessary that the programs be documented; however, it is recommended that written programs be prepared. Experience shows that it is difficult, if not impossible, to implement a management program consistently at a facility without a written program outline.

Keep in mind that the program should be a dynamic one. Consider modifying the program when, for example, objectives and targets are modified or added relevant legal requirements are introduced or changed; substantial progress in achieving the objectives and targets has been made (or has not been made); or the products, services, processes, or facilities change or other issues arise.

An outline for such a program might include:

- Objective;
- Target;
- Person(s) responsible;
- Budget;
- Date of expected completion;
- Date of actual completion; and
- Performance indicators for measurement.

The MP(s) need not be compiled into a single document. A "road map" to several action plans is an acceptable alternative, as long as the key responsibilities, tactical steps, resource needs, and schedules are defined adequately in these other documents. This program should not be developed in a vacuum — it should be coordinated or integrated with other organizational plans, strategies, and budgets. For example, if the facility is planning for a major expansion in one of the service operations, then it makes sense to look at the possible environmental issues associated with this operational expansion at the same time.

When preparing these plans, build on the plans and programs already in place for such issues as for compliance, health & safety, HACCP, or quality management. Involve the employees/colleagues early in establishing and carrying out the program. Clearly communicate the expectations and responsibilities defined in the program to those who need to know. In some cases, the management programs may encompass a number of existing operating procedures or work instructions for particular operations or activities. In other cases, new operating procedures or work instructions might be required to implement the program.

Re-evaluate the action plan when considering changes to the products, processes, facilities or materials. Make this re-evaluation part of the management process. Keep it

simple and focus on continual improvement of the program over time. A sample Management Program form can be found in Appendix L.

There may be more than one objective per target or vice versa, there may be several MPs for a single objective or a number of MPs may help to achieve a single objective or target. This is especially true in larger more complex organizations and those where management has decided to use a combination of enhancements to existing programs coupled with new programs to achieve the objectives and targets.

Organizations often do not have a formal procedure on how to develop MPs but rather use some subset of the guidance and hints noted in this section with a format for outlining the primary components of the MP. This allows the MPs to vary in level of detail as appropriate. Appendix L provides a simplified MP format.

#### Identify Environmental Tasks and Personnel

Before assigning roles, responsibilities, and authorities within the EMS, identify how each individual's job affects the environment. Conversely if it is determined that activities need to be performed which have not been assigned, the right people for the job will need to be assigned and possibly trained.

Take time to revisit and review the environmental aspects, legal requirements, objectives and targets, and management programs and identify required tasks and appropriate personnel for undertaking the tasks. The important point is that before assigning appropriate roles, responsibilities, and authorities for environmental activities, detailed understanding of these activities must first take place.

In fact, the process of the 3R's (roles, responsibilities, and resources) should be occurring at the same time as the objectives, targets, MPs, and operational controls are being developed. These functions cannot be conducted in isolation but typically occur in an iterative process as options are explored. Remember that when developing MPs consider responsibilities, means (resources) and time frame (which will depend on resources available).

#### Environmental Training Needs

Environmental performance among employees can be directly linked to environmental training. Training of employees about environmental management and the EMS is needed because every employee can have potential impacts on the environment; and any employee can have good ideas about how to improve environmental management efforts.

Each person and function within the facility can play a role in environmental management. For this reason, the training program should cast a wide net. Every

employee and manager should be aware of the environmental policy, the significant environmental impacts of their work activities, key EMS roles and responsibilities, procedures that apply to their work, and the importance of conformance with EMS requirements. Employees should also understand the potential consequences of not following EMS requirements (such as spills, releases, fines or other penalties).

All personnel should receive appropriate training. Such training should be tailored to the different needs of various levels or functions in the organization. However, training is just one element of establishing competence, which is typically based on a combination of education, training, and experience. For certain jobs (particularly tasks that can cause significant environmental impacts), establish criteria to measure the competence of individuals performing those tasks. A recommended approach to defining environmental related training needs and establishing a training program is described below.

### Training Program

Effective training does not just happen - it must be planned and carried out consistently and correctly. Once the training requirements have been specified, the next step is to plan the training needed by employees at the facility. The first step in implementing the EMS training should be to develop a training plan. A training plan serves as a “procedure” that describes the way EMS training is managed at the facility.

