



WasteWise Update

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Preserving Resources,
Preventing Waste

ENVIRONMENTAL MANAGEMENT SYSTEMS

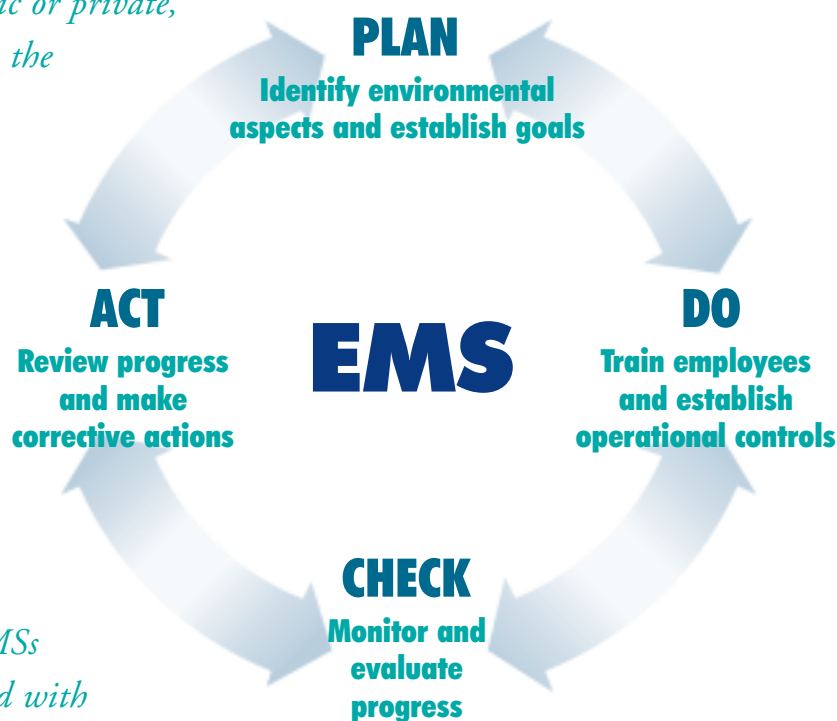
Environmental Management Systems

Every organization, whether public or private, large or small, has an impact on the environment and an interest in achieving good management practices. That helps explain

why a growing number of organizations are using Environmental Management Systems (EMSs) to achieve process, resource, labor, and material efficiencies that translate into meaningful environmental improvements, safer and healthier workplaces, and improved competitiveness. Many

WasteWise partners request information on EMSs and guidance on how EMSs can be coordinated with their WasteWise activities. At the same time, WasteWise has

heard from partners implementing their own EMSs with great results. This Update provides an overview of EMSs and shares the lessons learned and best practices of some of our partners.



What Is an EMS?

An EMS is a formal set of policies and procedures that define how an organization will evaluate, manage, and track its environmental impacts. In practice, the specific structure of EMSs can vary widely, but most EMSs follow a basic “Plan-Do-Check-Act” model that facilitates cost-effective environmental performance by defining and continuously improving the processes and actions that an organization undertakes to meet its business and environmental goals.

Typically, EMS development begins with a policy statement that communicates an organization’s environmental priorities to employees, stockholders, and customers.

Management endorsement of the policy statement demonstrates the organization’s commitment to the effort and willingness to allocate resources for implementation. Once a policy statement is in place, the organization implements it following the “Plan-Do-Check-Act” model, which facilitates ongoing environmental improvement.

- **Plan.** During the “Plan” phase, an organization identifies all of its environmental aspects—any environmental or health and safety impacts resulting from its products, activities, and services. The organization then evaluates each aspect according to a variety of criteria (e.g., environmental and health effects, economic impacts, liabilities) to determine which should be treated as significant

aspects. After establishing a complete list of significant aspects, the organization sets its environmental goals and develops a plan to achieve those goals.

- **Do.** The “Do” phase of the model involves implementation of the environmental plan through employee training and establishment of operational controls. For an EMS to be effective, each employee must be trained on his or her role in addressing the significant aspects identified by the plan, and procedures must exist for orienting new employees into the system. Operational controls are procedures that provide direction for employees conducting specific activities, and can also include investments in technologies that conserve resources or prevent pollution. For example, if an organization makes paper reduction a high priority, it might invest in duplex copiers to cut down on paper waste.
- **Check.** During the “Check” phase, an organization evaluates its progress toward meeting its program goals through ongoing monitoring and measuring and periodic internal EMS audits. The success of this phase depends on the organization’s ability to accurately monitor and measure key activities and track progress by maintaining a usable recordkeeping system. Tracking environmental progress allows the organization to quantify successful components of its environmental program and identify areas that need improvement.
- **Act.** Finally, the “Act” phase of an EMS involves taking corrective action to update and improve the environmental plan. For example, if an organization makes significant progress on one environmental aspect, another environmental aspect might replace it on the priority list. The process of reevaluating and developing procedures to address the organization’s most significant environmental aspects brings the organization back to the “Plan” stage of the process.

