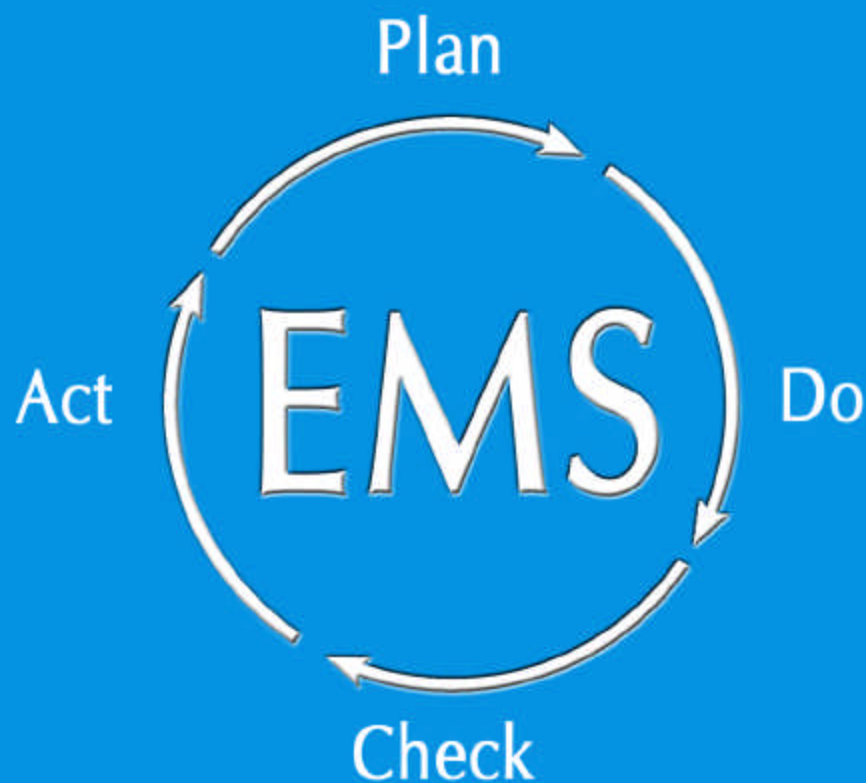


# Understanding and Implementing an Environmental Management System

A Step-by-Step Guide  
for  
Small and Medium-Sized Organizations



## Step 1: The Basics

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Pollution Prevention Unit

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## CHAPTER 1 - INTRODUCTION

This Guide has been designed to help small and medium-sized businesses integrate environmental concerns into their everyday business decision making, to improve environmental compliance and to promote pollution prevention. These everyday environmental improvements will be accomplished through the development and implementation of an Environmental Management System (EMS). Properly developed and implemented, an EMS can reduce costs and improve productivity while advancing environmental protection and performance.

The most familiar form of an EMS is the 14001 Standard recently established by the International Organization for Standardization (ISO). Although there are standards for other EMSs, the ISO 14000 standards are becoming widely adopted throughout the private sector in the United States and internationally. Throughout this document, references to EMS encompass the ISO 14001 Standard as well as other environmental management system standards.

### 1.1 - Background

To control and properly manage pollutants, federal, state and local governments have developed environmental regulations that organizations must comply with or face penalties, fines and liability. Facilities often respond to these regulations and problems with successful solutions designed to meet the latest regulations but rarely coordinate their environmental activities into an overall management system. Environmental issues are becoming more complex, and the cost of waste management continues to rise. The traditional way of addressing environmental issues in a reactive, ad-hoc, end-of-pipe manner has proven to be highly inefficient.

Increasingly, businesses have realized that environmental problems would be better managed in a systematic way. Just as businesses develop financial management systems to promote the efficient use and management of monetary resources, they realize that **environmental management systems** developed and integrated into the organizational structure will reduce risks from pollution and will help provide an opportunity to be more efficient and organized. EMSs help integrate environmental issues into business decisions and practices. Basically, they provide a framework for managing environmental responsibilities in a more systematic way.

An EMS can provide a structure for small and medium-sized businesses to manage, assess, and continuously improve the effectiveness and efficiency of the management of their environmental activities. An EMS approach incorporates periodic review by top management and emphasizes continuous improvement instead of crisis management. The systematic nature of the EMS allows an organization to focus on implementation and to take a more inclusive and proactive view of environmental protection. However, by itself, an EMS does not guarantee compliance. To address this concern, this Guide is written to ensure that an EMS includes compliance assurance components.

## **1.2 - Purpose of this Document**

This Guide addresses the steps that small and medium-sized businesses can take to develop and implement an effective EMS and provides businesses with methods to achieve higher levels of compliance and environmental performance. The components of this Guide are not required by regulation. Unlike a regulation, an EMS is voluntary. When properly developed and implemented, an EMS will change the way a facility does business, engage the senior leadership of your organization, and help you to get the right information to the right people at the right time.

An EMS does not by itself guarantee the competence or abilities of those responsible for compliance activities. Appropriate training and assignment of responsibilities are also needed and should be identified as components of the EMS.

ISO 14000 certification is not a requirement of this program.

## **1.3 - How This Guide Is Organized**

This Guide has been divided into three sections in order to allow businesses to become familiar with Environmental Management Systems and the EMS implementation process at their own pace. The three sections of the guide address different EMS aspects.

**STEP 1: The Basics** - STEP 1 addresses EMS concepts and elements, the benefits of an EMS and an EMS Action Plan.

**STEP 2: EMS Development and Implementation Guide** - STEP 2 addresses each of the EMS Action Plan steps. STEP 2 is laid out in chapters designed to be completed through group discussions with your EMS team members and other managers and employees as appropriate. Most chapters can be completed in several hours, but some may take longer. Sessions may be held once a week, once every other week, or once a month until the job is done. Since it is more important to complete each chapter than to finish in a set time frame, use whatever time is necessary to complete these chapters for your company. Most companies find that it takes about a year to work through the EMS development process. It generally takes up to three years for the EMS to be fully understood and implemented. Developing a company EMS is a commitment to change, and change takes time.

**STEP 3: EMS Template** - STEP 3 includes an EMS Template. This section should be referenced throughout the EMS development process in STEP 2. The template included in this step will be valuable during the EMS development process, and should be continually referenced as your EMS team proceeds through the chapters in STEP 2. Each section of the template included in this section is clearly noted with the relevant chapter in STEP 2 with which it corresponds.

## CHAPTER 2 - WHY SHOULD YOU HAVE AN EMS?

- Are you looking at ways to improve your overall environmental performance?
- Is the state of your business' environmental affairs a significant liability?
- Does a lack of time or resources prevent your business from taking charge of its environmental obligations?
- Does your business know how its environmental objectives relate to its business objectives?

If you answered YES to one or more of the above questions, an environmental management system (EMS) can help your organization.

Implementing an EMS can help in a number of important ways. First, an effective EMS makes good business sense. By helping you identify the causes of environmental problems (and then eliminating them), an EMS can help you save money. Think of it this way:

- Is it better to make a product right the first time or to perform a lot of re-work later?
- Is it cheaper to prevent a spill in the first place or clean it up afterwards?
- Is it more cost-effective to prevent pollution or to manage it after it has been generated?

Second, an EMS can be an investment in long-term viability of your organization. An EMS will help you to be more effective in achieving environmental goals. And, by helping businesses to keep existing customers and attract new ones, an EMS adds value.

### 2.1 - What Are the Benefits of Implementing an EMS?

A more systematic approach to meeting environmental and business goals may contribute to the following in your organization:

- Competitive advantage
- Reduced liability
- Increased efficiency
- Reduced costs
- Fewer accidents
- Improved environmental performance
- Improved employee and community health
- Possible ISO 14001 registration
- Enhanced regulatory compliance
- Possible regulatory flexibility
- Improved public image

- Enhanced image with regulators
- Enhanced customer trust
- Better access to capital
- Reduced training effort for new employees
- Employee involvement and improved morale
- Improved cooperation and environmental awareness among employees
- Improved procedures and documentation
- Increased ability to adapt to changing circumstances

## **2.2 - What are the Costs of Implementation?**

The major cost of implementing an EMS is staff time. Staff time will include information collection, preparation of procedures/worksheets, facilitation of EMS sessions, participation in EMS development, and training of personnel in new procedures. Other costs include technical resources to analyze environmental impacts and improvement options and resources required to implement changes. If an organization chooses to have an outside consultant perform a large portion of the work, consulting fees may also be significant. Additional costs might be incurred if an organization decides to pursue EMS registration or have a baseline assessment conducted.

However, in general, the costs of implementation will be offset by savings resulting from decreased instances of noncompliance, lower record keeping costs due to improved environmental performance, reduced cost of materials due to increased production efficiency, new customers/markets and reduced waste disposal/treatment costs. An additional cost savings may include lower environmental insurance premiums.

