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SECTION I: EMS GUIDANCE

1. Scope, Resources, Roles, Responsibility, and Authority

What

A first step in EMS planning is to **decide why you are pursuing the development of an EMS**. Are you trying to improve your environmental performance (for example, compliance with regulations or prevent pollution)? Are you trying to promote involvement throughout the facility? Write your goals down and refer back to them frequently as you move forward. As you design and implement the EMS, ask: "How is this task going to help us achieve our goals?" The EMS scope should be defined by:

- Identifying what it is that your facility actually does (does it operate offices, a waste water treatment facility, are there trucks, shipping and receiving, how many buildings, and how much property is there to operate and maintain?);
- Drawing boundaries around the facility and its components; and
- Considering practical constraints and timing.

EMS roles and responsibilities, as with other important business-related tasks, should be assigned to specific individuals who competently fulfill their roles. These along with lines of authority should be documented and communicated in order to facilitate effective environmental management.

Resources are essential to the EMS. They include training, human resources, specialized skills, financial resources, and technical and informational services.

Who

As you will see in much of this EMS Guide, the dynamics of your particular facility will determine who should be responsible for implementing different provisions of your EMS. Key concepts concerning the assignment of responsibility include the following:

- One person alone cannot develop and implement the entire EMS. An EMS involves everyone.
- Top management must make it clear to the workforce that it considers EMS activities worthwhile and important. They must ensure the availability of resources essential to the implementation and control of the EMS. Management leadership is vital to its success.
- Managers must reinforce the importance of the EMS tasks assigned to their employees.
- Those who are given EMS responsibilities must feel confident that management will back them when they are doing EMS tasks.
- If a task is important enough to assign to someone, then enough authority and resources should be made available to that person to get the job done.
- Each person assigned EMS duties should be periodically evaluated on those duties. Include EMS duties in your employee performance plans and compensation policy.

- EMS assignments should be put in writing.

At a minimum, facilities should designate a Core EMS Team that includes an Environmental Management Representative (EMR), an EMS Coordinator, and a Cross-Functional Team (CFT). The EMR, irrespective of other responsibilities, has primary responsibility for ensuring that the EMS is implemented and maintained and for reporting on the performance of the EMS to top management for review and as the basis for improvement. For further description of roles see **Section II, Exhibit 1—Facility Organization Chart and EMS Core Team Description**.

Why

Defining the scope helps to set the tone for the entire EMS. An initial well-defined scope makes it less likely that you will over- or under-extend your EMS efforts. Assigning responsibility and accountability for the tasks involved is crucial to effective establishment and maintenance of an EMS. Assignments will not get done if employees do not know whose job it is to do them. Having managers and employees from all areas of the facility assume responsibilities is part of creating ownership of the EMS. By involving people from all areas, you should be able to develop an integrated and informed EMS.

How

Your facility should specifically document what the EMS does and does not cover. When defining the scope include those areas that the management can control and over which it can be expected to have an influence. This is often called management control. Management control includes:

- Authority to determine how the environmental policy is implemented;
- Authority to allocate appropriate resources;
- Clearly defined boundaries for inputs to and outputs of the facility's activities;
- Interfaces with services not completely within the scope of the EMS (e.g., a common effluent treatment facility); and
- The scope of environmental licenses, permits or approvals.

Some organizations find that for the initial development of their EMS it is most effective to limit the scope to any activities that occur within their physical property limits or that occur as a direct result of those operations on adjacent sites. In subsequent EMS cycles they can consider expanding their scope to include their supply chain, product lifecycle, and other key associated organizations such as scrap suppliers and the local POTW.

It is important to designate, as soon as possible, key roles for developing and promoting EMS. If you have a very small facility the EMR and the EMS Coordinator may be the same person. These people likely will require training as preparation for these roles.

Persons working for or on behalf of the facility (hereafter workforce) have to be competent enough to carry out the responsibilities that they are assigned. Workforce members also must receive sufficient training to do EMS-related tasks. This does not necessarily mean a structured training class. If workforce members know what their job duties are when it comes to the environment, then they have received sufficient EMS training, no matter in what form it

happened. A two-minute chat once a week between a manager and a front-line person on the person's EMS duties may, for example, be more effective than a formal EMS training class.

Managers have to ensure that any employee assigned an EMS task has enough authority and resources—including time—to carry out the task. To find out more on assigning responsibilities, see the "Who" section of each EMS component of this EMS Guide.

Scope, Resources, Roles, Responsibility, and Authority Checklist

- Step 1: Document what your EMS does and does not cover.
- Step 2: Describe responsibilities for Core EMS Team members, designate people for these roles, establish lines of authority, and create an organization chart for your EMS using as a template **Section II, Exhibit 1—Facility Organization Chart and EMS Core Team Description**.
- Step 3: Have management ensure the availability of resources essential for the implementation and control of the EMS
- Step 4: Communicate roles, responsibilities, and authorities throughout the facility and include a description of the EMS scope, an organization chart, and responsibility assignments in your EMS manual (see **Section II, Tier I—Sample EMS Manual**).

2. Environmental Policy

What

The environmental policy (policy), by stating the main environmental commitments of your facility, serves as the keystone of your EMS. It is a statement to the workforce, customers, and the public about your environmental performance commitments. The policy statement should be appropriate to the nature, scale, and environmental impacts of your facility's activities, products, and services, and provide the framework for setting environmental objectives and targets. It should be communicated to all persons working for or on the behalf of the organization and be available to the public.

Who

The first step, after your facility has trained its Core EMS Team (the EMR, EMS Coordinator, and CFT), is for the team to create a working draft of your policy. As your EMS Team moves forward, the policy should provide a unifying vision of environmental principles, and in turn, guide the actions of employees and top management. Your facility likely will amend its policy after it has completed the EMS implementation process to reflect scope modifications and new objectives and targets that arose from those efforts.

Why

The policy is important because it publicly states how your facility intends to manage its interaction with the environment and its protection. It is a statement to the workforce on how important the environment is to your facility. With the policy, your facility recognizes that improving environmental performance is an important component of making good business decisions.

How

Your EMS Team develops a policy that sets out the facility's overall commitment to a cleaner environment. EPA's Performance Track program sets out examples of commitments that should be stated in your policy:

- Compliance with legal requirements and any voluntary commitments
- Pursuit of pollution prevention
- Continuous improvement in environmental performance, including areas not subject to regulations
- Sharing information about environmental performance and the operation of your EMS with the community

Once your policy has been drafted, those who helped create it, including top management, should sign it. Then you should prominently display your policy throughout the facility to remind the entire workforce and visitors of your commitment. Facilities often find interesting ways to remind their workforce of the policy, such as putting the policy on T-shirts, coffee mugs, or identification badges. Also, top management should remind the workforce of the business importance of the policy by referencing it when appropriate during meetings, speeches, and other opportunities.

Use your environmental policy the same way you use other company policies to guide decision-making. Keep it relevant by communicating it internally and externally and reviewing it periodically for improvements. If your facility has a policy for quality control or health and safety, consider aligning or building on these in developing your environmental policy. In the end, all employees and on-site personnel must be aware of the policy and implement it in their daily activities.

Environmental Policy Checklist

- Step 1: Define a policy to be endorsed by top management that is appropriate to the nature, scale, and environmental impacts of the facility's activities, products, or services, and that includes commitments to: comply with legal requirements and other requirements to which your facility subscribes (which relate to its environmental aspects); pursue pollution prevention; share information on EMS performance with the community; and to continuously improve environmental performance (including areas not subject to regulations). Provide in the policy a framework for setting and reviewing environmental objectives and targets.
- Step 2: Using **Section II, Exhibit 2—EAF Steel Company's Environmental Policy** as template, develop a policy for your facility. Include this signed policy in your EMS manual (see **Section II, Tier I—Sample EMS Manual**).
- Step 3: Communicate the policy to all persons working for or on the behalf of the organization and make it available to the public.

3. Environmental Aspect

What

The elements of your facility's activities, products, and services within the scope of its EMS that could or do impact the environment are known as the environmental aspects. For example, electric arc furnace (EAF) dust emitted outside the facility is an environmental aspect because of its potential impact on air quality, which in turn affects human and ecosystem health. The emitted EAF dust would be an environmental aspect even if it did not actually have an adverse affect on the environment. The *potential* for environmental impact is enough to consider an element of an activity as an environmental aspect. A potential environmental impact of EAF dust emissions is reduced air quality.