#### Key Steps in Developing a Training Program

- Step 1:* Assess training needs & requirements
- Step 2:* Define training objectives
- Step 3:* Select suitable methods and materials
- Step 4:* Prepare training plan (who, what, when, where, how)
- Step 5:* Conduct training
- Step 6:* Track training (and maintain records)
- Step 7:* Evaluate training effectiveness
- Step 8:* Improve training program (as needed)

The first step in setting up a training program is to conduct a training/skills needs analysis. The goal of this needs analysis is to establish a clear understanding of who in the facility requires training, what type(s) of training they need, and the skill sets required. In assessing these needs, consider both general and specific needs (e.g., “What EMS procedures affect Joe’s daily work and what happens if they aren’t followed?” “What environmental impacts might Joe’s work cause?” “What broader understanding of environmental issues and our EMS does Joe need?”). The skill level can also be referred to as the competence level of the individual. See Appendix M for a sample training matrix.

Look at the training already being conducted for compliance with environmental, health, safety, and food safety regulations. Existing training efforts go a long way towards satisfying the requirements for the EMS. Competence might be established on the basis of regulatory-required training.

Establishing who requires EMS awareness training should be fairly simple, as everyone in the facility must have a very basic awareness of the EMS. Therefore, all personnel at the facility should receive EMS awareness training. The intensity and level of detail of awareness training may vary by type of position. The facility may wish to have a basic level of awareness training for all staff (perhaps as little as 15 to 30 minutes of general introductory training) to be followed by specific individual training, if appropriate.

To identify job-specific training needs, focus on identification of job titles or roles associated with:

- Any new procedures or needs related to significant environmental aspects;
- Those whose jobs and responsibilities involve activities directly related to achieving objectives and targets;
- Those whose jobs and responsibilities involve activities directly related to compliance with legal requirements;
- Ability to recognize new problems;
- Technical work needed to solve problems; and
- Assignments of responsibility within the EMS itself.

The following is a list of training resources to be considered:

- Internal trainers / experts;
- Consultants;
- Trade associations;
- Community colleges;
- Vendors / suppliers;
- EPA materials;
- State regulatory agencies;
- Customers;
- Technical associations;
- Self-study or study groups;
- Training consortia (teaming with other local companies); and
- Computer-based training.

Part of the EMS responsibility is to develop an approach to judge the competence of employees to accomplish their assigned tasks. For example, the required level of competency for the general workforce on the meat processing production line may be accomplished by ensuring they are capable of reading and understand the warning signs regarding waste diversion and wash down practices. Competency requirements for a line foreman might include an understanding of the need to limit wash down of debris into the sewer due to sewer use restrictions. This level of competency could be demonstrated as part of the training program and periodic training updates. Some firms use combined health, safety and environment meetings as an avenue to do 10-minute refresher talks on a variety of related topics. The greater the employee's level of responsibility for ensuring that the MPs are a success, the higher the level of training and competency that employee should have.

The overall goal for the training program is to produce knowledgeable, skilled, and aware employees who assist the facility in achieving its stated goals and objectives.

### **Structure and Responsibility**

For an EMS to be effective, roles and responsibilities must be clearly defined and communicated. The commitment of all employees is needed for an EMS to live up to its full potential. This section discusses methods to consider in developing the structure of the EMS and how to define, document, and communicate roles, responsibilities, and authorities.

Roles are required for all personnel or departments who have an involvement with the EMS. Responsibility details what, when, and how the individual or department interacts with the EMS. These details provide the basis for auditing the "human" aspects of the EMS performance. Authority relates to who must and can (if permitted) make decisions. Authority includes general management and operational authority and includes corrective action and emergency authorities. All responsibilities should be linked to authorities and reporting structures.

Roles, responsibilities, and authority for tasks within the EMS need to be assigned. Document these in some way, and ensure that they are communicated to personnel. In this case, documented means written, but this does not necessarily mean a text description. There are a variety of ways in which roles, responsibilities, and authorities can be documented. Similarly, roles, responsibilities, and authorities can be communicated in a variety of ways.

Ways in which roles, responsibilities, and authorities in the EMS can be defined, documented, and communicated may include:

- Organizational charts
- Job descriptions and

- Procedures.