In addition, some of the benefits of EMS implementation, such as enhanced employee morale, have no tangible dollar value, but should be considered when weighing the benefits of an EMS versus the costs. Many organizations have found that the development of an EMS can be a vehicle for positive change. These organizations believe that the benefits of an EMS far outweigh the costs.

Keep in mind that much of what you need for an EMS may already be in place. The management system framework described in this Guide contains many elements that are common to managing other business processes, such as quality, health and safety, finance, or human resources. As you review this Guide, you may find that you already have many elements of an EMS already in place, but for other purposes (such as quality). Integrating environmental management with other key business processes can improve the organization's financial and environmental performance.

## CHAPTER 3 - WHAT IS AN ENVIRONMENTAL MANAGEMENT SYSTEM?

An Environmental Management System (EMS) is a set of management tools and principles designed to create the administrative procedures that an organization needs to integrate environmental concerns into its daily business practices.

An EMS is built on the “Plan, Do, Check, Act” model for continual improvement. In an EMS Standard, the “plan, do, check, act” steps have been expanded into the following five steps: 1) environmental policy, 2) planning, 3) implementation, 4) checking/corrective action and 5) management review, as shown below.

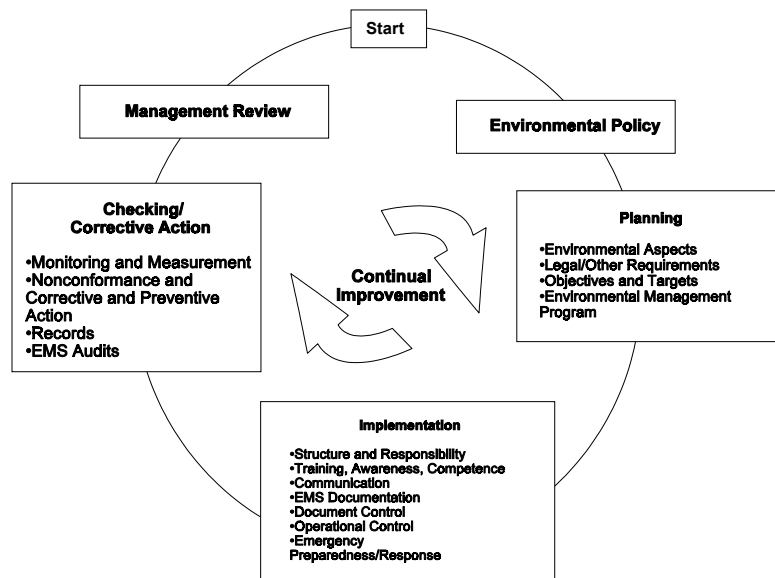


Figure 1

- **Environmental Policy:** Top management commits to environmental improvement and establishes a written environmental policy for the company.
- **Planning:** The company conducts a review of its operations, identifies legal requirements and environmental concerns, establishes objectives, sets targets, and devises a plan for meeting those targets.
- **Implementation:** The company follows through with the plan by establishing responsibilities,

training, communication, documentation, operating procedures, and an emergency plan to ensure that environmental targets are met.

- **Checking/Corrective Action:** The company monitors its operations to evaluate whether the targets are being met, and if not, takes corrective action.
- **Management Review:** The EMS is modified to optimize its effectiveness. The review stage creates a loop of continuous improvement for the company.

These five steps are made up of the following 17 elements (in italics):

- **Environmental Policy:**

*Environmental policy* - Develop a statement of the organization's commitment to the environment. Use this policy as a framework for planning and action.

- **Planning:**

*Environmental aspects* - Identify, both in the initial review and on an ongoing basis, the company's products, activities and services that can interact with the environment. Those that could have significant impacts on the environment, whether adverse or beneficial, must be determined.

*Legal and other requirements* - Identify and ensure access to relevant laws and regulations (and other requirements to which the organization adheres).

*Objectives and targets* - Establish environmental goals for the organization. These goals should be in line with its policy, environmental impacts, views of interested parties, and other factors.

*Environmental management program* - Plan actions to achieve objectives and targets.

- **Implementation:**

*Structure and responsibility* - Establish roles and responsibilities, and provide resources.

*Training, awareness and competence* - Ensure that employees are trained and capable of carrying out their environmental responsibilities.

*Communication* - Establish processes for internal and external communications on environmental management issues.

*EMS documentation* - Maintain information on the EMS and related documents.

*Document control* - Ensure effective management of procedures and other system documents.

*Operational control* - Identify, plan, and manage operations and activities in line with the organization's policy, objectives, and targets.

*Emergency preparedness and response* - Identify potential emergencies and develop procedures for preventing and responding to them.

- **Checking/Corrective Action:**

*Monitoring and measurement* - Monitor key activities and track environmental performance.

*Nonconformance and corrective and preventive action* - Identify and correct problems and prevent recurrences.

*Records* - Keep adequate records of EMS performance.

*EMS audit* - Periodically verify that the EMS is functioning as intended.

- **Management Review:**

*Management review* - Periodically review the EMS with the goal of continual improvement.

This Guide will address each of these elements and how to implement them within your organization. However, the order in which the elements are addressed differs from that noted above.

### **3.1 - What is the Difference Between an EMS and an Environmental Audit?**

Many businesses conduct environmental reviews or audits to assess their environmental performance. These reviews or audits may identify noncompliance and require corrective action for the noncompliance. However, they may not be sufficient to provide a business with the assurance that its performance not only meets, but will continue to meet, its legal and policy requirements. An audit may address the problem, but not the root cause of the problem. To be effective, an audit needs to be conducted within a structured management system and integrated with overall management activity.

### **3.2 - Additional Information**

There are many free or inexpensive resources available to help your organization develop and implement an EMS. A description of some of these resources is included in Appendix I of our [STEP 2: EMS Development and Implementation Guide](#). Another recommended source of information and expertise is the companies with which you do business. It is likely that your suppliers and customers have experience with many of the aspects of an EMS. They may be willing to share their experiences and provide advice to your organization.

## CHAPTER 4 - EMS TERMS

**Baseline Environmental Conditions** Environmental conditions at the facility prior to implementation of EMS.

**Commitment to Compliance** The organization's commitment to achieving and maintaining regulatory compliance. This commitment is reflected in documented practices and procedures that ensure that regulatory compliance is a top priority of the organization and the EMS. Examples include systematic documented procedures for periodic regulatory compliance audits and for corrective action taken in response to discovered instances of noncompliance.

**Document Control** A system to ensure effective management of all EMS documents.

**Emergency Response and Preparedness Program** A program that plans and prepares for emergencies, such as employee injuries or hazardous chemical spills.

**Environmental Aspects** An element of an organization's activities, products, or services that can interact with the environment.

**Environmental Impacts** Any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organization's activities, products, or services.

**Environmental Management System (EMS)** A continual cycle of planning, implementing, reviewing and improving the actions that an organization takes to meet its environmental obligations.

**EMS Audit** A process of objectively obtaining and evaluating evidence to determine whether an organization's EMS is operating as intended.

**Environmental Metrics** Measurable parameters that reflect environmental performance trends.

**Environmental Policy** Company statement of its intentions and principles in relation to its overall environmental performance. The policy provides a framework for action and for setting environmental objectives and targets.

**Gap Analysis or Preliminary Review** A review of an organization's current environmental performance done in advance of, or at the beginning stages of, planning the EMS. The review should cover three key areas: legislative and regulatory requirements, identification of significant environmental aspects, and an examination of all existing environmental management practices.

**ISO 14001** The widely accepted, official international standard for environmental management systems.

**Management Review** Periodic review of an EMS to ensure effectiveness and continual improvement.

**Noncompliance and Corrective/Preventive Action** A corrective (or preventive) action taken to address and rectify (or prevent) a deficiency or noncompliance with environmental standards, regulations, or the EMS.

**Objective** A facility goal that is consistent with the organization's environmental policy, priority environmental aspects, and applicable environmental regulations.

**Operational Control** The identification, planning, and management of operations and activities in line with the EMS policy, objectives and targets.

**Pollution Prevention (P2)** Prevention of pollution through source reduction and waste minimization techniques and technologies. Modification of existing procedures and/or processes to prevent the creation of pollution.

**Prioritization Criteria** Criteria for prioritizing environmental aspects.

**Records** Proof of actions taken that were outlined in the EMS.

**Stakeholder** Individual or group concerned with or affected by the environmental performance of an organization.

**Target** A detailed performance requirement related to and supporting a specific objective.

## **CHAPTER 5 - EMS AS A COMPLIANCE ASSURANCE TOOL**

The question is often asked whether organizations adopting an EMS have "earned" some form of decreased regulatory oversight. This chapter addresses that question and the role of an EMS in the regulatory system.