Cause and Effect – Environmental Aspects and Environmental Impacts

Environmental Aspect	⇒	Environmental Impact(s)
Emissions of electric arc furnace (EAF) dust	⇒	Air pollution and adverse human and ecosystem health affects
Pollutant discharges to stream	⇒	Degradation of aquatic habitat and drinking water supply
Spills and leaks	⇒	Soil and groundwater contamination
Electricity use	⇒	Air pollution, resource use, global warming
Use of recycled materials such as paper	⇒	Conservation of natural resources

The subsequent step, that of determining which environmental aspects have significant impacts on the environment and therefore will be included in your EMS as significant environmental aspects (SEAs), is one of the most crucial steps in EMS planning. It can be one of the most challenging as well as one of the most rewarding. Decisions you make in this step will affect many other system elements, such as setting objectives and targets, establishing operational controls, and defining monitoring needs. Careful planning of this activity will pay dividends later.

Who

Use your best judgment to select the most appropriate people to do this task. The main point is to assign someone who has the process knowledge and ability to see how environmental aspects might impact the environment. One option is to make the EMS Team responsible for identifying environmental aspects, with help from appropriate, process-specific employees. The team approach has helped other facilities gain employees' early acceptance of their EMS, making the rollout of the EMS easier.

Someone, such as the EMS Coordinator, should ensure that aspects are reviewed regularly to take into account any facility changes, like new processes or materials.

The EMS Coordinator and CFT can be responsible for determining which impacts are significant. Because determining significance involves some subjective decisions, you will achieve more balanced results by involving a CFT that represents different job functions. This will provide a cross-section of operational experience and different perspectives. The EMS

coordinator also should make sure that this determination is updated when the environmental aspects of the facility change.

Why

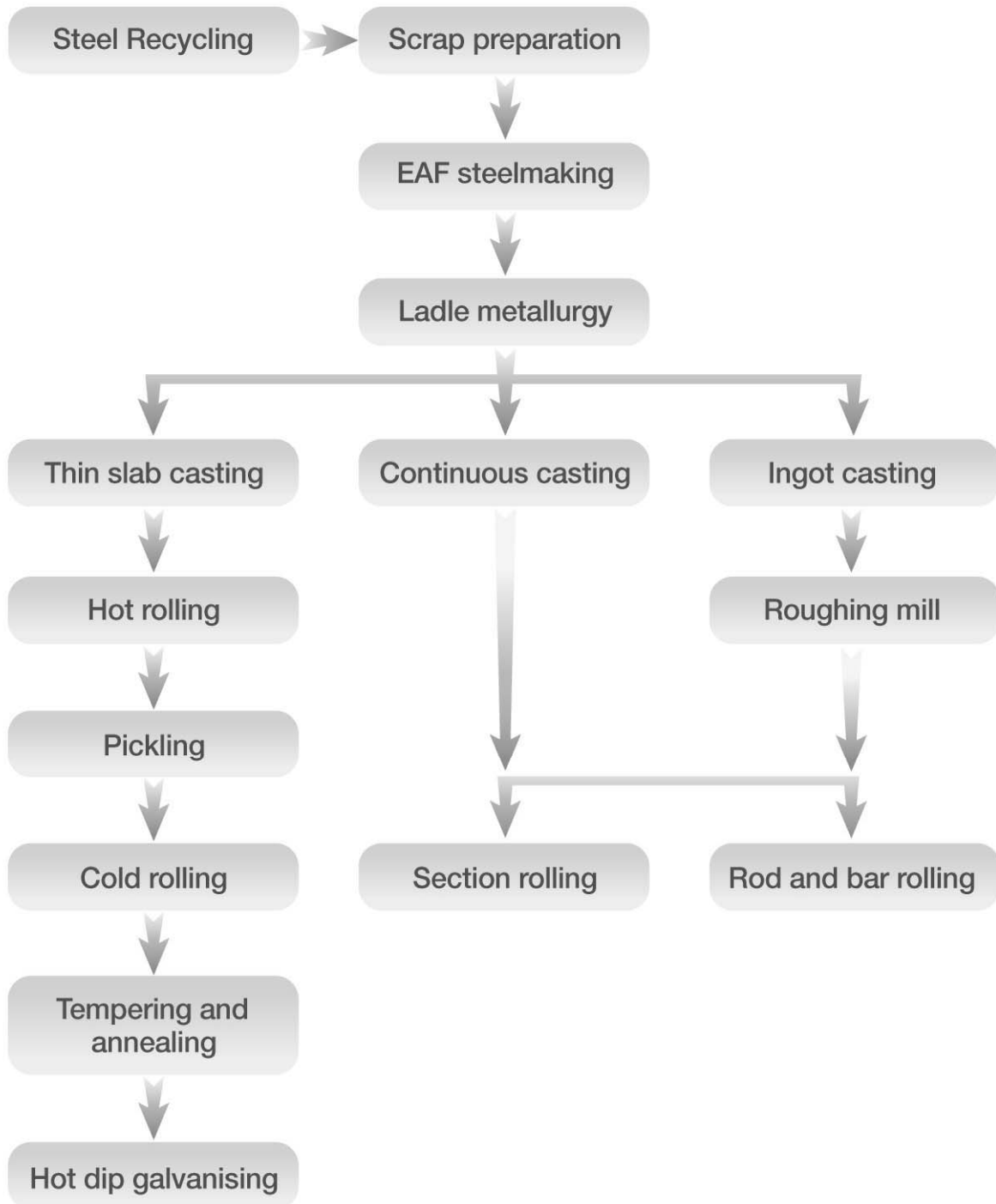
Any good manager wants to focus efforts on what is most important. Knowing your facility's environmental aspects and prioritizing these aspects should help the leaders in your facility focus on managing the environmental concerns that are likely to have the greatest effect on the environment and on the business.

How

There are several ways to approach the identification of environmental aspects. One method includes the following:

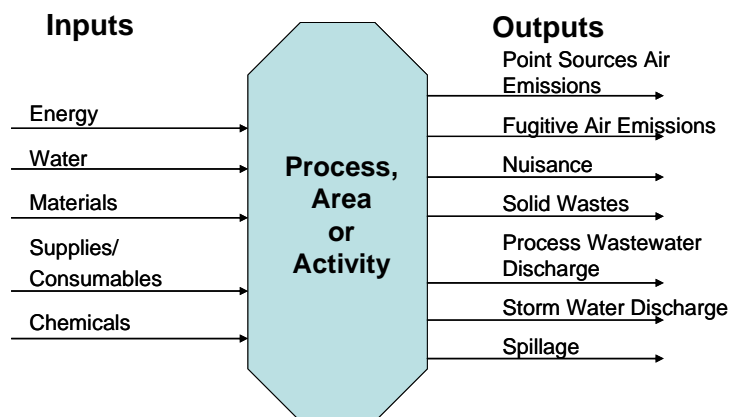
- Start by listing the areas, activities, and/or operations that fall within the scope of the EMS (see the EAF flow diagram on the next page).
- When subdividing the facility into the appropriate areas and operations, it is important to consider using a scale that is small enough that important information does not get overlooked, but not so small that your system gets choked by having to manage too many small bits of information. Equally importantly, think about your existing supervisory structure. Ultimately, significant environmental aspect information will become owned by area supervisors—start considering how to subdivide the facility by considering how you already group the supervision of the facility processes. For an example of how to divide your facility see **Section II, Exhibit 6—Example of Linking SEAs, Objectives and Targets, Operational Control Procedures to Measurement Indicators, Job Functions, Responsible Parties, and Applicable Operations.**

Process flow diagram for steel production using the electric arc furnace (EAF) route



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- Identify the environmental aspects of each area or operation, making lists of inputs and outputs (such as those provided in **Section II, Tier II—Aspects Identification and Significance Determination Form F-003.01**) or an input/output process diagram. See flow chart to the right for a general example.



- Identify environmental aspects that it can control and those that it can influence taking into account planned or new developments, or new or modified activities, products, and services.

After identifying environmental aspects you will need to determine which aspects are significant. There are many ways of determining significance. Whatever way you choose, make sure to consider regulatory requirements. Also keep records of your decision process and the results of your determination. Keep these documents up to date when processes change or aspects periodically are revisited. The point is to look at all of your aspects and to figure out—in a common sense, systematic way—which of their impacts is environmentally significant. You also should identify those aspects that your company can influence by taking into account planned or new developments, or new or modified processes. Use the criteria presented below to achieve a balance between structure and flexibility. Use these as a starting point to customize your own criteria.

- **Legal Requirements/Voluntary Commitments/Company Policy.** An obvious initial criterion is whether an aspect is subject to environmental regulations—any such aspect, as identified by broad scientific and legislative consensus, is significant. A closely related criterion is whether an aspect is the subject of facility policy, goals, or voluntary commitments. For example, many facilities have established energy-use, water-use, or material-use reduction goals and targets, which also makes good business sense. If these policies/goals apply to your facility, then you should consider the associated aspects to be significant.
- **Community Concern.** A second criterion considers the views of interested parties. One of the commitments of your environmental policy must be communication with external stakeholders. There are a variety of community concerns that might affect your designation of a particular activity as a significant aspect. These may include issues other than pollution. Some examples are the noise level or odor produced by your facility; increased traffic caused by your business; and increased outdoor light needed for your operations. You should determine as significant those aspects that the community considers important (e.g., aspects that the community has lodged complaints about).
- **Pollution Prevention Potential.** A third criterion is whether an aspect has good technical and financial potential for pollution prevention improvements (such as the reduced use of water, energy, or hazardous materials). Pursuit of pollution prevention is a commitment in your environmental policy statement. Determining whether a particular aspect is significant under this criterion is subject to the specific circumstances and values of your

facility and community. For example, a high rate of water use would be of more concern in a desert region than in a region where water is more plentiful. The determination that your CFT makes is based on your judgment and your facility's specific circumstances.