Organizational charts provide the best visual depiction of responsibility and roles. Job descriptions allow for the greatest level of details and procedures can be used to document them. It is helpful to define and describe environmental roles and responsibilities by integrating these with existing roles.

### EMS Manual

An EMS Manual can be a very useful tool since it serves as a “road map” or description that summarizes how the pieces of the EMS fit together.

The size and complexity of the EMS documentation will depend on the particular facility. In general, summarizing the EMS elements will be an easier task at a small facility with very few significant environmental aspects than at a large facility or one with many significant aspects.

### Other EMS Documentation

In addition to the EMS “Manual”, the facility should maintain other documentation of its EMS.

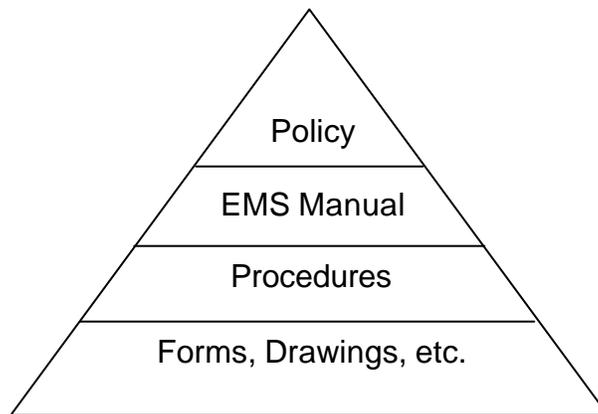
Document the processes used to meet the EMS criteria. (For example, “How do we identify environmental aspects?” “How do we implement corrective actions?”) This documentation generally takes the form of system procedures.

EMS procedures offer a place to document:

- Roles, responsibilities and required skills / training;
- Communication requirements; and
- Relationship with other elements (i.e. support, required input).
- In addition, you might maintain area or activity specific documentation (such as work instructions) that instructs employees on how to carry out certain operations or activities.

One way to think about the EMS documentation is to use Figure 7 below, which also can be applied to quality or other management system documents.

Figure 7: Hierarchy of EMS Documentation



In preparing EMS documentation determine how EMS documentation can be integrated into existing documents. Before you dive into the documentation, determine what documentation already exists, its purpose, and whether it works. The goal of this search is to locate materials that can be used to begin the EMS implementation and documentation. Many companies use the same format for all their documents. An example of existing documentation might be a quality plan or tracking reports.

Tailor the documentation to the facility's individual needs. You will probably have to compromise in producing documentation that meets the needs while also meeting the budget. Here are some questions to help you determine what fits the needs:

- Does the business operate in a single or multiple locations? This will affect who creates some of the documents and where they are located. It may also affect how many versions of a document might be necessary to cover different circumstances.
- What is the current computer capability? Many companies use an electronic system to maintain documents. This allows them to have only one "original" with all printed copies being dated when printed and also marked as a copy. This type of system can be customized to indicate to all users that any printed copy is either for immediate use or will expire within perhaps 14 days for the printed date.
- What security precautions do you need? As a computer system becomes larger and can be accessed by more people, electronic information can be edited and destroyed. Security, or at least restrictions on who can change data, may be a critical issue for many companies.

Determine a format for all documents. Before developing the EMS documents, plan the format (document and page appearance) for the documents to be created. If the

company has a standard, use it. If not, the need for EMS documentation provides an opportunity to create a standard company format. Consider margins, header, footer, typefaces, text, headings, etc. Include plans for bulleted and numbered lists, tables, and even paragraph spacing. Once you have a consistent format for documents, anyone who writes one will use the established electronic format and fill in the necessary text. All documents will look like part of an organized, integrated system. Most important, documents will be easier to read and understand.

### Document Control

Document control means making sure that everyone who works with one of these tools has the right tools. People in the facility probably use various documents (procedures, work instructions, forms, drawings, etc.) as they perform their duties. To ensure that personnel are consistently performing their jobs in the right way, the facility must provide them with the proper tools. In the context of an EMS, the “tools” needed are correct and up-to-date procedures, instructions, and other documents. Without a mechanism to manage these EMS documents, the facility cannot be sure that people are working with the right tools.

Elements of document control include:

- Revision date/issue;
- Effective date;
- Approval (signature);
- Revision number;
- Document number;
- Copy number; and any
- Cross-references.