An environmental compliance system focuses on compliance with federal, state and local requirements. An EMS is not fundamentally a compliance system. An EMS is a tool which enables the organization to achieve and systematically control the level of environmental performance that it sets for itself. The establishment of an EMS will not, in itself, necessarily result in an immediate reduction of adverse environmental impact. Care needs to be taken that the mere establishment of an EMS does not lull the organization into a false sense of security. However, when properly implemented an EMS can be expected to ensure and improve environmental compliance.

Ensuring that a facility is in compliance with environmental laws and regulations is an essential component of an EMS. Although an EMS focuses on management systems and not legal compliance per se, an EMS can be an important tool in an organization's compliance system by improving the management of activities and programs that have significant environmental impacts. Specifically, an EMS assures compliance through the identification of legal requirements, the development of procedures for compliance, and the conduct of audits to assure management that the company is following the procedures. As a practical matter, an EMS should include a compliance system. An EMS should be consistent with, and should not diminish or interfere with, a facility's compliance program.

EMSs should not be seen as a replacement for the existing regulatory system. EMSs can work best when they complement existing regulatory programs. Regulatory agencies at all levels must continue to assure that existing regulatory requirements are met, using a range of available tools, including taking formal enforcement actions when necessary. State and federal regulatory authorities have not yet offered decreased oversight as an incentive for EMS implementation. At this time, EPA is evaluating incentives for motivating organizations to improve environmental performance through implementation of an EMS. EPA and NYSDEC are also testing, through the Strategic Goals Program, the use of a "performance track" to motivate and reward top environmental performance for certain industrial sectors, with EMS implementation as one way of achieving a specific performance level.

### **5.1 - Self-Disclosure of Violations**

In recognition of the voluntary environmental improvement aspects of an EMS and other environmental audit and compliance assistance programs, the NYSDEC has established a Small Business Self-Disclosure Policy for adjusting penalties where small businesses detect, voluntarily disclose and expeditiously correct certain violations discovered through environmental audits or formal compliance assistance programs. Although the Small Business Self-Disclosure Policy is not directly aimed at facilities with an EMS, a small business that detects and voluntarily

discloses a violation during the course of their EMS operations may be eligible for the adjusted penalties reflected in this policy. If a small business satisfies the policy criteria, the Department will limit the penalty to any significant economic benefit. The penalty adjustment shall not apply to circumstances such as those involving intentional wrongdoing or significant threats to health, safety or the environment. Also, the Small Business Self-Disclosure Policy is only applicable to businesses that employ 100 or fewer individuals and, thus, may not be applicable to all users of this guidance. A copy of the policy is included in Appendix I.

## CHAPTER 6 - EMS AND POLLUTION PREVENTION

In many ways, an EMS represents the alliance between the "green" ethic of pollution prevention and the "quality" ethic of management systems. Both incorporate concepts such as long-range planning, continuous improvement, system control, well-being of workers and customers, avoidance of "crisis management," importance of innovation, and measurement of results. During the past decade, many companies have made pollution prevention a way of doing business. These companies are demonstrating leadership in the adoption and application of pollution prevention policies and methods.

For many companies, pollution prevention (P2) is recognized as a vital element of environmental management. Nevertheless, pollution prevention often takes place in localized and small-scale efforts within individual facilities. This chapter describes how companies can capitalize on the relationship between EMSs and pollution prevention to enhance the effectiveness and success of their environmental programs.

### 6.1 - EMS and P2: A Strong Partnership

The benefits of pollution prevention can be significantly enhanced through an EMS framework. By incorporating pollution prevention concepts into day-to-day operations, a facility can more easily extend its pollution prevention program to all elements of facility management. This approach can ensure a broad awareness of pollution prevention issues, enhance relevant training and communication, and strengthen the facility's ability to recognize and capitalize on pollution prevention opportunities. Some of the benefits of integrating pollution prevention and management systems are:

- **Regulatory Compliance:** An EMS that integrates regulatory requirements with additional pollution prevention goals helps the facility identify or create opportunities for improvement, make their evaluation more systematic and predictable, and sustain improvements once they are implemented. The facility will meet both sets of goals more swiftly and effectively.
- **Health and Risk:** P2 meshes with risk reduction because the most dangerous materials are often the most difficult to dispose of. The EMS framework requires that a facility examine all of its environmental activities, products, and services (not just those that are regulated) to identify the ways in which those activities affect the environment, including workers, the public, and ecosystems. Incorporating this review in an EMS can help a facility lower its risk profile and manage liabilities before crisis situations arise.
- **Cost-Effectiveness:** The prospect of not having to pay direct and indirect costs associated with waste disposal, permitting, and environmental reporting has always offered a strong incentive for pollution prevention. Still, facility-specific pollution prevention efforts are often localized, small-scale, reactive, and not coordinated with other organizational activities. In many cases the costs of waste management are charged to general overhead costs, so their impact is not fully appreciated by managers of individual activities. Combining pollution prevention with an EMS can help to

ensure that pollution prevention considerations are identified and considered throughout a facility's waste management process. Through integration and improved efficiency, a well-designed EMS can enhance savings.

- **Public Confidence:** A pollution prevention ethic shows a commitment to responsible waste management and environmental stewardship. An EMS further builds public confidence by demonstrating that a facility understands the connection between its management practices and activities that affect the environment. It helps demonstrate that a company's primary mission can be fully compatible with environmental stewardship responsibilities. An effective EMS also contains elements of public outreach, encouraging facilities to be more open in communicating with the public.

- **Sustainable Development:** Although it may be difficult for any facility to precisely measure its contribution to sustainable development, robust pollution prevention programs can improve management of natural resources. Judicious use of resources is also in keeping with the public policies which encourage husbanding of resources to ensure their continued availability to future generations. An EMS can help facilities maintain focus on these long-term considerations.

## 6.2 - How Can an EMS Be Used to Integrate P2?

Several EMS elements can be particularly useful in strengthening pollution prevention programs. In addition, it can be easier to transfer successful pollution prevention approaches from one site to another if a unifying management framework is established. The EMS provides just such a framework. With an EMS, facilities will be able to identify more quickly those approaches that could be adapted to their unique conditions. The potential for incorporating pollution prevention into each EMS element is described in more detail below. Managers should keep in mind that adopting an EMS approach does not — and should not — require building programs from scratch. It should encourage adapting existing programs to work within the EMS framework to the fullest extent possible.

- **Integrating P2 into an Environmental Policy:** Adopting an EMS can make a facility's commitment more powerful by institutionalizing pollution prevention as a priority concern. All too often, pollution prevention gets "lost in the shuffle" when circumstances demand more attention for items deemed mission- or time-critical. By emphasizing pollution prevention as a basic foundation, an EMS can raise the profile of pollution prevention and help ensure that a P2 approach is adopted throughout a facility's activities.

- **Integrating P2 into the Identification of Environmental Aspects and Impacts:** Facilities can take advantage of the process of identifying environmental aspects and impacts to seek out and conduct pollution prevention opportunity assessments in areas that may not have been targeted previously. Similarly, opportunities for advancing sustainable development and reducing use of energy and natural resources can be pursued.

- **Integrating P2 into the Identification of Legal and Other Requirements:** By tracking

environmental legislation and other requirements, facilities can better integrate pollution prevention with environmental program activities. Early consideration of forthcoming regulatory changes allows facilities to respond with pollution prevention solutions and perhaps avoid regulatory thresholds and reporting requirements. Because many facilities already have internal networks that provide for review and comment on both internal and external (e.g., regulatory) requirements, pollution prevention can be given consideration when evaluating the means to meet these requirements.

- **Integrating P2 into Setting Environmental Objectives and Targets:** This EMS element encourages setting specific, measurable environmental performance measures (e.g., emission levels), that are already the policy of many facilities. Facilities can use this element to more thoroughly integrate pollution prevention measures as a means to meet these environmental goals.
- **Integrating P2 into the Development and Implementation of Environmental Management Programs:** This element provides facilities with an opportunity to examine their environmental programs, including pollution prevention. Facilities should ensure that environmental programs are integrated and communicated throughout the organization. In addition, measures should be included that allow new activities to be assessed for their environmental aspects and impacts. Facilities should consider incorporating pollution prevention related concepts such as life cycle analysis, total cost accounting, and design for the environment into their analyses.
- **Integrating P2 into the Assignment of Responsibility and Accountability:** Clear lines of responsibility need to be established so that everyone knows who has the authority to make decisions, and who is accountable for those decisions. Having a clear line of responsibility for pollution prevention can encourage suggestions for improving the program. Assigning responsibility and accountability should be consistent with facility policy.
- **Integrating P2 into Monitoring and Measurement:** Accurate and reliable performance measures are needed to assess the effectiveness of an organization's environmental performance and the effectiveness of the EMS. Similarly, adequate performance measures are essential to evaluating the performance of pollution prevention programs. Evaluating the performance of both the pollution prevention program and the EMS is needed to ensure there is a good fit between the two. Program improvements can be driven by the feedback obtained through performance evaluation, so personnel should be encouraged to consider innovative ways to improve both the pollution prevention program and the EMS. Many facilities already perform periodic self-assessments and thus already have a foundation upon which performance evaluation can be conducted.

