



GI-304
Revised July 2011

A Guide to Developing an Environmental Management System for a Small Business

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Prepared by
Small Business and Environmental Assistance Division

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Published and distributed
by the
Texas Commission on Environmental Quality
PO Box 13087
Austin TX 78711-3087

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1 Introduction

This guide is for small businesses who are thinking of developing an environmental management system (EMS).

How Can I Learn about Environmental Management Systems?

In this document, the word “you” refers to a small business employee or owner. The word “we” refers to the TCEQ.

The purpose of this document is to outline the main components of an EMS and to guide you in creating and implementing an EMS. The tables in this document provide specific examples of the way a hypothetical business, Lone Star Manufacturing, would implement these basic components.

The document explains the elements of an EMS using the following format:

- What (describes what the component is)
- Who (identifies the person in charge of the component)
- Why (explains reasons the component is important to an EMS)
- How (illustrates the way the component is created)

An EMS should help focus your business on results, not on paperwork. Anything you do in developing an EMS should contribute toward reducing risk of environmental harm, improving environmental performance, and making it easier to comply with environmental laws. What is written down is a small part of an EMS as a whole.

What Is an Environmental Management System (EMS)?

An environmental management system is how your business handles matters related to water, air, and land.

Why Implement an EMS?

Developing an EMS is strictly voluntary. Carrying out an EMS has inherent benefits, and, in addition, your business can receive regulatory incentives if the TCEQ approves your EMS.

Inherent Benefits

An EMS for your business will reduce risk and liability, increase efficiency in using environmental resources, and facilitate compliance with environmental rules. An effective EMS improves performance by helping your business to achieve the following benefits:

- reduce costs,
- prioritize environmental issues,
- identify potential problems,
- improve environmental compliance,
- use materials more efficiently,
- streamline operations,
- improve internal communication, and
- enhance employee morale.

Incentives

The following incentives may be available to those who choose to have their EMS formally verified by the TCEQ:

- credit on TCEQ compliance history score, once your EMS has been in place one year;
- modification of state regulatory requirements that do not change emission or discharge limits;
- changes to how and how often compliance inspections are scheduled and conducted; and
- exemption from the reporting requirements of the Waste Reduction Policy Act.

What are the basics of an EMS?

The following points provide an overview of an EMS. This is not a comprehensive list of what you need to do if you decide to have your EMS formally approved by the TCEQ.

- **Develop an environmental policy.** The environmental policy describes your organization's environmental goals and its commitment to the environment.
- **Assign responsibilities.** Your EMS will only succeed if it is clear to all employees that the success of the EMS is very important to the top manager; otherwise, your EMS does not have a chance. Everyone in your

organization has a role and responsibility in an EMS. Use an EMS as an opportunity to ensure that every employee understands what he or she has to do in their job when it comes to the environment.

- **Identify and prioritize environmental aspects and impacts.** The process of identifying environmental aspects and impacts is the most technically challenging task in creating an EMS. The task requires an analysis of each of your business's activities, products, and services. An environmental aspect is an element of your activities, products, or services that can or does interact with the environment. A significant environmental aspect is one whose potential or actual impacts are significant.
- **Set and pursue goals for continuous improvement in environmental performance and compliance.** Once you have identified your significant environmental aspects, or "hot spots," you can determine which ones will have goals. When you establish goals, keep in mind compliance, continuous improvement, and pollution prevention.
- **Document and demonstrate results.** Results include reduced risk, enhanced compliance, and reduced pollution.
- **Evaluate EMS performance.** Measure and monitor your activities to evaluate whether you are making progress toward achieving your environmental goals.

Using This Model to Create Your EMS

Keep the following things in mind as you plan your EMS:

- **Make your EMS results-oriented.** This is a feature the TCEQ will use to evaluate an EMS. It means that your EMS should actually reduce risk and help your business be compliant, while continually improving environmental performance.
- **Plan for flexibility.** Design your EMS so that, over time, it will continue to be used and adapted. It is very important that your EMS change and improve with your business. A worthwhile EMS is not a manual that collects dust and does not get used.
- **Pick an appropriate level of detail.** Consider the size of your business as you plan your EMS. In general, the larger the company is, the more detailed its procedures tend to be.
- **Incorporate your existing systems.** For example, if you already have a system for documentation, develop your EMS manual to incorporate that existing system. It makes sense to use whatever system you normally use for developing and maintaining similar documentation.
- **Start small.** Don't take on the world.