- **Potential Impact to the Environment.** A final criterion is one that your CFT customizes for your facility. A commonly used approach relies on scoring environmental aspects based on magnitude, frequency, toxicity, duration, etc.

When appropriate, group individual aspects. For example, if energy use is listed as an environmental aspect for several processes, it also may be a facility-wide concern. The CFT could list energy on each process-specific aspect form and then record the aspect and significance determination on a facility-wide form to indicate it as a facility-wide concern.

Environmental Aspects Checklist

- Step 1: List the operations that fall within the scope of the EMS and then identify the environmental aspects of these operations, using an input/output approach (See **Section II, Exhibits 4 and 5—Significant Environmental Aspects**).
- Step 2: Determine a rational, repeatable method for determining which aspects your facility considers significant and a process for keeping this information up to date.
- Step 3: Apply your significance determination method to the aspects that were gathered and recorded on **Form F-003.01, Aspects Identification and Significance Determination**. A sample determination for an Electric Arc Furnace is provided in **Section II, Exhibits 4 and 5—Environmental Aspects**. An alternate method for determining significance is provided in **Section II, Tier II—Alternative Form F-003.01, Significance Determination for Aspects Based on Environmental and Business Considerations**.
- Step 4: Capture the approach used to identify aspects and determine their significance in a written procedure. **Procedure for Environmental Aspects, Objectives and Targets, and Program (P-003)** in **Section II, Tier II** can serve as a template. Include a customized version of this procedure in your EMS manual (see **Section II, Tier I—Sample EMS Manual**).
- Step 5: Document aspects and significant aspects information and keep it up-to-date.

4. Legal and Other Environmental Requirements

What

Addressing legal requirements is a major consideration in developing, implementing, and maintaining your EMS. This element requires that you establish and maintain a procedure to identify and access the legal and other environmental requirements that are applicable to your facility and to its environmental aspects. See **Section I: Appendix E—Overview of Federal Environmental Laws in the U.S. Applicable to Steel Manufacturing**. Determine how to identify comparable State and local information.

Who

The EMS Coordinator likely will be the person who determines applicable regulatory requirements and maintains a current list of them.

Why

Identifying and having access to the legal and other requirements that are applicable to your facility's environmental aspects is a crucial step in meeting your environmental commitments. They must be taken into account in establishing, implementing, and maintaining its EMS. Avoiding environmental liability is a major benefit of having an EMS.

How

There are many means of collecting information and keeping up-to-date on applicable legal requirements. You probably already have assigned someone this responsibility and have a system in place for doing it. The way to demonstrate that you are accessing this information is to make and keep updated a list of the requirements.

If you need help identifying applicable legal requirements, see **Section I: Appendix F—Information Resources for Environmental Regulations**.

Legal and Other Environmental Requirements Checklist

- | | |
|---------|---|
| Step 1: | Identify and list your legal and other environmental requirements that correspond to environmental aspects that pertain to your facility's activities, products, and services on Form for Legal and Other Environmental Requirements (Section II, Tier II—F-001.01) . Capture Federal, State, local, and if appropriate, international requirements. |
| Step 2: | On Form F-001.01 , provide a brief description of identified requirements and check the applicable processes and/or facility supports that are affected by the requirement (See Section II, Exhibit 3—List of Legal and Other Environmental Requirements .) |
| Step 3: | Using as a template the procedure for Identification of Legal and Other Environmental Requirements (Section II, Tier II—P-001) , describe the procedure to identify and access legal and other requirements that are applicable to environmental aspects of your facility's activities, products, and services. |
| Step 4: | Customize the procedure provided in Section II, Tier II—Obtaining Agency Approval (P-002) , to document the method by which you secure or update approval for new processes and activities at your facility. Include this procedure in your EMS manual (see Section II, Tier I—Sample EMS Manual). |

5. Objectives, Targets, and Programs

What

An important part of an EMS is to set measurable objectives and targets and develop programs that will enable your facility to be consistent with your policy, including commitments to pollution prevention, compliance with applicable legal and other environmental requirements, and continuous improvement in environmental performance,. When establishing and reviewing its

objectives and targets your company should take into account your legal and other environmental requirements, your significant environmental aspects, your technological options, and your financial, operational and business requirements, and the views of interested parties. Where feasible, your objectives should have a quantifiable target and completion date (e.g., pounds of material use reduction by a certain date). At least some of your objectives and targets should exceed your current compliance requirements. Include in your programs to achieve them means and timeframes for execution.

Who

Work together as the EMS Core Team to ensure that the performance improvement objectives and targets are set, and over time, attained. When objectives are set, top management should commit to meeting them.

Be clear about who is assigned to monitor environmental performance and to measure progress toward these objectives. Also be clear about who undertakes corrective action when progress is not being made.

Why

Competitive businesses strive for continuous improvement. If you already have identified your SEAs, you are ready to set objectives to minimize impacts. Setting goals will guide your facility in achieving continuous performance improvement and realizing the benefits of an EMS.

How

Start by listing your facility's SEAs. Ask yourself and those you are working with: "Now that we know what our SEAs and impacts are, where do we go from here? How should we improve?" Here are the steps:

1. Be sure that the objectives are realistic, fit your organization's mission and business strategy, and are aligned with the commitments that are stated in your policy.
2. Be sure the objectives you set reduce your impacts on the environment, have a timeline, and are measurable. For each objective, determine how to measure performance. Keep in mind that you need baseline data, which you may need to develop, to compare progress.
3. The following are three types of objectives:
 - **Control or Maintain (C)** — is an appropriate objective for SEAs that are the subject of legal and other requirements. The objective will be to maintain conformity with procedures and work instructions that apply to those significant aspects.

Note on Measuring Performance

Environmental performance, in most cases, should be normalized to production output. For example, if you measure an objective, such as "We will reduce energy use (kilowatts used per month) by 10 percent over the next three years" you could achieve this either by increasing efficiency, reducing production, or both. Your EMS is a means to pursue better efficiency. Therefore, measuring your energy use over time relative to measures of production is probably a more useful indicator of progress.

- **Improve (I)** — is appropriate for setting goals that exceed your current performance. An example is reduction in energy or water use that, while not required by law, supports a company’s commitment to pursue pollution prevention.
- **Study or Investigate (S)** — is appropriate in cases where the CFT decides improvement may be feasible and beneficial, but more information is needed to determine levels and timeframes. The objective will be to study the alternatives by a target date in preparation for later setting an objective (or dropping the objective if the investigation reveals that the proposed objectives or targets are not financially, technologically, operationally, or organizationally feasible).

The form for **Linking SEAs, Objectives and Targets, Operational Control Procedures to Measurement Indicators, Job Functions, Responsible Parties, and Applicable Processes (F-003.02)** in **Section II, Tier II**, provides a column to record the type of objective identified for each SEA. Use (C) for control or maintain; (I) for improve; and (S) for study or investigate to indicate which type applies to each significant environmental aspect.

4. Establish programs or action plans for achieving the objectives and targets.
5. Measure and monitor progress toward objectives on a routine basis.
6. Regularly communicate throughout the facility your EMS objectives and progress toward meeting them.

Example Improvement Objectives and Targets Organized by Category

Objectives	Targets
Energy and Water Use	
Reduce total energy consumption.	Meet company business plan energy reduction goal of 10% normalized for production by January 2006 using 1999/2000 baseline numbers.
Investigate water-use reduction.	Complete study by January 2005.
Point Source and Fugitive Air Emissions	
Reduce visible melt shop roof emissions to meet new standards (6% Opacity).	Reduce visible emissions from the melt shop roof by 15% by May 2005 based on 1999 baseline.
Reduce mercury emissions.	Reduce mercury emission from the EAF Melt Shop due to mercury in auto scrap (by working with scrap suppliers) by 30% from 2002 baseline levels by July 2005.
Process Wastewater Discharge	
Reduce process wastewater discharge zinc levels.	Reduce daily average zinc concentrations from 5mg/L to 4mg/L by January 2005.
Storm Water Discharge	
Improve storm water discharge quality.	<ul style="list-style-type: none"> ▪ Investigate improvements in storm water collection and filtration system by January 2006. ▪ Investigate effectiveness of additional best management practices by January 2006.
Hazardous and Non-hazardous Wastes	
Improve EAF’s Mill Scale recycling rate.	<ul style="list-style-type: none"> ▪ Achieve recycling rate of 80% of mill scale generated by December 2006. ▪ Achieve recycling rate of 40% of mill scale dirt/debris in south scrap yard by December 2006.