## CHAPTER 7 - STEP-BY-STEP ACTION PLAN

Building an EMS might sound like an overwhelming task for a small organization, but it doesn't have to be. Time and other resources are limited in any small organization, so it is important that your resources are used wisely. One way to do this is by following a simple, effective plan.

The importance of careful planning cannot be overemphasized. Taking the time to figure out what you need to do, how you will do it, and which people must be involved will pay big dividends down the road. Using a team approach for building your EMS is a good way to improve commitment and ensure that the objectives, procedures and other system elements are realistic, achievable, and cost-effective.

The following EMS Action Plan contains suggested steps to develop and implement an EMS. The chapters of STEP 2: EMS Development and Implementation Guide are laid out to use the steps of the EMS Action Plan to create an EMS. STEP 3: EMS Template is a sample EMS that corresponds to the documentation requirements noted in STEP 2.

### 7.1 - EMS Action Plan

#### • Laying the Groundwork

**Obtain Management Commitment** - The first step in the EMS-building process is gaining top management's commitment to supporting the EMS. Management must understand the benefits of an EMS and what it will take to put an EMS in place.

**Choose a Champion** - A champion is a management representative who has the necessary authority for leading the development and implementation effort and for serving as a liaison to customers and regulators.

**Form an EMS Team** - A team made up of representatives from key management functions, production, and service areas. The team will identify and assess issues, opportunities, and existing processes.

**Build Support/Involve Employees** - Build support for your EMS by making a presentation to your company's managers and employees on what an EMS is and why the company is developing one.

**Conduct a Preliminary Review** - Conduct a preliminary review of your current environmental programs and systems, and compare these against the criteria for your EMS.

**Plan the Process** - Create a plan for the EMS effort.

- **Develop EMS Documentation: The EMS Manual** - Although EMS Documentation is an EMS Implementation element, it is addressed here because each EMS element must be documented throughout the development process. This is a good point to begin the organization of the EMS manual, since each ensuing step involves documenting activities that become part of the manual.

- **Establish a Communication Plan** - Communication is another EMS Implementation element. However, communication is an integral part of the EMS development, with more effective communication improving the efficiency of your EMS development. Therefore, it is necessary to start the process of developing communication procedures at this point to ensure that resources devoted to EMS development and implementation are used efficiently.

- **Create an Environmental Policy Statement** - The EMS Team will begin the process of developing an EMS by writing your company's environmental policy statement and deciding how much effort you want to expend at the start. This policy will be focused on the priorities of each specific organization.

- **Planning** - Formulate a plan to fulfill your environmental policy. In order to accomplish this:

  - Identify Environmental Aspects** - Your company's environmental aspects are any of your activities, products, or services that can interact with the environment. The environmental impact is any change to the environment, whether adverse or beneficial, resulting from the environmental aspects.

  - Identify Legal and Other Requirements** - In order to comply with laws and regulations that apply to your company, you must first know what the rules are and how they affect what you do. An effective EMS should include processes to identify and communicate applicable legal and other requirements, and ensure that these requirements are factored into the company's management efforts.

  - Establish Objectives and Targets** - Determine which environmental aspects are significant and prioritize them to determine what you want to address first.

  - Develop Environmental Management Program** - Establish an environmental management program that addresses all of your environmental objectives. The organization does not have to address all of its significant impacts at once, but must commit to work on each in an appropriate time frame that is right for the facility.

- **Implementation** - Develop the capabilities and support mechanisms necessary to achieve your environmental policy, objectives and targets. In order to accomplish this:

  - Develop Operational Controls** - To ensure that your environmental policy is followed and that your objectives are achieved, certain operations and activities must be controlled.

**Develop Emergency Preparedness and Response Procedures** - Emergency plans and procedures must be developed to ensure that there will be an appropriate response to unexpected or accidental incidents.

**Designate Organizational Structure and Responsibilities** - For your EMS to be effective, roles and responsibilities must be clearly defined and communicated.

**Establish Document Control** - To ensure that everyone is working with the proper EMS documents, your organization should have a procedure that describes how documents are controlled.

**Train Employees** - Once the procedures and other documents have been prepared, you are ready to implement the EMS. As a first step, train your employees on the EMS, especially with regard to the environmental impacts of their activities, any new/modified procedures, and any new responsibilities.

- **Checking/Corrective Action** - After the EMS is up and running, be sure to assess system performance. In order to accomplish this:

**Establish Monitoring and Measurement Procedures** - Monitoring and measurement enables you to gauge your environmental performance and analyze root causes of problems.

**Establish Nonconformance and Corrective/Preventive Action Procedures** - When system deficiencies are encountered, your organization will need a process to ensure that problems (including nonconformities) are investigated and corrective actions are identified and implemented.

**Establish Records Procedures** - Records prove that your organization is actually implementing the EMS as designed.

**Develop Audit Procedures** - Audits identify EMS deficiencies so that they can be resolved.

- **Establish Continuing Improvement**

**Management Review** - To ensure success and continuing improvement, regular reviews of your EMS are needed. Management reviews should be scheduled regularly to check on progress of the EMS and of the environmental programs set up to meet targets.

How much work each of the steps entails depends on how large your company is and the scope of work that you decide to undertake. It is not necessary for your EMS to include all your operations, especially for your first effort. As your experience in managing environmental

concerns along with your daily operations continues, you can develop your EMS further.

**Continue to STEP 2: EMS Development and Implementation Guide.**

**Appendix I**  
**NYSDEC Small Business Self-Disclosure Policy**

# SMALL BUSINESS SELF-DISCLOSURE POLICY



New York State  
Department of Environmental Conservation

<b>COMMISSIONER POLICY</b>		<b>Department ID:</b> CP-19	<b>Program ID:</b> N/A
<b>The DEC Policy System</b>			
<b>Issuing Authority:</b> Name: John P. Cahill Title: Commissioner Signature: John P. Cahill                      Date: 8/12/99 Issuance Date: August 12, 1999		<b>Originating Unit:</b> Office/Division: Environmental Enforcement Unit: Compliance Assurance Bureau Phone: (518) 457-4348 Latest Review Date (Office Use):	

**Abstract:** This document establishes the Department’s policy for adjusting penalties where small businesses detect, voluntarily disclose and expeditiously correct certain violations discovered through environmental audits or formal compliance assistance programs. If a small business satisfies the Policy criteria, the Department will limit the penalty to any significant economic benefit.

**Related References:** Clean Air Act, 42 U.S.C.A. §§7401 *et seq.*  
NYSDEC Enforcement Directive No. II, Civil Penalty Policy  
USEPA Policy on Compliance Incentives for Small Businesses  
USEPA Incentives for Self-Policing: Discovery, Disclosure, Correction and Prevention of Violations  
USEPA Clean Air Act §507 Small Business Assistance Program Policy

## I. PURPOSE

This document sets forth DEC’s Policy for promoting environmental protection and improving compliance rates by establishing a process for adjusting penalties where small businesses detect, voluntarily disclose and expeditiously correct certain violations discovered through environmental audits or compliance assistance. This Policy will provide the regulated community with greater certainty regarding the Department’s response to self-disclosed violations. This enhanced certainty will reduce the fear associated with reporting violations and thereby foster compliance auditing and compliance assistance.

As set forth in this Policy, DEC will adjust penalties when a small business makes a good faith effort to comply with environmental requirements by conducting an appropriate audit or receiving compliance assistance and expeditiously disclosing and correcting all violations. The Department will eliminate the gravity component of any payable penalty where a small business satisfies the criteria in section III.B. of this Policy. If an entity satisfies this Policy's criteria but obtains a significant economic benefit, DEC will waive the gravity component of the penalty and limit the penalty to the economic benefit component. In accordance with Federal and State Civil Penalty Policies, the Department will continue to recover all instances of significant economic benefit. The penalty adjustment shall not apply to circumstances such as those involving intentional wrongdoing or significant threats to health, safety or the environment.