2 Defining Your Scope

What

The scope of an EMS refers to how much of your operations or facility the EMS covers. In defining your scope, you are setting the “fence line” of your EMS.

Who

A top management representative or owner usually determines the scope. A team made up of employees from across your organization could also do this.

Why

The scope helps you avoid overextending the EMS or limiting it too much.

How

Usually a discussion between the top manager or owner and key employees, such as managers, will quickly lead to a determination of the scope. Documentation of the scope should be specific about what the EMS does and does not cover and why.

Example

Lone Star Manufacturing’s EMS covers only the plant in Fictional, Texas. More specifically, the EMS covers all operations occurring at the plant site—from the points of entry of raw materials and energy, to the point of exit of finished manufactured products. In addition to manufacturing processes and activities, all other on-site operations fall within the scope of the EMS, including maintenance, groundskeeping, and offices. The EMS does take waste disposal into account in evaluating the environmental impacts of on-site activities, even though Lone Star Manufacturing may not be the final disposer of its waste.

Lone Star Manufacturing plans to extend the EMS to the plant in Figment, Texas, after it has been in place for several years at the Fictional plant. The purposes of this two-phase rollout are to learn from successes and mistakes in implementing the Fictional EMS and to apply that knowledge to the Figment plant.

3 Creating Your Environmental Policy

What

An environmental policy is a statement of the main environmental commitments of your business. It serves as a statement to employees about expectations of environmental performance. Your environmental policy can also function as a way to communicate your environmental commitments to the public and your customers.

Who

A committee of senior management and employee representatives should work together to draft the policy. It is important that a variety of people serve on the committee. This strategy will help you get the support of all members of your workforce, who then can claim this policy as their own.

Why

The policy is significant because it sets the standard for how your business interacts with the environment. It is a statement to employees on how important the environment is to your business. It recognizes that environmental impact is an important criterion for making business decisions.

How

Your policy committee should draft a policy that contains the following elements:

- how you want your business to prevent pollution and minimize impacts to the environment; and
- a commitment to continuous improvement in environmental performance and environmental compliance.

Once your policy has been drafted, all those who helped create it should sign it. Then you should prominently display your environmental policy throughout the facility to remind all employees and visitors of your commitment to environmental care and concern. Businesses often find interesting ways to remind their employees of the policy. Some have been known to put the policy on T-shirts, coffee mugs, or on identification badges. Management should verbally announce the policy to all workers so they understand that it is important and meaningful to the organization.

You should treat your environmental policy the same way you treat other types of company policies in making decisions, internal and external communication, implementation and use (for example, as a decision-making tool), and review. If your business has procedures and policy on quality control, use those same procedures, where appropriate, for the environmental policy. Also, employees need to be aware of the intent of the policy and the need to include it in their daily activities.

Example

Lone Star Manufacturing is committed to improving the environment. We will do so by complying with all environmental laws and regulations. Lone Star will also strive to:

- prevent pollution;
- reuse and recycle whenever possible;
- use energy and water efficiently throughout our operations;
- monitor our environmental performance;
- ensure the safe disposal of waste; and
- continuously seek opportunities to improve our environmental performance.

At Lone Star, the environment is everyone's job, because we live here too.

4 Assign Responsibility

What

As with any important business-related task, all EMS responsibilities should be assigned to a specific individual. The TCEQ EMS Program requires that assignments be made for:

- EMS implementation,
- training,
- corrective action, and
- monitoring environmental performance and compliance.

Who

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

- Managers must make it clear to employees that they consider EMS activities worthwhile and important. Management leadership is vital to the success of an EMS.
- One person alone cannot develop and implement the entire EMS. An EMS involves everyone.
- All 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 documented.

Why

Assigning responsibility for EMS tasks is crucial to your success. Assignments won't get done if employees don't know whose job it is to do them.

Having managers and employees from all areas of the business assume responsibilities will help them take ownership of the EMS. By involving all areas, you should be able to develop an integrated and well-thought-out EMS.