Example Improvement Objectives and Targets Organized by Category

Objectives	Targets
Reduce hydraulic oil ordered per unit of production at the shredder.	Reduce order/unit by 5% by January 2006 when compared to 2001 baseline.
Reduce lead in fluff at the shredder.	Reduce the magnitude of Toxicity Characteristic Leaching Procedure (TCLP) lead analyses to <4ppm in the regulatory agency 10 point rolling window and minimize the number of spikes to <2 per sampling event with a maximum spike magnitude <10ppm.
Reduce hazardous waste generation.	Reduce hazardous wastewater treatment sludge disposed of in landfills by 50% or more based on 1992 generation.
Leaks and Spills	
Reduce occurrence of spills.	Reduce spill occurrence rate by 10% by the end of 2006.
Reduce total number of leaks and spills associated with locomotives and cranes.	Reduce locomotive and crane oil consumption by 5% by December 2006 using 2002/2003 as a baseline and achieve zero spills at refueling sites.
Other	
Improve and augment company's stewardship and programs to enhance the local and community environment and property.	Complete one property or asset improvement project by December 2006.
Improve employee awareness of environmental issues and costs.	By holding bimonthly training courses, train 100% of employees within 12 months.

Objectives, Targets, and Action Plans Checklist

- Step 1: Establish measurable objectives and targets consistent with your policy for each SEA. There are three types of objectives: control, improve, and study. See the procedure for **Environmental Aspects, Objectives and Targets, and Programs (P-003)** in **Section II, Tier II** for an approach to defining these objectives.
- Step 2: Use **Linking SEAs, Objectives and Targets, Operational Control Procedures to Measurement Indicators, Job Functions, Responsible Parties, and Applicable Processes (F-003.02)** in **Section II, Tier II** to record facility objectives and targets (For an example see **Section II, Exhibit 6—Example of Linking SEAs, Objectives and Targets, Operational Control Procedures to Measurement Indicators, Job Functions, Responsible Parties, and Applicable Processes**).
- Step 3: Develop a program or action plan for each objective and target that is of the "improve" or "study" type. Each program should include information about "who is going to do what by when" and "what are they going to produce to prove it?" (Note: You will monitor the effectiveness of "control" objectives by means of internal audits described in Element 14 below.) Document this information using **Program Form (F-003.03)** in **Section II, Tier II**. For examples see **Section II, Exhibits 7-10**.
- Step 4: Capture the approach used to establish objectives and targets and develop action plans in the written procedure. The procedure for **Environmental Aspects, Objectives and Targets, and Program (P-003)** in **Section II, Tier II** can serve as a template.
- Step 5: Your EMS should have a method for identifying and evaluating environmental aspects of new projects. Capture the approach your facility uses in the written

procedure. The procedure for *Environmental Review for New Processes, Materials, and Projects (P-004)* and its supporting forms *F-004.01, Environmental Checklist for New Processes, Materials, and Projects* and *F-004.02, Environmental Checklist for New Projects* in *Section II, Tier II* can serve as templates. Include a customized version of this procedure in your EMS manual (see *Section II, Tier I—Sample EMS Manual*).

6. Competence, Training, and Awareness

What

Persons working for or on behalf of your company (workforce) should be aware of the environmental policy, the SEAs of their work activities, key EMS roles and responsibilities, procedures that apply to their work, and the importance of conformance with EMS requirements. Every member of the workforce also should understand the potential consequences of not following EMS requirements (such as spills, releases, and fines or other penalties).

Incorporating subcontractors into your training program is necessary but can be challenging. One way to overcome this challenge is by folding your EMS training into the health and safety training already required for your subcontractors.

Who

Each person and function within your facility can play a role in environmental management. Therefore, you should cast a wide net with your training program. Subcontractors and new employees should be trained soon after they join your company.

Why

There are at least three excellent reasons to train your workforce on environmental management:

- Legal compliance requires that certain job functions be trained
- Every member of your workforce can bring about potential impacts on the environment
- Any employee can have good ideas about how to improve environmental management efforts

How

Your company must ensure that any persons performing tasks on its behalf who have the potential to cause significant environmental impacts are competent on the basis of appropriate education, training, or experience. Training can include both on-the-job (OJT) as well as classroom training. Customize training to different groups so that it is relevant to, and rewarding for, them.

However, training is only one part of competence—education and experience also are important. In the case of certain jobs, particularly with tasks that have associated SEAs, your facility should establish criteria to measure the competence of individuals performing those

tasks. For instance, a wastewater treatment operator might provide evidence of competence on the basis of having at least a high school diploma, and an up-to-date job training record (e.g., Wastewater Treatment and Disposal Refresher, Integrated Emergency Response and Spill Prevention Control and Countermeasure Plan, Storm Water Pollution Prevention Plan Training), and either one year of experience as an assistant operator or three months OJT and successful completion of a certified wastewater treatment operator training course. (Reminder: You should refer to the actual Federal, State, local requirements and company best practices that apply to your facility in defining competence criteria.)

Training, Awareness, and Competence Checklist

- Step 1: Ensure that the workforce that has a potential for cause significant environmental impact is competent on the basis of appropriate education, training, or experience.
- Step 2: Determine and document training needs (general and task-specific awareness) using **Section II, Tier II—Form F-005.01, Training Needs Analysis—Environmental Courses Form**. Identify personnel whose job functions may create a significant impact on the environment and the level of instruction needed. List the type and frequency of environmental training (internal and external to the facility) these personnel require. For an example see **Section II, Exhibit 11—Training Analysis Needs**.
- Step 3: The procedure for **Environmental Training and Awareness (Section II, Tier II—P-005)** can serve as a template to document your process for identifying and planning environmental training and awareness at your facility. Include a customized version of this procedure in your EMS manual (see **Section II, Tier I—Sample EMS Manual**).
- Step 4: Retain associated records.

7. Communication

What

Your EMS should define the means for proactive internal and external communication. Internal communication should identify, explain, and communicate environmental legal requirements and voluntary commitments to all employees, on-site service providers, and contractors whose work could affect your ability to meet those requirements and commitments. Good internal communication also is about suggestions for environmental improvement effectively making their way up the organization from the hands-on level. External communication should provide other stakeholders with information on your environmental programs and accomplishments and provide a means for external parties to comment or provide input to you. Stakeholders include anyone who has a stake in your facility's environmental performance.

Your company must decide whether to communicate externally about its SEAs and document its decision. If the decision is to communicate them, the company must establish a method for this communication.

Whereas ISO 14001 intends for your company to adopt proactive communication with the community, Performance Track goes beyond that level of communication and requires that your company share and communicate all relevant information regarding the EMS, including the facility's environmental performance, throughout the organization and to the public.

Who

Communication of environmental issues from employees to top management can be handled by the CFT member representing the effected area, in coordination with the EMR. Communication of changes to legal and other requirements to employees can be handled by the Area or Department Manager. External communications should be managed by a designated community liaison (if such a position does not already exist, then a plant manager, production supervisor, health, safety and security manager or human resources manager could be likely choices for the role). The community liaison would be responsible for:

- Responding to inquiries from interested parties and regulatory agencies;
- Sending current copies of the environmental policy to interested parties; and
- Responding to media communications.

The EMR in consultation with the community liaison is responsible for determining the need for and preparation of any notification to regulatory agencies on an as needed basis.

See the **Sample Communication Program Matrix** below for guidance on establishing an effective communications program for employees, neighbors, and customers.

Why

Internal and external stakeholders can play an important role in helping your facility develop an EMS. Employees have a strong stakeholder interest in your facility and can provide strong support for EMS development. Customers, suppliers, subcontractors, and neighbors also can provide useful inputs. In addition, establishing partnerships with trade associations, suppliers, professional associations, and universities can be very helpful in developing parts of your EMS.