To ensure that everyone is working with the proper EMS documents, the facility should have a procedure that describes how such documents are controlled. Implementation of this procedure should ensure that:

- EMS documents can be located (*we know where to find them*);
- They are periodically reviewed (*we check to make sure they are still valid*);
- Current versions are available where needed (*we make sure the right people have access to them*); and
- Obsolete documents are removed (*people don't use the wrong documents by mistake*).

The procedure should designate responsibility and authority for preparing documents, making changes to them and keeping them up-to-date. In other words, make it clear who can actually generate and change documents and the process for doing so.

## EMS Records

An EMS record is related to (but not the same as) an EMS document. An EMS document describes what the system consists of (i.e., what you do and how you do it), while EMS records demonstrate that you are doing what the documentation said you would do.

Records do not govern day-to-day operations. A wastewater discharge permit, for instance, would be considered a document because it describes the tasks (e.g., sampling, reporting, etc.) required for a facility to stay in compliance. However, the reports that a facility completes and sends to the regulatory agency, as required by the permit, are records because they are historical data that demonstrate that the facility is in compliance.

Typical records might include:

- Training records;
- Sampling and monitoring data;
- Calibration records;
- Permit and licenses;
- Job descriptions;
- Audit reports; and
- Management reviews.

Proper management of environmental records is important because such information demonstrates a facility's efforts to comply with environmental regulations and its actions to reduce its environmental impacts. Records also provide the necessary information required to track progress towards objectives and targets.

The identification and management of environmental records should include consideration of the following:

- To identify all appropriate EMS records at the facility, review the various elements of the EMS and determine what information is generated by each element, and what information represents critical parts of the design or performance of the EMS.
- For each element, ask the following key question - What environmental information do you need to manage effectively?

The EMS records should be properly identified so a determination can be made as to the kind of information that should be recorded, and the processes, functions, or procedures to which they relate. At a minimum, the records should include a name (or

title), the date the record was generated, and the name of the person generating the record. Other features might include a record identification number or a citation to a procedure or permit from which the records results.

A key factor in the collection of records is to have a responsible person or “owner” assigned to each record or type of record. In small facilities, one person may be responsible for all environmental records. At larger facilities, each type of EMS record may have a different owner for generation and collection. In developing an effective records maintenance system, incorporate procedures that cover proper record filing, storage, and access processes, and protect records from loss. The facility should also think about establishing retention times for the records and develop a disposition system (*i.e.*, procedures to manage the final fate of the records).

Examples of what organizations may find that, as a minimum they need to document and keep records of include the following:

- Environmental policy;
- The definition of the scope of the EMS;
- A record of who the members of the EMS core team /committee are, records of their skills and areas of expertise and training in EMS (if any) they have received;
- The current listing of activities, products and services,
- The entire list of identified associated aspects and impacts, and the method/procedure used for identification of these;
- Legal and other requirements;
- Permits, licenses and other approvals;
- Procedure for determination of significance and the basis upon which each aspect was deemed significant;
- The procedure by which objectives and targets were established and the current objectives and targets;
- Existing management programs including: method / means, responsibility, performance indicators, timeframe for the program and approval of the programs by senior management;
- Records of key communications;
- Management programs for the significant aspects (a brief outline description and notes on responsibilities, means and timeframes);
- Records of performance relative to specified monitoring and measurement requirements;
- Records of performance relative to objectives and targets;
- Brief summary descriptions of topics to be covered under required training programs;

- Training records of training courses given, successful completion and when reviews of training are next required;
- Defined processes for external communication and stakeholder involvement;
- Key EMS roles, responsibilities and resource assignments;
- Records of decisions that the core team has made;
- Records of key decisions made by the EMS representative / coordinator;
- A “roadmap” or summary description of how the core EMS documents are linked and interact with each other;
- Key contacts and processes to be followed in the event of an emergency;
- A record of the level of public access to the EMS the facility will be providing;
- Hazardous material spill / other incident reports;
- Monitoring of progress towards objectives and targets;
- How corrective and preventive action needs in general are identified and for those have been identified the means by which and confirmation that they have been resolved;
- Results of internal environmental compliance assessments and steps taken to resolve identified issues;
- Results of EMS assessments and steps taken to resolve identified issues; and
- Results of reviews of the EMS by senior management and resulting direction given for changes in the EMS.