## **II. BACKGROUND**

In an effort to assist the regulated community in complying with environmental regulations, and to achieve health, safety and environmental benefits, the Department is adopting a broad policy for all regulatory programs, including air, water and solid and hazardous materials. This Policy builds upon the principles set forth in the USEPA Policy on Compliance Incentives for Small Businesses and the USEPA Incentives for Self-Policing; Discovery, Disclosure, Correction and Prevention of Violations and will be implemented in a manner consistent with the Department's Civil Penalty Policy issued on June 20, 1990. Specifically, this Policy supplements the penalty adjustment provisions of the Civil Penalty Policy and Enforcement Guidance Memoranda Series and formalizes the Department's practice of exercising its prosecutorial discretion by eliminating or mitigating penalty demands for certain types of violations. In addition, this Policy is an element of the Department's implementation of the State's Small Business Technical and Environmental Compliance Assistance Program (see Clean Air Act §507 and Environmental Conservation Law §§19-0313 and 19-0315). Although this Policy addresses regulated entities that detect, voluntarily disclose and expeditiously correct violations, the Department also encourages development of appropriate environmental management systems and implementation of pollution prevention measures wherever practical.

## **III. POLICY**

### **A. APPLICABILITY**

For purposes of this Policy, "small business" means any business that is independently owned and operated, not dominant in its field, and employs 100 or fewer individuals (across all facilities and operations owned by the entity)<sup>1</sup>. State agencies, municipal corporations and public benefit corporations employing 100 or fewer people are also eligible for penalty mitigation in accordance with this Policy. Although this Policy is expressly limited to small business, agencies and municipal and public benefit corporations, it discusses factors that may be relevant when assessing penalties for violations self-disclosed by regulated entities of all sizes.

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<sup>1</sup>The number of employees should be considered as full-time equivalents on an annual basis, including contract employees. Full-time equivalents means 2,000 hours per year of employment. (See CFR §372.3.)

This Policy applies to all civil, judicial and administrative enforcement actions taken under the authority of the environmental statutes and regulations that DEC administers. This Policy applies to actions commenced after the effective date of this Policy, as well as pending cases in which the Department has not reached agreement with the alleged violator on the amount of the civil penalty. This Policy does not apply to criminal actions.

This Policy sets forth how the Department expects to exercise its enforcement discretion in deciding on an appropriate enforcement response and determining an appropriate civil settlement penalty for many types of violations. This Policy is not final agency action and is intended as guidance. It does not create any rights, duties, obligations or defenses, implied or otherwise, in any third parties. This Policy is to be used for settlement purposes only and is not intended for use in pleading or at hearing or trial. To the extent that this Policy may differ from the terms of the applicable enforcement response policies (including penalty policies) under media-specific programs, this document supersedes those policies. Any penalty mitigation, however, will be consistent with the Department's Civil Penalty Policy.

If a regulated entity does not satisfy all of the following criteria or does not meet the definition of small business, this Policy does not provide any special penalty mitigation. Good faith efforts to detect, voluntarily disclose and expeditiously correct all violations will, however, generally constitute violator cooperation and warrant a penalty adjustment in accordance with the Civil Penalty Policy and other applicable penalty guidance. This Policy does not limit DEC's discretion to use information on violations revealed through self disclosure or compliance assistance as evidence in subsequent enforcement proceedings that may be appropriate (*e.g.*, violations not corrected in a timely fashion).

## **B. CRITERIA FOR CIVIL PENALTY MITIGATION**

DEC will eliminate the gravity component of any payable penalty in any enforcement proceeding where a small business satisfies all of the following criteria:

### **1. Good Faith Efforts**

Good faith requires that an entity make reasonable efforts to assess compliance and promptly disclose and expeditiously correct all violations, including violations that may not qualify for penalty mitigation under this Policy. Facilities must also cooperate with DEC by providing information relevant to applicability of this Policy. A good faith effort to comply with applicable environmental requirements must be demonstrated by conducting an environmental audit or accepting compliance assistance. This Policy does not apply to violations revealed by legally mandated monitoring or sampling.

a. Qualifying Audit Programs. Violations identified through a qualifying audit program are eligible for penalty mitigation. Qualifying audit programs are limited to either (i) an environmental audit that is "systematic, documented, periodic and objective review by regulated entities of facility operations and practices related to meeting environmental requirements," or (ii) a documented, systematic procedure or practice which is an element of an appropriate due diligence program for preventing, detecting and correcting violations. *See* EPA's audit policy entitled, *Incentives for Self-Policing*, 60 F.R. 66706, 66711, December 22, 1995. The initial audit of a newly implemented self-audit program or outside party audit program qualifies.

b. Compliance Assistance. Entities may also demonstrate good faith by receiving compliance assistance from a government or government supported program that offers services to small businesses and promptly disclosing all violations detected during the compliance assistance by the

regulated entity to DEC. Compliance assistance is information or assistance provided by DEC, a state or another government agency or government supported entity to help the regulated community comply with legally mandated environmental requirements. Compliance assistance does not include inspections or enforcement actions. The penalty mitigation provided by this Policy only applies to civil violations which are identified as part of an on-site compliance assistance visit to the facility or a State sponsored formal outreach program such as the Small Business Technical and Environmental Compliance Assistance Program (Program). Provided, however, the facility must also disclose all instances of known or suspected noncompliance, including requirements that may not be addressed through the outreach campaign or on-site assistance.

This Policy does not create any right or entitlement to compliance assistance, and a small business that requests on-site compliance assistance will not necessarily receive such assistance. State or Federal actions in providing, or not providing, compliance assistance are not a legal defense in any enforcement proceeding.

## 2. Compliance History

Regulated entities that have previously violated an order, stipulation, decree or agreement with the Department are not eligible for penalty mitigation. Facilities that have received a warning letter, notice of violation or field citation, or paid a penalty or executed an order, stipulation, decree or other agreement regarding a citizen suit or an enforcement action or proceeding by a government agency *for a violation of the requirement being disclosed* within five years are not eligible for penalty mitigation. The Department will generally decide not to adjust penalties where a facility has been subject to two or more penalty demands for alleged violations of *any* State or Federal environmental requirements in the past five years.

In the event that a facility changes ownership and management, and the new owners and managers have no relationship to the previous owners and managers, violations that occurred prior to the change will not disqualify a candidate.

## 3. Disclosure

All known or suspected violations must be fully disclosed in writing within 30 days after discovery and voluntarily disclosed before they are otherwise discovered by, or reported to, a regulatory agency. Violations must be disclosed prior to: (a) announcement, scheduling or commencement of a federal, state or local agency inspection or investigation, including but not limited to issuance of an information request to the regulated entity; (b) notice of a citizen suit; (c) filing of a complaint by a third party; (d) reporting of the violation to a government agency by anyone not officially authorized to speak on behalf of the regulated entity; or (e) other situation likely to result in discovery of the violation by a regulatory agency<sup>2</sup>. The entity must disclose all instances of known or suspected noncompliance, including those that may not warrant any penalty adjustment. Violations required to be reported by statute, regulation or permit do not qualify for penalty mitigation.

## 4. Actual or Potential Harm

Violations that cause serious harm to public health, safety or the environment are not eligible for penalty mitigation. For example, violations which require significant remedial efforts or which result in

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<sup>2</sup>Informational mailings to an industry sector regarding upcoming compliance requirements alone do not indicate likely discovery of violations.

exceedences of air or water quality standards (e.g., 6 NYCRR Parts 257 and 703) typically will not qualify. Violations that present a significant threat to public health, safety or the environment are also excluded. For example, violations of 6 NYCRR §555.1, which prohibits the abandonment of an oil and gas well without properly plugging such well, may not qualify.

5. Culpability

Violations that the Department alleges were committed with any of the culpable mental states defined in Penal Law §15.05 (intent, knowledge, recklessness and criminal negligence) or gross negligence do not qualify for penalty mitigation. Referral for criminal prosecution is not necessary for culpability to disqualify a candidate.

6. Return to Compliance

All violations must be remedied within the shortest practicable period of time, not to exceed 180 days following detection of the violation, and in accordance with an acceptable compliance schedule and, if appropriate, work plan. In certain circumstances DEC may determine it is appropriate to authorize up to a period of one year from the date the violation is detected. Appropriate measures to prevent reoccurrence of such violations must be implemented in all circumstances.

## **IV. RESPONSIBILITY**

The Regional Enforcement Coordinators (RECs) will be responsible for: (i) assessing whether applicants meet the criteria set forth in this Policy; (ii) ensuring that all Staff approvals necessary for penalty mitigation are obtained; (iii) ensuring that violations disclosed pursuant to this Policy are corrected in accordance with the approved work plan; and (iv) providing the Division of Environmental Enforcement (DEE) Director and the Office of Regional Enforcement Coordination with quarterly reports regarding implementation of this Policy.