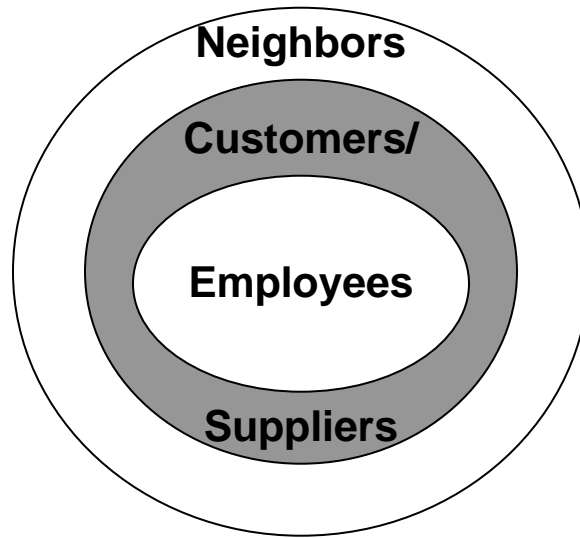
How

Actively discuss the kinds of stakeholders you wish to include in the process, the potential benefits of including stakeholders, and tips for better communication with stakeholders. While employee involvement is critical to the success of your EMS, how far you proceed with including additional stakeholders is your decision. You may want to start by communicating with those stakeholders who have expressed interest in your operations. If you desire additional input, you might take the following steps in your effort to locate suitable stakeholders:

- Ask your employees, including facility/site managers and public relations personnel
- Obtain suggestions from local officials
- Contact a local planning agency for suggestions
- Get input from a national advocacy group regarding local or national groups that may be interested/suitable

Develop stakeholder participation in stages and learn as you go. You might think about the different kinds of stakeholders as forming ever-broader circles around your business, as is illustrated below. Begin with the innermost circle and work outward.

Levels of Stakeholder Interests



Sample Communications Program Matrix

Stakeholder(s)	Potential Environmental Interest	What We Want to Tell Them	What We Want Them to Tell Us	How We Will Communicate with Them	When We Will Do It	Person Responsible
Employees and other members of the workforce	<ul style="list-style-type: none"> ▪ Safety for workers ▪ Protection of the environment ▪ Competitiveness 	<ul style="list-style-type: none"> ▪ Policy ▪ Their specific environmental responsibilities 	<ul style="list-style-type: none"> ▪ How to get it done ▪ Ideas for improvement 	Memo, bulletin board, meetings, suggestion box, Intranet	Initial training for new employees/contractors, EMS update at annual picnic, as needed via training program for specific workers	EMR, CFT, and training personnel
Neighbors	<ul style="list-style-type: none"> ▪ Expansion of facility, near residences ▪ Run-off into creek behind wastewater treatment plant 	Environmental policy and EMS plans	Their environmental concerns, particularly regarding planned expansion	Meetings, open house, flyers, suggestion box, Web site	Town meeting in November (for expansion discussion) Annual open house Web site (ongoing)	EMR with communications representative (as appropriate)
Customers	<ul style="list-style-type: none"> ▪ Major client considering requiring EMS for suppliers 	Environmental policy and EMS plans	Specific EMS requirements that might ensue	Above, plus inserts in direct mail advertising, or invoices and on our Web site	Ongoing and as billing occurs	Marketing lead and facility president

Create and maintain a list of everyone you can think of who would be interested in your facility's environmental activities and how you can reach them (e.g., if you already have established ways of communicating with certain groups, you might start with those). You can then make a decision about where to begin. If you are just getting started, you might start with your own staff members and later add other stakeholders.

Your stakeholders' concerns may be very different from what you expect. They also might be less difficult to resolve—the only way to find out is to talk with them.

Communication Checklist

- Step 1: As part of your EMS, define the means for proactive internal and external stakeholder communication. Internal communication should explain legal requirements and voluntary commitments to employees and contractors. It should also respond effectively to information received from these parties. External communication should provide information on environmental programs and accomplishments and provide a means for external parties to comment. Identify stakeholders (internal and external) and assess key concerns or interests. Determine methods and responsibilities for ensuring this information is communicated.
- Step 2: Using the procedure for **Communication with Stakeholders (Section II, Tier II—P-006)** as a template, document your processes for internal and external environmental communication/awareness. Include a customized version of this procedure in your EMS manual (see **Section II, Tier I—Sample EMS Manual**).
- Step 3: Decide whether or not to communicate externally about SEAs and document this decision. If the decision is to communicate them, establish a method for this communication.

8. Documentation and Document Control

What

Documentation is a required part of an EMS, but it should not be the main emphasis. Limit your documentation efforts to the minimum necessary. The improvements that are made should be evident through your performance, without the need for a lot of paperwork.

Some form of EMS manual, either electronic or hard copy, usually serves as the EMS documentation. Its purpose is to provide a roadmap to the vital pieces and linkages of the EMS. At a minimum, your EMS documentation should include:

- The policy, objectives, and targets
- Description of the scope of the EMS;
- Description of the main elements of the EMS and their interaction; and
- Reference to related documents.

Who

Individuals should be assigned the responsibilities for documenting your EMS. Each of the areas of your facility that may have an environmental impact needs to contribute to EMS documentation. The EMS Coordinator can compile the information into a report or an environmental database.

Why

Documentation describes the main elements of your EMS, demonstrates compliance with applicable legal requirements and other requirements to which the facility subscribes, and provides your facility with the EMS knowledge of key employees, whose experience and institutional memory could be lost if they left the facility.

How

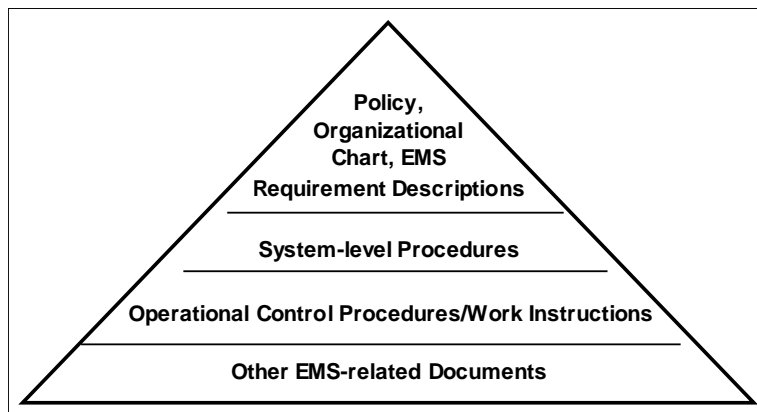
Your facility's EMS procedures will need to be defined, appropriately documented, and updated as needed. It is not always necessary to develop new documents. *If you are already required to have documents for certain regulations or permits, don't recreate them for the EMS. Also, if you have another system already in place (e.g., ISO 9000), try to build upon what you currently use.*

Have a method in place to ensure that the most up-to-date version of the documentation is available and verifiable. Documentation can be in various formats, including electronic or hard copy, but must be legible and readily available.

The convention we use in this EMS Guide is to differentiate levels of EMS documents. "Tier" is the term commonly used to denote the different levels of management systems documents.

Documentation should be available for all EMS components, including:

- Your environmental policy, objectives and targets—Tier I;
- Your organizational chart or lists/tables of key responsibilities—Tier I;
- A description of how your facility satisfies the EMS requirements and a description of the main elements—Tier I;
- System-level procedures (e.g., procedure for corrective and preventive action)—Tier II;
- Activity- or process-specific operational control procedures/work instructions—Tier III; and
- Other EMS-related documents (such as emergency preparedness and response plans, training plans, etc.)—Tier IV.



EMS documents are related to, but different from, EMS records. EMS documentation describes the make up of your system (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 management is discussed later in this EMS Guide.

Keep EMS documentation simple. *Your manual does not need to describe every detail of your EMS.* Instead, the manual can provide references to other documents or procedures. EMS documentation should be updated as needed, based on any system improvements you put in place (your Document Control Procedure will describe how to manage updates). Be cautious about putting too much detail in your EMS manual, because of the difficulty this may pose to keeping the manual current.

EMS Documentation and Document Control Checklist

- Step 1: The EMS manual describes the main elements of the EMS and describes how they interact. It also provides direction to related documentation. **Section II, Tier I—Sample EMS Manual** can be customized for use by your facility. The manual should reference EMS documents (e.g., policy, systems-level procedures, operational control procedures, and training plans).
- Step 2: EMS documents, referenced by the EMS Manual must be accessible, reviewed periodically, kept current, and removed when obsolete. Develop a list of EMS documentation using the **Master Document List (Section II, Tier II—F-007.01)**. For an example see **Section II, Exhibit 12—Master Document List**.
- Step 3: Capture your approach for controlling EMS documents in a written procedure. The procedure for **Document Control (Section II, Tier II—P-007)** provides a template. Include a customized version of this procedure in your EMS manual (see **Section II, Tier I—Sample EMS Manual**).

9. Operational Control

What

Documented procedures are needed to cover situations where their absence could lead to deviations from the environmental policy, including the commitments to compliance and pollution prevention. These operational controls usually take the form of documented procedures, work instructions, best management practices, or posted placards. Each SEA should be associated with at least one operational control that ensures compliance and consistency with legal requirements, voluntary commitments, or company policy. Your facility must ensure that it establishes and maintains procedures related to the identifiable SEAs of goods and services used by your company and communicates applicable procedures and requirements to suppliers and contractors.

For the SEAs that you have established improvement or study objectives, you should follow a program to bring about that improvement or study, which is itself an operational control and can take the place of a documented procedure.

Who

The EMS Team, led by the EMS coordinator, should:

- Canvas what you have to ensure that existing procedures, work instruction, and placards are suitable and adequate; and
- Fill the gaps with newly created ones as necessary.