This is not the “complete list” since the exact list and level of detail associated with many of the above items is something each facility will determine once its EMS is implemented and will modify as a part of continual improvement.

## **Monitoring and Measurement and Corrective and Preventive Action**

### Monitoring and Measurement

An organization should develop procedures for monitoring and measurement of its operations and activities that can have significant environmental impacts.

- Evaluate environmental performance;
- Analyze root causes of problems;
- Assess compliance with legal requirements;
- Identify areas requiring corrective action; and
- Improve performance and increase efficiency.

Monitoring helps manage the facility better. Monitoring and measuring can be a resource-intensive effort. One of the most important steps that can be taken is to

clearly define the needs. Start with a relatively simple monitoring and measurement process, then build on it as experience is gained with the EMS.

Most effective environmental measurement systems use a combination of process and outcome measures. Outcome measures look at results of a process or activity, such as the amount of waste generated or the number of spills that took place. Process measures look at “upstream” factors, such as the amount of paint used per unit of product or the number of employees trained on a topic. Select a combination of process and outcome measures that are right for the facility.

Measure progress on achieving objectives and targets on a regular basis and communicate the results of such measurement to top management and to staff. To measure progress in meeting objectives, select appropriate performance indicators. Performance indicators can help with understanding how well the EMS is working. Start by identifying a few performance indicators that are:

- Simple and understandable;
- Objective;
- Measurable; and
- Relevant to what the organization is trying to achieve (i.e., its objectives and targets).

Indicators of general environmental performance include some of the following:

- Number of spills per year;
- Amount of hazardous waste disposal;
- Amount of waste reduction;
- Number of legal non-compliance issues identified;
- Number of exceedances of regulatory standards;
- Number of incidents;
- Number of public complaints; and
- Number of fines and size.

See Appendix G for a monitoring and recording template.

Indicators for the management system include some of the following:

- Percentage of objectives and targets met on time;
- Number of closed corrective actions versus total number;
- Number of employee’s suggestions for improvement to environmental programs;
- Training recipients assessments of training delivered; and

- Number of non-conformances in internal EMS assessments.

Data collected on performance indicators can be quite helpful during management reviews. Select indicators that will provide top management with the information it needs to make decisions about the EMS.

An organization should also establish and maintain a documented procedure for periodically evaluating compliance with relevant environmental regulations. To achieve this, ensure that a documented environmental compliance audit procedure exists at the facility that at least describes the roles, responsibilities, authorities, and schedule for evaluating regulatory compliance at the facility. In some cases, corporate headquarters provides this service.

### Internal EMS Assessment

Once the facility has established its EMS, verifying the implementation of the system will be critical. To identify and resolve EMS deficiencies you must actively seek them out. Periodic EMS assessments will help determine whether all of the requirements of the EMS are being carried out in the specified manner. See Appendix N for an internal assessment record template.

Assessment and review more often describes the status of item(s) being checked in general. Where they are done internally, the process can generate a statement of the status of programs. The term assessment is used here because at times either the determination of compliance status or EMS conformance will be typically done using internal resources that are often working in an advisory capacity at the same time.

An audit process is typically a more formal reporting process and is more often considered the appropriate term when a neutral third party conducts a review of the EMS for use as verification to enhance the transparency of the EMS for outside stakeholders (e.g. as part of a registration audit). When a neutral third party performs a check of environmental regulatory compliance then use of the term audit may also be appropriate.