The Pollution Prevention Unit will be responsible for coordination of a comprehensive outreach effort regarding this Policy in conjunction with the Environmental Facilities Corporation's Small Business Assistance Program and Empire State Development's Environmental Ombudsman's Unit.

The DEE Director will be responsible for ensuring that this Policy is implemented consistently across the State and providing Executive Staff with an annual report on the implementation of this Policy by January 31 of each year.

## **V. PROCEDURE**

An applicant must submit the attached Violation Disclosure Form certifying that it is eligible for penalty mitigation pursuant to this Policy to the appropriate Regional Enforcement Coordinator.

The REC will, in consultation with appropriate Department Staff and pursuant to procedures adopted by the Regional Director, promptly determine whether the disclosure satisfies the criteria of this Policy.

The REC will provide the Regional Attorney, with a copy to the DEE Director, with a confidential memorandum proposing a response to the Violation Disclosure. This memorandum will explain why the application for penalty mitigation should be accepted or rejected.

The assigned enforcement attorney will notify the applicant in writing of the Department's eligibility determination and promptly proceed in accordance with applicable guidance and procedures.

Any questions regarding the Department's eligibility determination or interpretation of this Policy will be resolved by the General Counsel or designee.

Attachment

# VIOLATION DISCLOSURE FORM

## Applicability

This disclosure form is submitted on behalf of \_\_\_\_\_, which is independently owned and operated, not dominant in its field, and employs 100 or fewer individuals (across all facilities and operations owned by the entity). This number of employees is based on full-time equivalents on an annual basis, including contract employees. This disclosure form is submitted regarding violations occurring at \_\_\_\_\_.

## Criteria for Penalty Avoidance

1. The entity has made a good faith effort to assure compliance by either: i) performing a compliance audit (a systematic, documented, periodic and objective review of all operations and practices related to meeting environmental requirements); or, ii) receiving official on-site compliance assistance or formal outreach;
2. Within the past five (5) years, the facility has not been subject to a citizen suit or any government enforcement action, including issuance of a NOV, regarding the specific regulatory requirements disclosed, or subject to two or more penalty demands for any alleged environmental violations and the business has never violated an order, stipulation or agreement with the Department;
3. All known or suspected violations are being voluntarily disclosed within thirty days of discovery;
4. The violations did not cause serious harm to public health, safety or the environment. The violations did not present a significant threat or imminent danger to public health, safety or the environment;
5. The violations were not intentionally, knowingly or recklessly caused and were not the result of criminal negligence or gross negligence;
6. All violations have been corrected or will be corrected as indicated in the following table and in accordance with any attached compliance schedule or work plan. The stated schedule is the shortest practicable period of time for correcting the violations. Appropriate measures have been implemented to prevent reoccurrence of the disclosed violations; and
7. The violator did not derive any economic benefit from the violations; or any economic benefit was limited to \_\_\_\_\_.

## Certification

I, \_\_\_\_\_, certify that I am a responsible official of \_\_\_\_\_ and I am authorized to submit this form and the attached violation list and any attached work plan/compliance schedule to the New York State Department of Environmental Conservation.





# **Appendix II**

## **Case Studies**

## MILAN SCREW PRODUCTS

### **Background**

Milan Screw Products is a small manufacturing firm located in southeastern Michigan that employs 32 individuals. Milan Screw Products manufactures precision fittings for the fluid power, automotive, and refrigeration industries, and is registered to the ISO 9002 Quality Management System Standard. There are approximately 1,500 companies in the United States in the screw-machine products industry. Most of these companies are family-owned and family-managed, and typically have approximately 50 employees.

While there are generally few hazardous materials used in the screw-machine industry, there are environmental issues associated with the containment of coolants and cutting oils, the substitution of chlorinated solvents, and the disposal of waste oils. The most persistent environmental challenge is the containment of cutting oil within production machines. Many screw-machine shops have production equipment that was manufactured in the 1950s, which may have leaky gearbox covers and inadequate oil splash guards. The cutting oils also create cleaning and disposal issues (e.g., stained carpets; waste bins filled with saturated oil absorbents swept from the shop floor; and liquid wastes from the solvents and soaps used in cleaning).

While many shops have simply accepted the oily film that soon coats everything from the light fixtures to the floors, Milan Screw Products decided that it was going to improve the management of its environmental issues. Top management recognized that a clear environmental policy, objectives and targets, written procedures, training, and corrective action (elements similar to its quality management system), would help them to proactively manage their environmental practices. The motivation to implement an EMS was derived from the company's desire to improve its environmental performance, and in light of the company's quality management system experience, the EMS approach seemed to be the best way to achieve it. Milan Screw Products was soon committed to implementing an environmental management system.

### **EMS Implementation**

One of the first steps in the implementation of the EMS at Milan Screw Products was the establishment of a cross-functional environmental task group. Top management appointed five representatives from production, support, and management. The environmental task group is responsible for assuring continued regulatory compliance (including the submission of all permits/forms to federal, state, and county environmental agencies), and improving the company's environmental performance. Milan Screw Products found that participation of shop-floor employees is essential to the successful implementation of an EMS because it encourages their ownership of the process. Top management was pleased with the heightened environmental awareness among task group members and their growing

understanding of the company's environmental responsibilities. In addition, environmental compliance activities were soon effectively managed by the environmental task group and would only require top management review.

While progress had been made, the organization was lacking a structure for its EMS program and had no means to measure progress. In March 1995, Milan Screw Products joined the EPA-sponsored EMS Demonstration Project at NSF International. One of the first steps in the project was the self-assessment process. Milan Screw Products completed NSF's EMS Self-Assessment Tool, which is a checklist that enables an organization to determine how its EMS measures up against an EMS standard, such as ISO 14001. Milan Screw Products' score was very low because they did not have a formal EMS in place. The score did not discourage Milan Screw Products and the company set a goal for itself — complete EMS implementation by June 1996.

### **Policy**

Milan Screw Products developed an environmental policy that includes a commitment to regulatory compliance, continual improvement, and the prevention of pollution. The environmental policy was modeled after the organization's quality policy, which was developed with the help of a consultant.

### **Planning**

In order to determine the company's environmental aspects, the environmental task group members set up an easel and participated in a brainstorming session. The task group listed all of the company's inputs (e.g., energy, water), outputs (e.g., oil mist, noise), and conversions (e.g., steel bars to chips, and cutting oils to mist). The task group examined the company's purchases, processes, and waste streams. The task group also identified the company's stakeholders. Some of the stakeholders were interviewed so that the company could gain a better understanding of their environmental concerns. These stakeholder concerns were added to the list of environmental aspects. A neighbor reported that their only concern was that oil from the shop could damage their lawn. A supplier's sales representative reported that the oil on his shoes was a nuisance. Customers were pleased to learn that the company was implementing an EMS because they want to be assured of continued production (fines imposed on a small company could result in a shut down). The task group also interviewed employees and some of their family members. All in all, the environmental task group did an excellent job at identifying their environmental aspects. The task group then rated the probability of an environmental impact occurring against the severity of the impact. They then grouped the environmental aspects/impacts in general categories (e.g., oil-related problems).

It soon became clear that the company's primary objective was oil recovery. The top management at Milan Screw Products had been contemplating the need for a new facility. The identification of the company's environmental aspects/impacts provided additional motivation for the development of a new facility. The environmental aspects/impacts that were

identified and the company's EMS have played a role in determining how the new facility will be built. The company will continue to perform oil recovery practices, but will not set numerical targets until the new facility is complete. Milan Screw Products started its first EMS cycle with reasonable objectives that focus on its manufacturing practices. Over time, the company will continually improve its EMS and hopes to include objectives such as the recycling of office paper.

The environmental task group will continue to be responsible for keeping Milan Screw Products fully in compliance. The company has found that its trade association has been a tremendous help in keeping them abreast of environmental compliance issues.

Milan Screw Products intends to develop its environmental management program at its current facility and will improve the EMS at the new facility. The new facility will help the company to achieve its environmental objectives and targets.

### **Implementation and Operation**

Milan Screw Products has found that the structure and responsibility requirements of the ISO 14001 Standard are easier to manage in a small company. Milan Screw Products has developed six teams (each composed of individuals with similar job descriptions) for the quality management system; the teams have been given more decision-making authority and have been an effective element of the quality management system. These teams will help with environmental issues over time. The environmental task group will continue to spearhead the EMS program — the owner, plant manager, quality manager, safety manager, plant supervisor/environmental coordinator, and a representative from production staff are actively involved. The key to success in a small company appears to be the team approach, since there is often no one that can be solely dedicated to managing environmental affairs.