How

In the beginning, some businesses find it useful to designate an EMS management representative, an EMS coordinator, and an EMS team with members from each process area, and then to define the responsibilities of these individuals. As the EMS develops, responsibilities should be assigned for all EMS-related tasks as they are added.

An employee has to be competent enough to carry out the responsibilities that they are assigned. An employee also must receive sufficient training to do EMS-related tasks. This does not necessarily mean a structured training class. If an employee knows what their job duties are when it comes to the environment, that is proof that the employee has received sufficient EMS training, no matter what form that training has taken. A two-minute chat once a week between a manager and a front-line person on the person's EMS duties may 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 in this model.

Example

Lone Star Manufacturing has designated the following core EMS functions. A description of each function is provided below. As the EMS is developed, new tasks will be assigned.

- **Management representative.** The EMS management representative is a member of Lone Star Manufacturing’s top plant management group. This job involves the following: ensuring that all tasks relating to the EMS are identified and completed in a timely manner, reporting periodically to the management group on the progress and results of the EMS, and demonstrating to all employees that top management is committed to the EMS.
- **EMS coordinator.** The EMS coordinator is responsible for: identifying, assigning, scheduling, ensuring the necessary support for, and ensuring completion of all tasks relating to the EMS; maintaining the EMS manual under the leadership of the management representative; and leading the EMS team. In a small company, the management representative and the EMS coordinator might be the same person.
- **EMS team.** The EMS team is composed of a supervisor and one to two employees from each major operation within Lone Star. Each team member or representative is responsible for ensuring that EMS activities in their respective areas are carried out and for reporting the results of these activities to the team. In addition, the team itself is responsible for: carrying out certain EMS activities, such as selecting significant environmental aspects; and meeting on a regular basis, usually monthly.

Table 1. Assignments for the Core EMS Responsibilities

EMS Function	Name	Regular Position
Management representative	Jose Rodriguez	Plant manager
EMS coordinator	Carol White	Environmental health & safety (EH&S) manager
EMS team	Willie Scott	Manufacturing supervisor
	Darnell Jenkins	Injection molding line
	Julia Jordan	Finishing line
	Paula Lingo	Packing supervisor
	Jonathan Ash	Packing line
	Maria Lopez	Sales supervisor
	Janet Romero	Sales associate
	Oz Glenn	Invoicing supervisor
	Peter Faulkner	Building maintenance

5 Identifying the Environmental Aspects of Your Business

What

The elements of your business's activities that harm the environment, or could, are known as the environmental aspects of your business. For example, a spill from a parts washer is an environmental aspect because of the potential impact of the spill on water or land. The spill would be an environmental aspect even if it does not actually harm the environment. The potential for environmental impact is enough to consider an element of an activity as an environmental aspect. The potential environmental impact of a spill is reduced water quality and contaminated soil.

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 harm 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 businesses 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 business changes, like new processes or materials.

Why

Knowing your business's environmental aspects allows you to prioritize and manage your business's actual and potential impacts on the environment.

How

There are several ways to approach the identification of environmental aspects. One method involves the steps below:

1. List the operations that fall within the scope of the EMS.
2. Identify the environmental aspects of these operations, using an input/output diagram or a process map.
3. List the environmental aspects and their actual or potential impacts. Quantify the aspects, if possible, because that will help you measure your

progress later. Note: The purpose of this step is to get all aspects on paper so you can prioritize them later in the process.

Example

Lone Star Manufacturing has identified its environmental aspects by using the following three steps:

Step 1. Listing activities within their EMS's scope.

Lone Star Manufacturing identified the following activities (operations and processes):

- injection molding (the melting and molding of high-density polyethylene pellets into plastic parts)
- polishing and finishing of the plastic parts
- sales
- packing
- invoicing
- purchasing
- building and grounds maintenance
- fleet
- maintenance shop

Step 2. Identifying the elements (inputs and outputs) of each activity which do or could affect the environment (Table 2).

Table 2. Identification of Elements and Activities Using inputs and Outputs for Each Operation (Excerpt)

<i>Operation</i>	<i>Inputs</i>	<i>Outputs</i>
Producing plastic parts (injection molding and finishing)	Plastic pellets Cooling water Energy	Plastic parts Plastic scraps/shavings Reject/off spec pieces Wastewater Air releases
Sales	Paper Transportation Energy	Orders Waste paper/office trash Air releases

Step 3. Quantifying these aspects where possible and listing each of their actual or potential environmental impacts (Table 3).