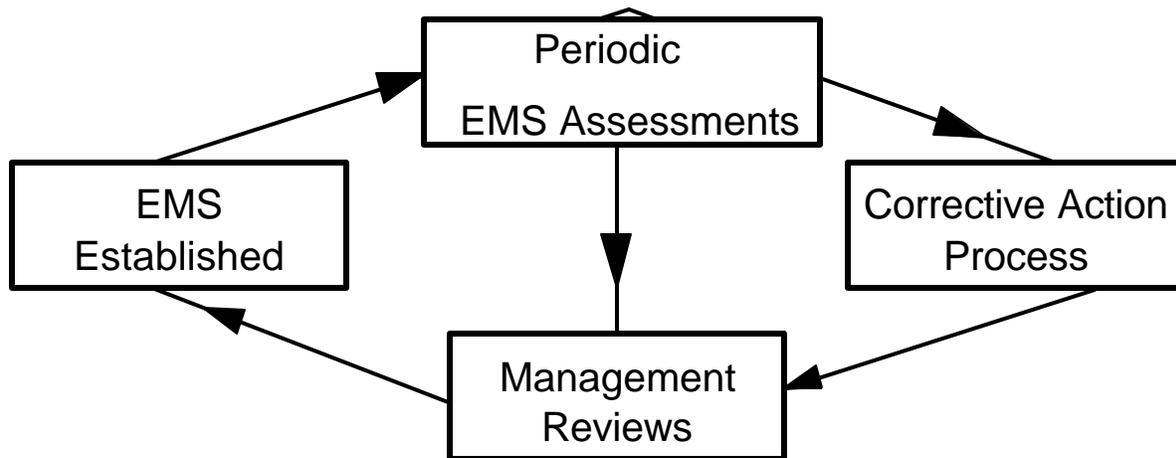
For the EMS assessment program to be effective, consider the following:

- Develop assessment procedures and protocols;
- Determine an appropriate assessment frequency;
- Select and train the auditors; and
- Maintain audit records.

An EMS assessment checks for conformance with the EMS as you have defined it. This may include the EMS model you aspire to (e.g. ISO 14001, Meat Processing EMS

Guide, Performance Track), the commitments (e.g. policy commitments), and/or the actual commitments you have made in the EMS procedures and documentation for environmental management (Note: ISO 14001 call these the 'planned arrangements').

Figure 8: Linkages Among EMS Audits, Corrective Action, and Management Review



While they can be time consuming, EMS assessments are critical to EMS effectiveness. Systematic identification and reporting of EMS deficiencies to management provides a great opportunity to:

- Maintain management focus on the environment;
- Improve the EMS and its performance; and
- Ensure the system's cost effectiveness.

Before you start an assessment, be sure to communicate the assessment scope, criteria, schedule, and other pertinent information to the people in the affected area(s). This helps to avoid confusion and facilitate the assessment process.

A key part of the assessment is the specific protocol. It should be based on the "standard(s)" to which the facility subscribes. The checklist in Appendix B that was used for the Gap assessment of the facility at the start of the implementation could be used but may not provide enough useful information. This is because during the process of development of the EMS different or additional commitments may have been identified and whether those commitments were met will need to be determined. Feel free to add to the checklist to make it reflect the commitments and requirements set for the facility's EMS.

To determine an appropriate frequency of the EMS assessments, consider the following factors:

- The nature of the operations and activities;
- The significant environmental aspects / impacts;
- The results of the monitoring processes; and
- The results of previous assessments.

As a rule of thumb, all parts of the EMS should be assessed at least annually. The entire EMS can be assessed at one time or broken down into discrete elements for more frequent assessments.

EMS auditors/assessors should be selected and trained. Auditor training should be both initial and ongoing. Commercial EMS auditor training is available, but it might be more cost-effective to link up with businesses or other organizations in the area (perhaps through a trade association) to sponsor an auditor-training course. Some local community colleges also offer EMS auditor-training courses. Auditors should be trained in auditing techniques and management system concepts. Familiarity with environmental regulations, facility operations, and environmental science can be a big plus, and in some cases may be essential to adequately assess the EMS. Some auditor training can be obtained on-the-job. The facility's first few EMS audits can be considered part of auditor training, but make sure that an experienced auditor leads or takes part in those "training" audits.

The performance of an internal EMS assessment may serve to provide more than just an analysis of the state of the EMS. When conducted for internal purposes the auditors may be requested to suggest possible options for resolution of identified issues and overall improvement in the EMS.

Management can use EMS assessment results to identify trends or patterns in EMS deficiencies. The organization also should ensure that identified system gaps or deficiencies are corrected in a timely fashion and that corrective actions are documented. Keep in mind that an EMS assessment is a check on how well the system meets the own established EMS requirements. An EMS assessment does not normally include an analysis of how well employees do their jobs. Finally, assessments should be judged on the quality of findings, rather than on the number of findings.