Why

To function in line with your environmental policy commitments, the operations and activities that are associated with SEAs must be under control. To ensure that they are carried out under specified conditions, the facility must plan these activities, including maintenance, by establishing and maintaining operational controls.

How

Your facility may already have the vast majority of the necessary compliance-related operational controls documented. Even so, the job of canvassing the entire facility and its operations to match existing procedures, work instructions, best management practices, and posted placards with the list of SEAs that your facility has determined is a crucial one. Below is a partial list of typical activity areas and operational controls a steel manufacturing facility might need.

Partial List of Typical Activity Areas and Operational Controls at Steel Manufacturing Facilities

Category of Activity	Operational Control
Purchase of Raw Materials	<ul style="list-style-type: none"> ▪ Subcontractor Requirements ▪ Chemical Inventory Procedure
Raw Material, Waste Storage and Handling	<ul style="list-style-type: none"> ▪ Above Ground Tank Inspection ▪ Spill Reporting and Clean-up ▪ Secondary Containment Inspection ▪ Hazardous Waste Area Inspection ▪ Bulk Storage and Containment ▪ Bulk Liquids Transfer ▪ Containerized Material Storage ▪ Hazardous Waste Satellite Accumulation ▪ Container Labeling ▪ Empty Container Handling ▪ Hazardous Waste Operations Procedure ▪ Control of Discharge and Disposal ▪ Waste Consolidation Guidelines ▪ Waste Manifest/Chain of Custody ▪ Parameter Testing Requirements for Wastes Treated Off-site ▪ Weighing Procedure at Scrapyard Scale ▪ Weighing Procedure at Shredder Scale ▪ Yard Scale Periodic Inspection

**Partial List of Typical Activity Areas and
 Operational Controls at Steel Manufacturing Facilities**

Category of Activity	Operational Control
Shops and Facility Maintenance	<ul style="list-style-type: none"> ▪ Environmental Compliance Assessment Checklist ▪ Maintenance and Machine Shop Checklist ▪ Disposition of Fluorescent Bulbs, Batteries, and Mercury Items ▪ Baghouse Alarm System Response Procedure ▪ Radiation Detector Alarm Procedure ▪ AT-900 Exploranium Monitor Testing ▪ Checking Baghouse Dustalert 90 PCME Emission Probe ▪ AMI Smart Arc Operating Procedure ▪ Restarting The AMI Digit ARC and Smart ARC Programs ▪ Startup and Operation of the Reheat Furnace ▪ Scrap Bay Radiation Detector Alarm Procedure ▪ Checking Scrap Bay Exploranium System ▪ Checking Scrap Yard Exploranium System ▪ Checking Shredder Exploranium System
Wastewater Management	<ul style="list-style-type: none"> ▪ Critical Ranges of Vital Waste Water Treatment Plant (WWTP) Operational Indicators ▪ Other Wastewater Plant Standard Operating Procedures (SOPs)
Air Quality Management	<ul style="list-style-type: none"> ▪ Centralized Air Pollution Control SOPs ▪ Regulatory Reporting Calendar ▪ Loading of Baghouse Dust in Truck

Operational Control Checklist

- Step 1: Operational controls are documented procedures that are associated with operations and activities that have identified SEAs. They are needed to cover situations where their absence could lead to deviations from the policy, goals, and objectives. Using **Linking SEAs, Objectives and Targets, Operational Control Procedures to Measurement Indicators, Job Functions, Responsible Parties, and Applicable Processes (F-003.02)** in **Section II, Tier II**, determine which of the necessary procedures and work instructions you already have in place as well as gaps where new work instructions will need to be documented.
- Step 2: Document operational control procedures for identified activities where controls are absent (see **Section II, Tier III** for examples of work instructions).
- Step 3: Capture your approach for controlling the SEAs of on-site contractors and their sub-contractors in a written procedure. The procedure for **Environmental Briefing of Subcontractors and Service Providers (Section II, Tier II—P-008)** can serve as a template. Include a customized version of this procedure in your EMS manual (see **Section II, Tier I—Sample EMS Manual**).

10. Emergency Preparedness and Response

What

You should have documented procedures for emergency preparedness and response (EP&R). They should describe the “who, what, and when” of:

- assessing the potential for accidents and emergencies that can have impacts on the environment;
- preventing incidents and their associated environmental impacts;
- responding to emergency situations and accidents and preventing or mitigating associated environmental impacts (emergency plans and procedures); and
- periodic testing of emergency plans and procedures.

This is another area where you should not have to start from scratch. Several environmental, health, and safety regulatory programs require emergency plans and/or procedures. Examples of requirements related to EP&R that may apply to you are listed below.

Regulatory Driver	Requirement
Resource Conservation and Recovery Act	Hazardous Waste Contingency Plan (large quantity generators), Preparedness and Prevention Plan (large and small quantity generators)
Clean Water Act	Spill Prevention, Control and Countermeasure (SPCC) Plan and Storm Water Pollution Prevention Plans (SWPPP)
Oil Pollution Act	Facility Response Plan
Clean Air Act	Clean Air Act Risk Management Plan
Occupational Safety and Health Act	Emergency Action Plan, Emergency Response Plan

Some facilities are addressing these numerous requirements through Integrated Contingency Plans that combine the requirements of numerous regulatory programs into one plan. The Federal government has issued guidance for such a plan (Federal Register: June 5, 1996 [Volume 61, Number 109, Pages 28641-28664]) and electronic versions with corrections and updates are available at www.epa.gov/region1/enforcement/epcra/oneplan.html (and follow the links to the One Plan guidance). While reviewing your EP&R documents for your EMS, you may consider such a streamlined approach.

Who

Two planning components that many facilities overlook are how they identify the potential for accidents and emergencies and how they prevent these occurrences or mitigate their impact. A Cross Functional Team (CFT) made up of representatives from engineering, maintenance, and environmental health, and safety, for example, can identify most potential emergencies by asking a series of “what if” questions related to hazardous materials, activities, and processes employed at the site. In addition to normal operations, the CFT should consider startup and shutdown of process equipment and other abnormal operating conditions.

Why

Despite a facility's best efforts, accidents and other emergency situations can occur. Effective emergency preparation and response can reduce injuries, prevent or minimize environmental impacts, protect employees and neighbors, reduce asset losses, and minimize downtime.

Emergency Preparedness and Response Requirements Matrix (F-009.01) provides a form on which to list potential emergency scenarios along with their potential impact, required actions, and needed procedures and training. For instance, if your facility experienced an energy blackout the potential environmental impacts could include air pollution control failure, water treatment bypass, interrupted security, process upsets, emergency response failure, and others. Your facility should have a set of EP&R plans in place that address the potential problems from an incident like this. It also can be used to document revisions and improvements to your plans that result from mock drills, training, or actual emergencies.

How

When developing a detailed EP&R plan, ask yourself how you will ensure that everyone (including new employees and subcontractors) know what to do in an emergency (e.g., how would contractors or site visitors know what to do in an emergency situation?). Communicate with local officials (fire department, hospital, etc.) about potential emergencies at your site and how they can support your response efforts.

Here are some things to think about to expedite the development and maintenance of your facility's EP&R plan:

- Conduct mock drills to reinforce training and get feedback on the effectiveness of your plans/procedures.
- Post copies of your EP&R plans and procedures (or at least critical contact names and phone numbers) around your facility and especially in areas where high hazards exist. Include phone numbers for your on-site emergency coordinator, local fire department, local police, hospital, rescue squad, and others as appropriate.
- Revise and improve your plans as you learn from mock drills, training, or actual emergencies.

Ensure that your EP&R plan describes the following:

- Potential emergency situations (such as fires, explosions, spills or releases of hazardous materials, and natural disasters)
- Hazardous materials used on-site and their locations
- Key organizational responsibilities, including emergency coordinator
- Arrangements with local emergency support providers
- Emergency response procedures, including emergency communication procedures
- Locations and types of emergency response equipment
- Maintenance of emergency response equipment, including signs and posted contact information

- Training/testing of personnel, including the on-site emergency response team if applicable
- Testing of alarm/public address systems
- Evacuation routes and exits (map)
- Assembly points

Emergency Preparedness and Response

Step 1: Effective emergency preparedness and response programs should include provisions for the assessment of potential emergency situations, prevention of incidents and associated environmental impacts, response to incidents, testing of emergency plans and procedures, and mitigation impacts associated with accidents and emergencies. List potential facility emergency scenarios along with their potential impact, required actions, and needed procedures and training using the **Emergency Preparedness and Response Requirements Matrix (F-009.01)**. Use this form also to document revisions and improvements to your plans that result from mock drills, training, or actual emergencies.

Step 2: Capture your approach for preparing for and responding to emergencies involving potential environmental incidents in a written procedure. **Procedure for Emergency Preparedness and Response (Section II, Tier II—P-009)** provides a template. Include this customized procedure in your EMS manual (see **Section II, Tier I—Sample EMS Manual**).