Table 3. Identification of Environmental Impacts (Excerpt)

Operation	Environmental Aspect (quantified if possible)	Actual and/or Potential Environmental Impacts
Plastic part manufacturing (injection molding and plastic part finishing)	Plastic part solid waste: averages 300 lb/month, or 50 lb/1,000 units Air emissions from transport (not quantified)	Depletion of landfill space; degradation of air quality
	Energy use: 5,000 kWh/month for manufacturing + sales, or 833 kWh/1,000 units	Depletion of coal, oil, natural gas, and/or creation of nuclear waste; degradation of air quality
	Water use (which in this case creates wastewater): 6,000 gal/month, or 1,000 gal/1,000 units	Depletion of water supply; degradation of water quality
	Water use (which in this case creates wastewater): 6,000 gal/month, or 1,000 gal/1,000 units	Depletion of forests and landfill space
	Melting plastic: 5 lb/month of VOCs, or 0.83 lb/1,000 units	Degradation of air quality; threat to worker health

6 Setting and Pursuing Compliance Goals

What

In an effective EMS, you set goals and develop an action plan for ensuring compliance with applicable environmental laws, regulations, and permit requirements.

Who

Managers from all process areas should work together with the EMS coordinator to make sure that the goals for ensuring compliance are set and attained. Top management should also be part of the goal-setting process, and should agree to all goals that are set. Goals aside, it needs to be clear who is responsible for compliance itself.

Why

Competitive businesses should strive for compliance with applicable environmental laws and regulations. Setting and having a plan to pursue environmental compliance goals helps demonstrate that your business is striving to meet this end.

How

One good way to develop environmental compliance goals is as follows:

- **Review your existing system for ensuring compliance, if you have one.** How well has it worked for you in the past? Have you been able to discover and resolve compliance problems? Have you had any enforcement actions from the TCEQ or other governmental entity? How could the system be better?
- **Make a list of all environmental regulations that apply to you.** If you need help identifying them, you can call the TCEQ's Small Business and Local Government Assistance Hotline at 1-800-447-2827. For each regulation, list your requirements (for example, permits, reporting, and record keeping). How are you complying with each of these now? Can you improve?
- **Decide what goals would help your business comply with environmental laws, regulations, and permit requirements.** Once you have listed some tentative goals, talk about how to measure improvement. Some businesses find it useful to measure improvement by doing a compliance self-assessment twice a year. In their self-assessment, they establish deadlines for determining the underlying cause of any problems and for ensuring they are resolved and documented.
- **Develop an action plan to make sure that progress is made toward the goals, once compliance goals are in place.**

Example

As part of its environmental management system, Lone Star Manufacturing has developed an action plan to ensure compliance with all laws and regulations.

The environmental health and safety manager is responsible for the following duties:

- Maintain an updated list of all applicable environmental regulations.

- Assign duties to the appropriate managers for ensuring compliance with each regulation; assign new duties if regulations change.
- Be responsible for making sure that managers develop work instructions to ensure compliance.
- Make sure an internal compliance assessment is done to ensure progress toward compliance goals. An internal compliance assessment will be done once a year.

The EH&S manager makes sure the compliance goal is documented and retains the results from internal compliance assessments for our records (Table 4).

Table 4. Documentation of Internal Compliance Evaluation (Excerpt)

Regulation	Person Responsible	Compliance Check Date	Results	Underlying Cause	Corrective Action Date	Date Compliance Verified
30 TAC 335-Industrial Solid Waste	EH&S manager	7/23/10	Compliant	N/A	N/A	7/23/10
Air Permit by Rule 106.394, 106.8, 106.4	EH&S manager & Manufacturing supervisor	7/23/10	Records inadequate: non-compliant	Inadequate training: production coordinator not keeping good records of the size and timing of batches	Plant manager retrained production coordinator on 7/26/10	8/9/10
Local aluminum recycling	EH&S manager	7/23/10	Aluminum cans found in trash: non-compliant	Inadequate training: staff was unaware that this was a requirement	Signage installed in break room area indicating requirement; incorporated into employee training	8/13/10

7 Determining the Significant Environmental Aspects of Your Business

What

This section aims to help you prioritize your environmental aspects by determining the significance of each aspect's impact. This step can help you determine how your business most harms the environment, currently or potentially. If you determine an aspect of your business does or could have a significant environmental impact, that aspect is a significant environmental aspect.