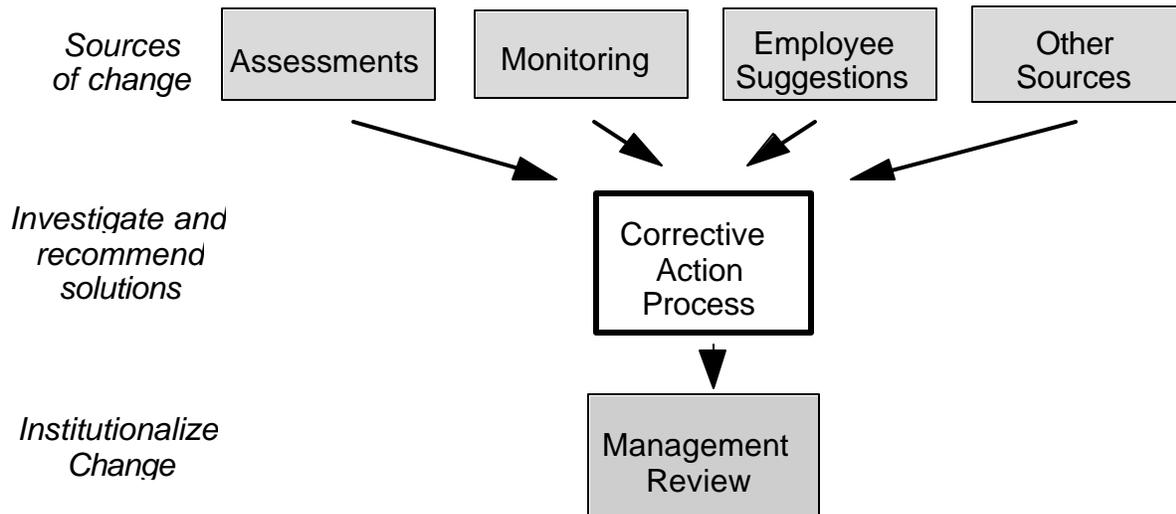
Appendix N provides a sample internal EMS assessment record.

#### Corrective and Preventive Action

In order for the audits, assessments and other inspections conducted as part of monitoring and measurement and the EMS assessments to have any value, the findings

of these audits and inspections must be addressed. Identified problems must be appropriately investigated and corrected.

Figure 9: Framework for Corrective Action Process



To deal with system deficiencies, the facility needs a process to ensure that:

- Problems (including non-conformances) are identified and investigated;
- Root causes are identified;
- Corrective and preventive actions are identified and implemented; and
- Actions are tracked and their effectiveness is verified.

EMS non-conformances and other system deficiencies (such as legal noncompliance) should be analyzed to detect patterns or trends. Identifying trends allows you to anticipate and prevent future problems.

Key steps involved in taking corrective and preventive action are outlined below:

- Identify the problem;
- Investigate to identify the root cause;
- Come up with solution;
- Implement solution;
- Document solution;

- Communicate solution; and
- Evaluate effectiveness of solution.

Corrective actions should:

- Resolve the immediate problem;
- Consider whether the same or similar problems exist elsewhere in the organization; and
- Prevent the problem from recurring.

The corrective action process also should define the responsibilities and schedules associated with these three steps. Appendix O provides a sample corrective action form.

### Preventive Action

While corrective action is based on the results of internal feedback mechanisms, the scope of preventive action can go beyond internal sources. If the facility is affiliated with other similar firms via corporate ownership or industry affiliation, this is often a good source of lessons learned by others. When applied to the facility these can avoid undesirable consequences or improve efficiency. Some organizations conduct benchmarking exercises in general or if only in specific areas where they are aware they have a potential deficiency. The more proactive the preventative action component of the EMS the more likely the facility is to be or become a leader rather than a follower.

### Continuous Improvement

The final steps in developing the EMS are to establish procedures for evaluation and assessment of the overall functioning of the EMS. Results of these evaluation processes are essential in beginning to plan for and modify the existing EMS structure in order to strive for continuous improvement.

Tools that can be used to evaluate the overall performance of the EMS include:

- Determining program measurement criteria;
- Setting up an internal assessment process; and
- Establishing a management review process.
- Measurement Criteria

Determining measurement criteria, also called environmental performance indicators, will help you evaluate the success of the overall EMS program. These performance indicators focus on how well the overall system for improving environmental management is functioning. Select performance indicators that will help you and the

facility's employees decide whether success has been achieved or whether improvement in procedures needs to be made.