11. Monitoring, Measurement, and Evaluation of Compliance

What

Monitoring and measurement in the context of EMS means that your facility:

- Monitors key characteristics of operations and activities that can have significant environmental impacts and/or compliance consequences;
- Tracks performance (including your progress in achieving objectives and targets);
- Calibrates and maintains monitoring equipment; and
- Periodically evaluates compliance with applicable laws and regulations through internal audits.

Who

EMS procedures and work instructions designate who performs monitoring and measurement. The intent of the EMS is to as much possible make monitoring and measurement the responsibility of people whose jobs could significantly impact the environment.

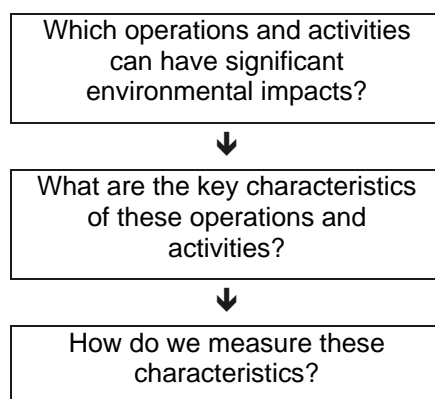
Why

Many environmental rules require it, but that monitoring and measurement also helps you manage your organization better. The results of pollution prevention and other efforts are easier

to demonstrate with current and reliable data. These data can help you demonstrate the value of the EMS to top management.

How

Consider adopting as a management tool the concept of the “vital few”—that is, choosing a limited number of factors that can have a substantial impact on the outcome of a process. The key is to identify those factors and how to measure them.



Environmental performance measurement should be linked to your SEAs, see an example below.

Monitoring, Measurement, and Evaluation of Compliance Checklist

- Step 1: Develop a plan that includes monitoring the key characteristics of your operation and activities, tracking performance, calibrating and maintaining monitoring equipment, and periodically evaluating compliance with legal requirements.
- Step 2: Capture your approach for monitoring and measurement in a written procedure. The procedure for **Monitoring and Measurement (P-010)** in **Section II, Tier II** provides a template. Document your monitoring and measurement activities using **Environmental Measurement Indicators Log (F-010.01)**, **Calibration Log (F-010.02)** and **Compliance Tracking Log (F-010.03)**. A procedure for periodically evaluating compliance with relevant environmental legislation and regulations is provided in **Section II, Tier II** labeled as **EMS and Regulatory Compliance Audits (P-013)**, which is explained more fully under Element 14.

Links Between SEAs, Responsible Persons, Key Characteristics, Operational Controls, Monitoring and Measurements, and Records

SEA	Responsible Persons	Key Characteristics	Operational Controls	Monitoring and Measurements	Records
Dust Shipments	Maintenance Team, Environmental Manager	<ul style="list-style-type: none"> Weight shipped Number of manifest Errors 	<ul style="list-style-type: none"> Loading of Baghouse Dust in Truck Uniform Waste Manifest Preparation Weighing Procedure at Scrapyard Scale 	Yard Scale Periodic Inspection	<ul style="list-style-type: none"> Baghouse Maintenance Daily Log Uniform Hazardous Waste Manifests Manifest Document Log Scale Tickets Scale certifications
Baghouse Stack Emissions	Maintenance, Team, Melting/Casting Team	Particulate charge transfer	<ul style="list-style-type: none"> Work Orders for turn checks on Baghouse Baghouse Alarm System Response Procedure 	Checking Dustalert 90 PCME probe and monitoring system	<ul style="list-style-type: none"> Dustalert 90PCME Alarm Check Baghouse Maintenance Daily Log Work order records MES Log
Radiation Screening	Safety Manager, Melting/Casting Team, Environmental Manager, Scrap Buyers, Shredder Manager	Radiation levels	<ul style="list-style-type: none"> AT-900 Exploranium Monitor Testing Radiation Detector Alarm Procedure Weighing Procedure at Scrapyard Scale Weighing Procedure at Shredder Scale Scrap Bay Radiation Detector Alarm Procedure Checking Scrap Bay Exploranium System Checking Scrap Yard Exploranium System Checking Shredder Exploranium System 	Checking Exploranium units	<ul style="list-style-type: none"> External calibration records RSO certifications Training records 526 Sensitivity Test Printout Log Book AT 900 System Sensitivity Test printout Test Log sheet Furnace heat sheet (MES) Melter's Turn Report

Links Between SEAs, Responsible Persons, Key Characteristics, Operational Controls, Monitoring and Measurements, and Records

SEA	Responsible Persons	Key Characteristics	Operational Controls	Monitoring and Measurements	Records
EAF Energy Use	Melt Shop Team	KWH/ton	<ul style="list-style-type: none"> • AMI Smart Arc Operating Procedure • Restarting the AMI DigitARC and SmartARC Programs • MORE' Injectors 	Proper functioning of AMI-Smart Arc and MES System	<ul style="list-style-type: none"> • AMI Database • MES Log
Melt Shop Roofline Emissions	Melt Shop Team, <u>Environmental Manager</u>	Baghouse fans	<ul style="list-style-type: none"> • Baghouse Alarm System Response Procedure • Work Orders for Turn Checks on Baghouse 	Check alarm system and damper control.	<ul style="list-style-type: none"> • Baghouse Maintenance. Daily Log • Work order records • MES Log
Rolling Mill	Rolling Mill Team	Visible emissions from reheat furnace stack	<ul style="list-style-type: none"> • Startup and Operation of the Reheat Furnace 	Visual observations	Emails of incidents kept on file
Spills of Non-hazardous Materials	Department Heads, General Supervisors, and Supervisors	Number of reportable releases or spills	<ul style="list-style-type: none"> • SPCC/HWC Plan • Storm Water Pollution Prevention Plan • Emergency Action Plan 	Monthly Tank & Container Inspections	<ul style="list-style-type: none"> • Monthly Tank & Container Inspection Sheets

12. Nonconformity, Corrective, and Preventive Action

What

Nonconformity, corrective, and preventive action is a process that ensures:

- Problems (including non-conformities) 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 and confirmed to be appropriate to the magnitude of the problems and the environmental impact encountered; and
- Changes resulting from corrective and preventive action are reviewed and documented.

EMS non-conformities and other system deficiencies, including legal noncompliance, should be analyzed to detect patterns or trends so that the likelihood of recurrence is reduced.

Who

Your workforce may recognize the need for corrective action and provide good ideas for solving problems. Find ways to get them involved in the improvement process. It's important to determine whether a lapse is a rare event or due to a systemic flaw in the procedures or controls. For this reason, communicate any findings to employees and subcontractors and provide any follow-up training for changes in the procedures that may result.

Why

Your facility needs a formal corrective-action process to ensure that actual or potential compliance issues and EMS nonconformities are addressed quickly and effectively.

How

Nonconformance, corrective, and preventive action steps are to:

- Identify the problem;
- Investigate to identify the root cause;
- Come up with the solution;
- Implement the solution;
- Document the solution;
- Communicate the solution; and
- Evaluate the effectiveness of the solution.

Focus on correcting and preventing problems. Preventing problems is generally cheaper than fixing them after they occur. Start thinking about problems as opportunities to improve.

Nonconformity, Corrective, and Preventive Action Checklist

Step 1: Your EMS should have a process to address system and legal non-compliance deficiencies, ensure identification of root causes, implement corrective and preventive actions, and track the effectiveness of these actions. These are deficiencies that can be identified through audits, monitoring and measurement, and other observations. Capture the approach used to manage corrective and preventive actions in a written procedure. The procedure for **Corrective and Preventive Action (P-011)** in **Section II, Tier II** and supporting **Forms F-011.01** and **F-011.02** serve as templates. Include a customized version of the procedure in your EMS manual (see **Section II, Tier I—Sample EMS Manual**).

13. Records

What

Monitoring, measuring, checking, training, communications, corrective action, and other EMS elements both use and generate records. Records provide evidence that the processes that make up your EMS are being implemented as described. The basics of records management are to decide which records you will keep, how you will keep them, and for how long. You also should think about how you will dispose of records once you no longer need them.

If your facility has an ISO 9001 (or other) management system, you already should have a process in place for managing records. If so, adapt this process for EMS purposes.

Who

EMS procedures and work instructions designate who notes the completion of EMS duties and tasks, and who manages the records that are created. The intent of the EMS is to make as much as practical the job of record keeping the responsibility of those whose jobs significantly affect the environment. When this is the case, the environmental department becomes less of a record generator and more of a record user and manager.

Why

The purpose of records management is to demonstrate that your facility is actually implementing the EMS as designed, including the evaluation of compliance with legal and other requirements, implementation of procedures, and results achieved. While records have value internally, you also may need to provide them to external parties (such as customers, a registrar, or the public), as evidence of EMS implementation or compliance. Records management is sometimes seen as bureaucratic, but it is difficult to imagine a system operating consistently without accurate records.