Who

The whole EMS team can be responsible for determining which impacts are significant. This allows employees from all areas to contribute to EMS decision making. The EMS coordinator should also make sure that this determination is updated, if the environmental aspects of the business change.

Why

Any good manager wants to focus efforts on what is most important. Prioritizing should help the leaders in your business focus on managing the environmental aspects that have the greatest current or potential impact to the environment.

How

There are many ways of determining significance. Whatever way you choose, make sure to consider regulatory requirements, and document how you decided that an aspect is significant. 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. A method for determining the significance of impacts follows:

1. **List the business's aspects.** Group similar aspects as needed. For example, if energy use is common to several processes, you could list "energy use" once on the list.
2. **Select what factors to consider when determining significance.** Examples of factors you could use are:

- regulatory requirements
- community issues
- natural resources used
- chemical and material risks

3. Have the EMS team score each aspect's environmental impact.

You can do this by assessing each impact according to the factors you have chosen. Give the impact a score between 1 and 5—1 is the lowest level of concern, and 5 is the highest. Decide a total score above which you will consider the impact as significant. It is common for small- and medium-sized businesses to have two to three significant aspects and impacts when they finish this process.

Example

Table 5 shows how Lone Star Manufacturing followed three steps to prioritize the most significant environmental impacts of their business: listing aspects, selecting factors to determine significance, and scoring impacts. The lower the score, the lower the concern.

Table 5. Evaluation of Environmental Impacts (Excerpt)

Operation	Plastic part manufacturing	All operations	Plastic part manufacturing
Aspect	Solid waste from plastic	Use of energy Air	Air pollution from melting plastic
Impact	Depletes landfill space; degrades air quality	Depletes coal, oil, natural gas, and/or creates nuclear waste; degrades air quality	Degrades air quality; Risks to worker health
Regulatory Concern	2	1	2
Material Risk	3	2	1
Community Issue	1	1	1
Natural Resources	3	4	1
Overall Scoring	9	8	5
Significant? (Y=yes, N=no)	Y	Y	N

8 Setting and Pursuing Environmental Performance Goals

What

An important part of an environmental management system is to set goals and develop an action plan that will enable your business to achieve continuous improvement in environmental performance. All your goals should have a timeline and be specific and measurable (for example, pounds of waste reduced), in order for you to bring about change and adequately track achievements, improvements, and reductions.

Who

Management should set the environmental performance goals. In order to make the best possible improvements, employees from all levels should contribute ideas about implementing the goals and the plan. Using employees from all levels of operation will help to ensure an integrated plan that includes all your business's processes. Be clear about who is assigned to monitor environmental performance and to measure progress toward these goals. Also be clear about who undertakes corrective action when progress is not being made.

Why

If you have already identified your significant aspects, you are now ready to set goals to reduce their impacts. Setting goals is a method to assist your business in the continuous improvement of environmental performance.

How

One method to jump-start the process of developing goals is to discuss your business's significant environmental aspects. Ask yourself and those you are working with these questions: "Now that we know what our significant environmental aspects and impacts are, where do we go from here? How should we improve?" Here are the steps:

1. Be sure that the goals are realistic and fit your organization's mission and the overall business strategy of your company.
2. Be sure the goals reduce your impacts on the environment, have a timeline, and are measurable. For each goal, decide how to measure performance, and determine how the goal relates to your

- environmental policy. Keep in mind that you need baseline data (which you may need to develop) to compare progress.
3. Set an action plan for achieving the goals (see Tables 6 and 7).
 4. Communicate to your EMS team the reasons for selecting each goal.
 5. Measure and monitor progress toward goals on a routine basis.

Note on Measuring Performance

Remember to factor in reductions that were undertaken to lessen environmental impacts. If you do not tie production to how you measure a reduction, you could inaccurately show progress.

For example, if you measure a goal, such as “We will reduce energy use by 10 percent over the next three years” in kilowatts used per month, then a reduction in production will inaccurately show that you are reducing your energy use and achieving your goal. In this situation, it is better to tie how you measure your performance to production numbers. In this example, a better measure would be kilowatts used per 1,000 units produced.