Performance indicators for all of the various components of the EMS will be needed. The measurement criteria selected for each component of the EMS will probably be different. For example, measuring the success of communication, documentation, stakeholder outreach, or training programs will be different.

One approach is to measure the *activities*, for example, number of meetings held with stakeholders, number of documents created, number of employees trained, or number of hours of training. Activity, however, does not always mean results. Consider the objective of each EMS component and define a way to measure *results* so that you would feel satisfied that the objectives are achieved. Appendix P provides a sample template to help you organize evaluation of the EMS components using measurement criteria.

Some examples of EMS results measurement for various program components that can be tracked over time are:

- Number of environmental objectives and targets met;
- Percentage of employees completing environmental training;
- Average time for resolving corrective action;
- Number of non-conformances;
- Pounds of hazardous waste generated per unit of production; and
- Energy or water use per unit of production.

It is the results shown by these environmental performance indicators that will become the basis for the plans for next year and establishing continuous improvement.

### Management Review

Management reviews are one key to continual improvement and for ensuring that the EMS will continue to meet the organization's needs over time. What is a management review? A management review is a strategic analysis of the EMS. The key question that a management review seeks to answer is: Do we have the *right* system—is this EMS appropriate for our particular organization with our specific activities, products, and services, and corresponding environmental aspects?

The specific goals of management review of an EMS will also vary based on the specific needs of an organization, but, in general, the overall goal is to determine if the EMS is functioning as intended. The facility's management review process should focus on answering the following questions:

- Are environmental risks being managed effectively?
- Are we complying with environmental regulations and will we continue to do so?
- Are we achieving improvement in environmental performance?

It is difficult to recommend a specific approach for EMS management review because the character of the management review process will be a function of the facility's organizational structure, management style, and overall culture.

Determine management review frequency that will work best for the facility. Some organizations combine these reviews with other meetings (such as director meetings). Other organizations hold "stand-alone" reviews. At a minimum, consider conducting management reviews at least once per year.

During management review meetings, make sure that someone records what issues were discussed, what decisions were made, and what action items were selected. Results of management reviews should be documented.

To facilitate the record-keeping process for management review meetings, consider the use of a form to help remember what to document for the review. The form should include the date of the meeting or discussion, attendees, items discussed and conclusions made, and action items assigned. See Appendix Q for a management review record template.

Management reviews should assess how changing circumstances might influence the suitability, effectiveness or adequacy of the EMS. Changing circumstances might be internal to the facility (such as new facilities, new raw materials, changes in products or services, new customers, etc.) or might be external factors (such as new laws, new scientific information or changes in adjacent land use). After documenting the action items arising from the management review, be sure that someone follows-up. Progress on action items should be tracked to completion.

As you assess potential changes to the EMS, consider other organizational plans and goals. In this way, environmental decision-making can be integrated into the overall management and strategy.

In conclusion, it is important to understand that management review is not something that is conducted once every six months or once a year during one meeting. It is an ongoing process by which top management is presented with data and other information about the progress and general condition of the EMS and decisions regarding future actions are made.

## **Educate a facility**

A goal of the Environmental MAPS program is to increase EMS development and implementation throughout the meat and poultry industry, thereby achieving continual environmental improvement. The more information that can be disseminated about the Environmental MAPS program and the benefits of environmental management systems in general, the better off the meat and poultry industry and the environment will be. To that end, in Tier III each facility is asked (requirement for a Tier III award) to educate one other facility about the Environmental MAPS program.

This activity can be as simple as a memo with information on the MAPS program or can be as elaborate as a mentoring role in which a facility that has developed an EMS provides continuing support and advice to the other facility. Start this educational process by simply contacting a facility that has not yet begun to develop an EMS. Keep in mind companies that may not be members or companies that may not have the resources to attend informational meetings about environmental programs. It is not a requirement that the facility that is educated be outside the company, it can be another facility within the company.

This concludes Tier III – Environmental Pioneer in the Environmental MAPS program. Facilities that have completed Tier III should now have a complete working environmental management system. Should a facility desire to go that last extra mile, Tier IV is designed to make the facility an Environmental Star.