Since finding the time to do employee training can be a challenging aspect of running a small business, Milan Screw Products has scheduled training sessions a half hour before or after the employees' normal shift. Their best success has been with "brown bag" sessions where the employees bring their lunches, listen to the training presentation, and remain "on-the-clock" for their lunch/training period. Milan Screw Products has also found that videotaping training sessions can be helpful for new-hire training. The environmental task group has helped with training by gathering training materials.

The team approach that has been developed at Milan Screw Products has been an effective means of fostering good internal communication procedures. In addition, Milan Screw Products has gone beyond the requirements of the ISO 14001 Standard by soliciting the opinions of external interested parties. The company has found that a good external communication program has resulted in a lot of benefits because it builds trust. The company has been straightforward with its community about potential oil problems, and the community has been very supportive of their efforts and of their plans for a new facility. The external communication program helped them identify some of their environmental aspects, and has

helped them to communicate with their customers. Milan Screw Products' customers appreciate that it is an environmentally-responsible company that is a leader in its industry. Since Milan Screw Products has a registered quality management system, they have a sound document control program in place. As mentioned previously, a quality management system consultant helped the company with their ISO 9002 implementation, and the document control procedures for quality will be adapted where applicable for the EMS. Milan Screw Products is still in the process of establishing its EMS documentation.

As part of their brainstorming session, the environmental task group also listed potential emergencies. The company used this information when it reviewed its emergency preparedness and response procedures. The EMS implementation process helped the company to consider possible areas of liability that it had previously overlooked (e.g., a delivery truck leak).

### **Checking and Corrective Action**

Milan Screw Products has made some preliminary calculations of some of its environmental aspects. The new facility will facilitate the quantification of its environmental aspects and impacts. The company intends to build on its quality management system corrective and preventive action procedures to help them develop their EMS. In addition, the company intends to utilize some of the lessons it has learned about data collection and monitoring and measurement through its quality operating system and will apply these lessons to the EMS over time.

Milan Screw Products has gained experience with management system audits through its quality management system implementation. Top management has performed quality management system audits with the help of an auditor training guide that their quality management system consultant developed for their organization. The company has done in-house auditor training with the help of the guide and has used the auditor training guide for its EMS audits where applicable. Top management and the plant supervisor/environmental coordinator have performed an EMS audit, even though they have not yet fully implemented the ISO 14001 Standard.

### **Management Review**

Milan Screw Products Management Review Board meets monthly. The company also performs an annual review of its operations. A third-party (consultant) is used to verify the results of the company's annual in-house review. The EMS is being incorporated in the management review process of the company.

## **The Milan Screw Products' Experience**

While Milan Screw Products has not completely implemented its EMS, it has made significant progress over 1 ½ years. Due to the groundbreaking for the new facility in June 1996, the organization had to shift its priorities to new construction (it is now hoping to completely implement its EMS by April 1997). Top management at Milan Screw Products stated that organizations that choose to implement an EMS should not get discouraged if the EMS implementation needs to be set aside occasionally. You can start, stop, and resume your efforts as needed — your aspects won't change unless you change your processes or products — and any progress that you have made will still be there.

Milan Screw Products' top management believes that there are numerous potential benefits associated with a successful EMS. Specifically, the company determined that an EMS could improve employee retention, new hire selection, working conditions, and the perceptions of its suppliers, lenders, customers, neighbors, and regulators. The EMS will also ease management concerns that an environmental problem could arise from simple ignorance or lack of training. The company's top management has stated that it may be difficult to perform a cost/benefit analysis on the value of EMS implementation because several of the potential benefits are intangible and cannot be given a monetary value. Milan Screw Products' proactive environmental program has improved its stature and fostered communication with regulatory agencies. Top management also believes that the company will benefit from being one of the first in their industry to successfully implement an EMS — it may encourage their customers to perceive the company as being more innovative, more responsible, and perhaps more desirable than their competitors. Top management has reported that it is impossible to tally citations that are not written, fines that are not levied, nor lawsuits that are not filed. Milan Screw Products' top management has also stated that many of the benefits of an EMS cannot be anticipated beforehand, and that an organization will discover them as pleasant surprises at some point after implementation.

To date, the biggest challenge that Milan Screw Products has encountered while implementing an EMS has been allocating the human resources to the EMS project while production demands are high. The company has also had to overcome old practices by explaining the rationale behind its desire to successfully implement an EMS.

Milan Screw Products has not calculated the costs of EMS implementation to date. Top management reports that it is difficult to attribute costs/benefits at this stage of EMS implementation, particularly since the company is in a transition phase due to the new construction. While it is too early to quantify costs and benefits, top management is confident that the benefits will outweigh the costs — early projections of their oil recovery savings at the new facility are estimated to be \$20,000 per year.

Milan Screw Products will integrate its ISO 9002 quality management system with its ISO 14001 EMS. The company is developing one manual that will incorporate both quality and environmental management system elements. For example, the organization has a quality policy on white paper and its environmental policy on blue paper on facing pages. The documents also refer to one another where appropriate. The document control programs for

both systems will be fully integrated as well. In addition, the audit function will be integrated once auditor training for the EMS is complete.

Top management at Milan Screw Products has not determined if the company will pursue EMS registration in the future. Top management has stated that it will depend on factors such as costs and customer demand. The company intends to completely implement its EMS and will evaluate the need for registration next year. Top management has stated that obtaining EMS registration would be a great satisfaction and it may improve their customers' perception of the company, but it has not determined whether or not it can justify the costs.

Milan Screw Products encourages other small companies to implement an EMS because it believes that small companies may not have sufficient resources to mitigate environmental problems. An EMS can help a small or medium-sized organization prevent environmental problems which may keep a small company in business. Top management at Milan Screw Products has stated that an EMS enables an organization to look at its business from another perspective. Organizations have considered quality, safety, etc., as integral parts of their business and should look at their business from the environmental perspective as well. All of the various perspectives result in greater opportunities for improving the organization as a whole.

## **HACH COMPANY**

### **Background**

Hach Company is an international manufacturer and distributor of instruments and reagents for colorimetric testing, with annual sales over \$100 million. Hach Company manufactures spectrophotometers, colorimeters, turbidimeters, and portable testing equipment for the water and wastewater markets. The company manufactures instruments at its headquarters in Loveland, Colorado, and has a chemical manufacturing and distribution plant in Ames, Iowa. The Hach Company is registered to ISO 9001 and is a member of the Chemical Manufacturers Association's Responsible Care® program.

Hach Company participated in the EPA-sponsored EMS Demonstration Project at NSF International, and decided to pilot EMS implementation at its Ames facility. The Ames facility has approximately 300 employees and faces environmental management challenges due to its many chemical production processes. The Ames facility is the only Hach facility that is currently participating in the CMA's Responsible Care® program. Hach Company decided to implement an EMS at its Ames facility for several reasons. The company felt that a sound EMS would: 1) provide assurance to the officers, board of directors, and company stockholders that the company will continue to meet regulatory compliance requirements and is prepared to handle other environmental issues; 2) provide a framework to maintain support and resources from senior management to meet environmental objectives and targets; 3) help create market opportunities for the organization; 4) be a mechanism to gauge environmental performance; and 5) help the company identify its responsibilities beyond compliance in order to meet the needs of stockholders, employees, neighbors, customers, vendors, and suppliers.

### **EMS Implementation**

In order to examine the Ames facility's environmental strengths and weaknesses, the facility's Quality Director performed an initial self-assessment of the EMS. The Quality Director reviewed the EMS standard and interviewed the environmental safety and health staff at length. The Quality Director determined that the facility's EMS complied with approximately 30 percent of the EMS standard, which was consistent with the expectations of the Environmental, Safety and Health (ESH) staff at this early stage of EMS implementation. This process provided the ESH staff with a benchmark from which they could measure progress as they continued to improve the facility's EMS.

### **Policy**

Hach Company had previously developed an environmental policy but added additional policies to completely fulfill the CMA's Responsible Care® Program's objectives, and the policy requirements of the EMS. Hach Company has issued its Corporate Environmental and Safety Policies which address continuous improvement, periodic assessments, product stewardship,

regulatory compliance, operations, facilities, and employee health and safety. In addition, the President of Hach Company has issued The President's Commitment, which expresses top management's commitment to environmental stewardship and safety for employees and customers.

## **Planning**

In order to determine the Ames facility's environmental aspects, the environmental safety and health (ESH) department reviewed the table of contents of their new ESH manual. The table of contents helped them to develop an informal environmental effects register and a safety register. The group then examined how environmental regulations affect their company; they examined federal requirements (e.g., Clean Water Act, Safe Drinking Water Act, Clean Air Act, etc.), in addition to state and local environmental regulations. The ESH staff proceeded to explore the facility's environmental aspects and resulting impacts beyond those addressed by environmental regulations. They always strive to do the right thing — even if it is not required by law. The group developed a three to four page document that focused on the facility's operations and processes and less on aspects such as energy use.