Example

Table 6. Environmental Performance Goals

Goal	Related Significant Environmental Aspect (SEA)	What Part of Our Environmental Policy Does This Relate To?	Performance Indicator
To reduce plastic waste by 30% over the first 2 years of the EMS	Product solid waste	Minimize the amount of waste generated	per 1,000 parts manufactured
To reduce the amount of energy used by 10% in the first 5 years of the EMS	Use of energy	Use energy and water efficiently throughout our operations	Kilowatts per 1,000 units manufactured
To reduce the amount of water purchased by 5% over the first year of the EMS	Use of water	Use energy and water efficiently throughout our operations	Gallons of water per 1,000 units manufactured

Table 7. Action Plans (Excerpt)

Indicator(s)	Pounds of reject waste and waste plastic per 1,000 parts manufactured
Goal	Reduce the plastic-part waste by 30% over the first 2 years of the EMS
Action plan	Analyze why rejects occur and minimize the reason(s) that rejects occur
Person(s) responsible	Willie Scott
Budget	\$100/year for meetings; if capital investment is required, then this budget will be determined at that time
Schedule	7/06 manufacturing meeting with relevant manufacturing staff and EMS team to discuss this priority and to brainstorm ideas. 8/06 EMS team and relevant manufacturing staff test the best ideas that were suggested on 7/06. If testing determines that any idea is worth pursuing, then the EMS team will make sure that idea will be pursued and reassessed every 6 months.
Review cycle	Willie Scott will review every 6 months

9 Documenting EMS Implementation

What

To demonstrate the effectiveness of your EMS, you need to provide written documentation of your accomplishments and implementation procedures. 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.

Who

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

Why

Documentation describes the core components of your EMS; demonstrates compliance with applicable environmental regulations; and provides your business with the EMS knowledge of key employees, whose experience and institutional memory could be lost if they left the business.

How

Your business'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. Documentation can be in various formats, including electronic and hard copy. Documentation has to be legible and readily available on site. Have a method in place to ensure that the most up-to-date version of the documentation is available. Documentation should be available for all EMS components, including:

- Environmental policy.
- Responsibilities assigned and embedded in work instructions, job descriptions, performance plans and reviews, and operational procedures, as appropriate.
- Identification and prioritization of environmental aspects.
- Setting goals and action plans for environmental performance and compliance.
- Regular assessments and evaluations.

Example

All of the tables given in this guide are examples of how to document an EMS.

10 Evaluating Performance

What

Routinely write a review of how well your company is following its EMS and whether your organization is:

- reducing pollution;
- enhancing or maintaining compliance; and
- reducing risk.

The review consists of an internal assessment, a management briefing on the results, and management action (includes ensuring the results are incorporated into action plans).

Who

A team of two or three managers or employees can conduct an internal assessment. It is important that those conducting the assessment not assess their own work area, and that they are allowed to perform the assessment as independently as possible.

Organize the results into a suitable format and brief the owner or president of your business on the results. This will keep the president updated on how effective the EMS is at improving your business's environmental performance. With this information, the president can provide the appropriate leadership and correct any problems that need to be addressed.

Why

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 business progress toward its goals. Results should show progress toward EMS goals—for example, concrete reductions in emissions and waste.

How

Conduct periodic reviews—an internal assessment and a management briefing—at least annually. Those given the task of reviewing the EMS should base their evaluation on objective evidence, including interviews with employees, 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: to 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 deficiencies in the EMS. The EMS team can then work with the top management representative to make any needed modifications to the EMS.