How

Here are some things to consider as you determine your facility's process for records management.

- Start by identifying which EMS records are required. Look at your other procedures and work instructions to determine what evidence is needed to demonstrate implementation. Also consider records that are required by various legal requirements.
- Focus on records that add value and avoid bureaucracy. *If records have no value or are not specifically required, don't collect them.* The records you choose to keep should be accurate and complete.
- Create forms to implement your EMS. When these forms are filled out, they become records. Forms should be simple and understandable for the users. This EMS Guide provides example forms that may be relevant to your operations and EMS.
- Establish a records retention policy and stick to it. Make sure that your policy takes into account records retention requirements specified in applicable environmental regulations. For example, hazardous waste manifests must be maintained for a specified period of time under RCRA. Therefore, that time period would be appropriate to use for this record as part of your EMS.
- Be sure to consider who needs access to what records in what circumstances when designing your records management process.
- Consider using an electronic EMS records management system if your facility uses computers extensively. Maintaining records electronically can provide an excellent means for rapid retrieval of records as well as controlling access to sensitive records.
- Think about which records might require additional security. Do you need to restrict access to certain records? Should a back-up copy of critical records be maintained at another location? Should a hard copy of some records be maintained in case an inspector arrives and your computer system is down (this has actually happened to facilities)?

Records Checklist

- Step 1: Using the ***Index of Environmental Records (Section II, Tier II—F-012.01)*** as a template, develop an index for your facility's records. Include in the index the record title and number, retention periods, controlling authorities, and locations where the records may be found. For an example see ***EMS Records Management Table (Section II, Exhibit 13)***.
- Step 2: Capture the approach used to manage environmental records in a written procedure. The procedure for ***Environmental Records (Section II, Tier II—P-012)*** and supporting ***Form F-012.01*** can serve as a template. Include a customized version of this procedure in your EMS manual (see ***Section II, Tier I—Sample EMS Manual***).

14. Internal Audits

What

Your internal EMS audit program needs to be effective in determining whether the EMS conforms to planned arrangements, such as those described in ISO 14001, and has been properly implemented and maintained. You should establish an internal audit procedure to address the responsibilities and requirements for:

- Planning and conducting audits;
- Reporting results; and
- Determining audit criteria, scope, frequency, and methods.

While they can be time consuming, internal EMS audits 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 with respect to compliance assurance and pollution prevention; and
- Ensure the system's cost effectiveness.

Who

You should select and train EMS internal auditors, perhaps from your Cross-Functional Team. Selection of auditors and conduct of audits must ensure objectivity and the impartiality of the audit process (i.e., auditors should be independent of the processes being audited). Auditor training should be ongoing. Commercial EMS auditor training is available, but it might be more cost-effective to coordinate with businesses or other organizations in your 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. Your 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.

Auditors should be independent of the activities being audited. This can be a challenge for small facilities.

If your facility has a quality management system in place, consider using your internal quality auditors as EMS auditors. While some additional training might be needed for EMS auditing, many of the required skills are the same.

Why

It is relatively easy to create a system that works well in the absence of change; the more difficult challenge is to have in place a system that meets its commitments when faced with dynamic business conditions. EMS internal audits are pivotal to maintaining a viable system in the face of accidents, emergencies, changing rules, staff turnover, operational changes, etc. Things change and no EMS is perfect. You probably will identify problems with your system (especially in the early phases) through audits, measurement, or other activities.

Regularly evaluating the EMS will enable you to determine what parts of the EMS are working well and what needs improvement. You will know what adjustment will help the facility progress toward its goals.

How

For your EMS internal audit program to be effective, you should:

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

Your facility should conduct internal audits at least annually. Those given the task of reviewing the EMS should base their evaluation on objective evidence, including interviews with your workforce, observations, and documentation. An assessment must never be just about going down a list and making sure that all documentation is in place.

While you will probably create a list of the key EMS components that should be evaluated, also work with your fellow assessors and the EMS coordinator to consider the kinds of questions and observations that will tell you if the EMS is actually achieving its purpose: reduce risk, improve environmental performance, and facilitate compliance. Once all the information is obtained and conclusions are drawn, present a report to the top management representative, who should analyze EMS deficiencies and determine what actions to take on the path toward continuous improvement. The EMS team can then work with the top management representative to make any needed modifications to the EMS.

Internal Audit Checklist

- Step 1: Internal EMS audits are required to assess whether the EMS is suitable and adequate and to ensure planned arrangements for the EMS are being followed. To ensure an effective EMS audit program, you should develop audit procedures and protocols, determine audit frequency, select and train auditors, and maintain audit records. Capture the approach used to plan and implement internal EMS and regulatory compliance audits in a written procedure. The procedure for **EMS and Regulatory Compliance Audits (Section II, Tier II—P-013)** serves as a template. Include a customized version of this procedure in your EMS manual (see **Section II, Tier I—Sample EMS Manual**).
- Step 2: The frequency of your internal audits should be defined within your procedure. Frequency is dependent upon the following factors: nature of operations and activities; significant environmental aspects/impacts; results of monitoring processes; and results of previous audits. Use **Internal EMS Audit Schedule Form (Section I, Tier II—F-013.02)**, to develop and record your audit schedule.
- Step 3: The **Internal EMS Audit Checklist (Section II, Tier II—F-013.01)** can be used by auditors to develop audit criteria checklists for use in evaluating whether planned arrangements for the EMS are being properly implemented. Customize a set of checklists to be used at your facility in conjunction with your audit procedure (see **Section II, Exhibit 14—Facility Population and Top Management Internal Audits Checklist**).

15. Management Review

What

The key question that a management review seeks to answer is, “Is the system working (i.e., is it suitable, adequate, and effective, given our needs)?” Your facility’s top management should review and evaluate your EMS at defined intervals, such as quarterly. The scope of the review should be comprehensive, though not all elements of your EMS need to be reviewed at once. The review process may take place over a period of time. Review of the policy, objectives, and procedures should be carried out by the level of management that defines them. The input to management review should include, among other information:

- Internal audit results and status of preventive and corrective actions;
- Progress in meeting objectives and target;
- The continuing suitability of the EMS in relation to changing conditions and information;
- Concerns among relevant interested parties;
- Status of corrective and preventive actions;
- Follow-up actions from previous management reviews; and
- Recommendations for improvement.

Who

Top management performs the review of EMS items, noted above, that have been prepared by the EMS team (EMR, EMS Coordinator, CFT).

Why

The purpose of these reviews is to inform top management in order to bring about overall improvement. Management reviews also offer a great opportunity to keep your EMS efficient and cost effective. For example, some facilities have found that certain procedures and processes initially put in place were not needed to achieve their environmental objectives or to control key processes. If EMS procedures and other activities do not add value, eliminate them.

Also, managers should not be satisfied if their EMS provides only compliance controls. They should be looking to the EMS to inform top management and to certify that adequate “disclosure controls and procedures” are in place regarding potential and actual material environmental liabilities. Similarly, regarding Sarbanes-Oxley, managers should determine whether their EMS can accurately identify, quantify, and evaluate for disclosure the facility’s environmental liabilities and costs. However, a legal solution is not enough—managers also should consider how a facility’s EMS can be enhanced in ways that may serve both compliance and the bottom line.

How

Questions for management to consider include:

- Is our environmental policy still relevant to what we do?

- Are roles and responsibilities clear and do they make sense?
- Are we applying resources appropriately?
- Are we meeting our regulatory obligations?
- Are the procedures clear and adequate? Do we need others? Should we eliminate some?
- What effects have changes in materials, products, or services had on our EMS and its effectiveness?
- How effective are our measurement and assessment systems?
- Can we set new measurable performance objectives?
- Do changes in laws or regulations require us to change some of our approaches?
- What stakeholder concerns have been raised since our last review?
- Is there a better way? What else can we do to improve?

Create a continual improvement plan and check progress. Document observations and conclusions. Assign action items for follow-up and schedule the next regular review.

Management Review Checklist

Step 1: Top management must review the EMS at regular intervals to ensure its continuing suitability, adequacy, and effectiveness. The management review addresses the possible need for changes to the policy, objectives, and other elements of the EMS in light of EMS audit results, changing circumstances, and the commitment to continual improvement. This review must be documented. If you wish to capture your approach to periodic review and evaluation of your facility's EMS by top management in a written procedure the procedure for ***Environmental Management System Management Review (Section II, Tier II—P-014)*** and associated ***Form F-014.01, Management Review Record***, can serve as a template. This optional procedure should define: responsibilities and authorities for preparing for and conducting reviews; frequency; and processes used to capture and track actions that result from the review. Include this customized procedure in your EMS manual (see ***Section II, Tier I—Sample EMS Manual***).