The group developed their environmental effects register to help them set objectives and targets. The ESH staff is taking a systematic approach to setting objectives and targets. The objectives are focused at maintaining compliance and tackling issues that had previously been unresolved, such as waste disposal costs. One particularly important environmental issue for the company is determining the impact that the company's chemical products have on its international customers (35% of the company's products are sold internationally). These impacts will also be considered when setting objectives and targets.

The ESH staff have access to copies of federal and state regulations, manuals, journals, on-line resources, and software packages that help them to keep abreast of all pertinent environmental regulations and statutory requirements. Although the company is very good at maintaining regulatory compliance, the new procedures that they have developed for their legal and other requirements have helped to make their compliance activities more focused and efficient. The procedures that they follow to ensure compliance are properly documented and will protect the company in the event of employee turnover. The ESH staff at the Ames facility is developing extensive written procedures to address their compliance activities that are above and beyond those required by the ISO 14001 Standard.

Hach Company has staff members that are dedicated to managing the company's environmental, health, and safety issues; hence, the company rarely uses outside consultants. The environmental management program at the Ames facility is well-positioned to meet its environmental objectives and targets.

## **Implementation and Operation**

The ESH staff at the Ames facility believes that the structure and responsibility requirements of an EMS are easier to achieve in a medium-sized organization than in a large one. The staff at the Ames facility has been given the autonomy to implement an EMS at their facility without extensive corporate supervision. This has made the process easier because the lines of communication are shorter and the EMS can be focused on the operations of one facility. The Ames facility has an excellent training program due in part to the commitment of resources in this area (the facility has a full-time ESH training coordinator). Implementing the EMS has helped with the facility's ESH training by helping to define training objectives. The ESH staff is also developing procedures for all ESH training curricula. The documented procedures will describe the goals and objectives of training and establish a curriculum for applicable programs.

Internal communication within the Ames facility has improved due to EMS implementation. The ESH staff are working with members of the operations, design, and purchasing departments so that the groups can work together to set reasonable objectives and targets that complement the goals set by other departments within the organization. Environmental issues are becoming an integral part of the business.

The Ames facility is still in the process of completing its EMS documentation. The ESH staff started to develop an ESH manual in September 1995. The group was hoping to have the manual completed in one year; they now expect to complete it by May 1997. The ESH manual that is being developed by the Ames facility staff is somewhat unique in that it must be able to accommodate the extreme diversity of their operations — the manual must address over 6,500 chemicals (the Chemical Hygiene Program alone is described in approximately 90 pages). The ESH staff at the facility includes two college students that are working at the facility as temporary employees to develop some of the documentation (i.e. procedures) necessary for a successful EMS. The students have been very helpful — they ask a lot of questions and explain the procedures clearly and without jargon. The ESH staff has also run some mock-drills or table-top exercises of its procedures.

Because Hach Company is registered to ISO 9001, the ESH staff has been able to learn valuable lessons from the quality management system staff, including information about document control practices. As the ESH staff began implementing their EMS, they discovered that they were not as good at document control as they had previously believed. The ESH staff has indicated that a sound document control system is crucial to a successful EMS — without it, sooner or later someone will be working from an old version of a procedure. The ESH staff has not used any software packages to revise their document control system; the system is managed electronically by a top ESH staff member.

## **Checking and Corrective Action**

As mentioned previously, the ESH staff at the Ames facility are developing extensive written procedures to address their compliance activities including those that pertain to monitoring and measuring activities. These procedures will be included in the ESH manual. The ESH staff has the opportunity to build upon the facility's quality management system corrective and preventive action procedures to help them develop and successfully implement their EMS. After the initial self-assessment audit which was performed by the Quality Director, the ESH staff performed an informal interim audit. The Quality Director performed a second formal audit of the EMS after one year of implementation. The ESH staff was pleased with the audit process because the quality management system staff had extensive experience with auditing management systems. The Quality Department acted as an independent party and performed a very thorough audit. The Quality Department has stressed that the ESH staff must document how they do things. There were times when the EMS element was in place but needed to be documented.

## **Management Review**

The management review requirements in the ISO 14001 Standard have not been implemented at the Ames facility. The ESH staff members at the facility do not intend to fulfill the requirements of the management review section of the standard unless they decide to pursue EMS registration. They do not believe that the management review process adds value to the EMS until registration is sought. Hach Company believes that all other elements of an EMS can be implemented without management review.

## **The Hach Company Experience**

The initial assessment of the Ames facility's EMS showed that the EMS complied with approximately 30 percent of the EMS Standard. After six months of fairly dedicated implementation efforts, the ESH staff successfully implemented approximately 58 percent of the Standard, and after one year of implementation they have successfully implemented approximately 71 percent of the ISO 14001 Standard. During this time, the ESH staff's primary goal was to continue to ensure regulatory compliance. EMS implementation efforts were carried out whenever time permitted.

Hach Company believes that there are numerous potential benefits associated with the successful implementation of an EMS (e.g. assurances to stakeholders; a framework to maintain support and resources from senior management; market opportunities; a mechanism to gauge environmental performance and to identify responsibilities beyond compliance). During the EMS implementation process, the Ames facility started to observe improvements in its environmental performance. Waste disposal costs dropped 70 percent in one year. The EMS was a contributing factor to the cost reduction, along with the company's quality focus and continuous improvement efforts.

Since the EMS has not been completely implemented and the system is relatively new, the benefits have been hard to quantify, but they are there. The EMS program helped to spearhead a major renovation program within the facility for safety and environmental improvements. Employees have started to ask questions and are carefully following procedures. In addition, the ESH Department is getting additional respect from other business units. The ESH staff will continue to ensure compliance, and they are working closely with plant managers to minimize the impact of compliance activities on production. The ESH staff is now in the position to discuss why they want to go beyond compliance and what the business reasons are for doing so.

One of the challenges that the ESH staff at the Ames facility experienced as they implemented the EMS, was the difficulty they had driving the EMS down through the organization and up through the management. The ESH function is often viewed as a separate entity in many organizations and not an integral part of the business. This perception was initially a barrier to EMS implementation. ESH is now viewed as a more integral part of the operation.

The implementation of the EMS and its associated costs can be difficult to quantify. The ESH staff does not intend to complete a comprehensive analysis of EMS implementation costs unless the organization chooses to further explore EMS registration. To date, the most significant costs are due to personnel expenditures and office supplies. The ESH staff at the Ames facility has estimated that if the facility had to start from scratch, EMS implementation over a two-year period would cost approximately \$20,000 - \$30,000 per year. Hach Company estimates that a company must be willing to commit at least one person-year to implementation of an EMS. The ESH staff cautioned that some of the costs of implementation can be hidden, but must be accounted for (e.g., indirect labor, training, etc.). The Ames facility spent approximately \$5,000 on supplies and printing costs for EMS implementation. The ESH staff reported that initially the costs of EMS implementation can outweigh the benefits, but an EMS can help prevent an environmental problem and strengthen an organization's commitment to be a good corporate citizen.

Currently, there are no plans to integrate the ISO 14001-based EMS and ISO 9001 programs at the Ames facility. The quality management system staff has suggested that operating parallel systems is the best approach for both the ESH and quality departments at this time. The quality management system was adapted from existing procedures and could possibly be more efficient; the EMS has the opportunity to start from scratch and may be able to develop elements that are more effective and more appropriate for ESH issues. In addition, the quality management system staff are hesitant about fully integrating an "immature" EMS into their quality management system in the event that it might jeopardize the company's ISO 9001 registration status. In the event that the company chooses to pursue EMS registration, the issue of integration will be revisited, because integration could result in synergy and cost-savings for both programs.

Hach Company has not determined if it will pursue EMS registration. The company will "wait

and see” if market forces, particularly demands from their international customers, and potential regulatory incentives will provide sufficient benefits to offset the costs of registration. The ESH staff may not attempt to comply with the remaining 20 - 25 percent of the ISO 14001 Standard unless the company decides to pursue EMS registration. In the event that the company decides to pursue EMS registration, the ESH staff is confident that it will be easy to put the remaining elements in place, given sufficient notice, time, and planning.

While questions remain about the value of EMS registration, Hach Company has been able to make some conclusions about EMS implementation at its Ames facility. There were concerns initially about the EMS fitting within the company’s culture, but the ESH staff is pleased to report that the EMS has helped to bring about a positive culture change within the organization. The EMS approach agrees with the company’s audit policies and procedures, because it fosters a systematic approach that lends itself to reevaluation. In addition, the process of evaluating the strengths and weaknesses of the facility’s EMS has identified opportunities for improvement. Hach Company believes that it has benefited from assessing and improving the EMS at its Ames facility.