Examples

Table 8. Evaluating EMS Results

Internal Assessment Team: J. Rodriguez, Plant Manager; C. White, EH&S Manager; W. Scott, Manufacturing Supervisor; J. Ash, Packing Line	
Date of Internal Assessment: 11/10/2010	Covers Aug 1, 2010, through Oct 31, 2010
Signed:	
EMS Procedures: Check each item assessed (includes questioning, observations, and review of documents if needed). Written "findings" for each item are documented and presented to management.	
<input checked="" type="checkbox"/> Environmental policy (adherence to policy commitments)	<input checked="" type="checkbox"/> Emergency preparedness
<input checked="" type="checkbox"/> EMS responsibilities	<input checked="" type="checkbox"/> Review of new products and processes
<input checked="" type="checkbox"/> Identification of environmental aspects	<input checked="" type="checkbox"/> Documentation
<input checked="" type="checkbox"/> Identification of legal requirements	<input checked="" type="checkbox"/> Conducting a compliance assessment
<input checked="" type="checkbox"/> Identification of significant environmental aspects	<input checked="" type="checkbox"/> Conducting an internal assessment
<input checked="" type="checkbox"/> Developing goals and action plans	<input checked="" type="checkbox"/> Taking corrective action
<input checked="" type="checkbox"/> Developing work instructions	<input checked="" type="checkbox"/> Management review
<input checked="" type="checkbox"/> Environmental training	<input checked="" type="checkbox"/> Emergency preparedness

Table 8. Evaluating EMS Results continued

<p>Goal: To reduce the amount of energy used by 10% in the first 5 years of the EMS. Comments: We have reduced the amount of energy we use by 5%. Kilowatt hours (kWh) per 1000 units are down 42 kWh from 833 kWh to 791 kWh. This has meant a total reduction for the year of 3000 kWh, down from 60,000 kWh/yr to 57,000 kWh/yr.</p>
<p>Goal: To reduce the amount of water purchased by 5% over the first year of the EMS. Comments: Yes, we have reduced our water consumption by 20 gallons per 1000 units produced, which represents a 2% reduction in amount of water purchased.</p>

Table 9. Management Review of EMS Results

Date of Review Meeting Nov 11, 2010	
Attendees present at meeting	
Name	Position
John Bingham	Owner and president
Jose Rodriguez	Plant manager
Paula Lingo	Packing supervisor
<p>Conclusions: This is the first quarterly management review. It appears that the EMS is up and running, but reinforcement is needed. Staff members show a general knowledge of the EMS, but are not always aware of how they fit into it and how their job is different as a result. Next month we will have a meeting for all managers and supervisors. At the meeting, the EH&S manager will teach the supervisors what key points need to be emphasized to workers. Each supervisor is to have a meeting with staff members (by 1/30/03) to go over these points. This meeting should be documented, including date, time, and attendees. John Bingham and Jose Rodriguez are encouraging all supervisors to come to the next supervisor meeting with examples of what techniques work and what techniques do not work, to get all staff to uphold the work instructions that are part of the EMS. For those areas of the plant that do not have specific work instructions, the supervisor meeting with staff members should motivate employees to come up with efficiency ideas. John Bingham has decided that at the end of the fiscal year, the staff member who comes up with the most effective EMS idea will get 10% of the savings that resulted from that idea. The supervisor will also be recognized at the yearly review.</p>	
Action to Be Taken	Person(s) Responsible
Manager and supervisor meeting	EH&S manager
Supervisor meeting with respective staff	All Supervisors
Signed: _____ Owner and President	Signed: _____ Plant Operations Manager
_____ <u>11/11/10</u> _____ Date	_____ <u>11/11/10</u> _____ Date

11 Demonstrating Results

What

If you decide to get your EMS formally approved by the TCEQ, you may need to submit an annual report summarizing the progress you have made on your goals. For approval at the “Gold” level, you must have demonstrated at least one type of pollution reduction beyond compliance obligations.

Who

The EMS coordinator usually prepares the report, with input from the EMS team and approval by top management.

Why

The EMS Annual Report demonstrates your business’s progress toward your EMS goals. Your report should show your management, staff, and the TCEQ where you are in the process and how close you have come to your goals.

How

What measures you select to include in your report is your decision. Platinum members of Clean Texas are required to select and report on goals using the Environmental Performance Table, which is found in the program applications. The report should accurately document progress toward goals, using the performance measures that you chose. The following is an example: “By upgrading equipment and conserving usage during evening hours, we have reduced our energy use by 10% per 1000 units produced.” Useful measures of progress include the following:

- Percent of goals achieved.
- Money saved.
- Reductions in number and amount of spills or accidental air releases.
- Reductions in air emissions, hazardous waste generated, nonhazardous waste generated, wastewater generated or discharged, or pollutants in wastewater.
- Reductions in energy usage or water usage.
- Reductions in the number of notices of violations from the TCEQ.
- Improvement in compliance history.