“A well-implemented EMS ensures and improves regulatory compliance and environmental performance; increases efficiency; enhances accountability; reduces costs, risks, and potential liability; and enhances employee morale and community relations.”

—Office of the Federal Environmental Executive ¹

Why Should My Organization Adopt an EMS?

An EMS serves as an excellent tool for achieving cost-effective environmental improvements through methods spurred by an organization’s initiative rather than government regulation. In the United States, thousands of organizations—large corporations, small businesses, local governments, state and federal agencies, schools, and non-profits—use EMSs to systematically manage their environmental, health, and safety matters and produce a variety of benefits, including:

- **Improved environmental performance.** An EMS can help monitor energy and water conservation, resource efficiencies, and pollution prevention. By tracking the reductions in greenhouse gas (GHG) emissions that result from these activities, an EMS helps demonstrate an organization’s commitment to reducing the risk of climate change. Process improvements that lead to resource conservation and pollution prevention can also translate into reduced purchasing and disposal costs.
- **Better regulatory compliance.** An EMS can increase regulatory compliance, which is especially important for organizations that have spent time and resources dealing with regulatory violations. By providing a way to systematically identify and track environmental, health, and safety problem areas, an EMS enables employers to improve workplace safety and correct problems before they draw enforcement actions. This improvement can also help organizations obtain needed permits and authorizations and reduce the cost of insurance.
- **Certification and recognition.** EMS implementation can enhance an organization’s image and improve public and community relations. As consumers place an increasing value on environmental performance, they will favor organizations that show a commitment to demonstrable environmental management. An effective EMS can also improve access to capi-

¹ Source: *Leading by Example: A Report to the President on Federal Energy and Environmental Management (2000-2001)*, Office of the Federal Environmental Executive, December 2002.

Principles of an Effective EMS

For better environmental and overall organizational performance, an EMS should:

- Focus on continual improvement
- Serve the organization and its mission
- Receive top management support
- Remain dynamic and flexible
- Fit the culture of the organization
- Represent employees and their actions
- Establish employee awareness and involvement



tal by satisfying investor and lender criteria, and increase sales by helping a company meet vendor certification criteria. By reducing the risk of injury to workers through process changes and additional training, employers can also enhance recruitment and employee morale.

EMS Certification

EPA encourages organizations to use recognized EMS frameworks to improve compliance, pollution prevention, and other measures of environmental performance. Third-party certification can also add credibility to an organization's EMS. Several organizations offer certification programs, including the American Chemistry Council, the American Forest and Paper Association, the International Chamber of Commerce, and the Coalition for Environmentally Responsible Economies. The International Organization for Standardization (ISO) developed the most widely recognized EMS standard, ISO 14001, in 1996.

ISO 14001 establishes a rigorous management framework by which an organization's impacts on the environment can

be systematically identified and reduced. It does not set technical or performance standards. Instead, it prescribes the EMS process embodied in the "Plan-Do-Check-Act" model. In addition, ISO 14001 specifies management review after the "Check" step. Management review requires an organization's top managers to periodically review the EMS to ensure its continuing suitability, adequacy, and effectiveness. Although EPA does not favor (or endorse) any one EMS model, ISO 14001 proves to be an effective approach as it is an internationally recognized standard.

An organization can achieve ISO 14001 certification by hiring an accredited, third-party auditor to evaluate its EMS. To maintain this certification, the organization must show continual improvement and invite a third-party auditor back to review the EMS every 3 years. Obtaining ISO 14001 certification can be expensive, although the cost depends on an organization's size, activities, and existing environmental policies. To date, nearly 37,000 organizations around the world have achieved ISO 14001 certification. In the United States alone, more than 1,600 organizations are ISO 14001 certified.

WasteWise Contributes to EMS Success

With its emphasis on setting goals, assessing progress, and evaluating results, WasteWise provides a "Plan-Do-Check-Act" framework for solid waste reduction and resources to help organizations accomplish each step of the process. Through WasteWise, partners conduct waste assessments to identify significant solid waste streams. Based on the waste assessment results, they develop an action plan that includes specific goals for waste prevention, recycling, and buying or manufacturing recycled products. Annual monitoring and reporting provides organizations with an opportunity to evaluate the effectiveness of their waste reduction activities. After 3 years, partners may review their programs and set new goals. Through the WASTE Reduction Model (WARM), WasteWise helps partners calculate the GHG emissions reductions resulting from their waste prevention and recycling activities. For many organizations, GHG emissions constitute a significant environmental aspect, and the WARM model serves as a valuable tool for enhancing their ability to track their emissions reductions.



Does Your Organization Use an EMS?

If so, consider applying for EPA recognition of your efforts through the National Environmental Performance Track program.

www.epa.gov/performance-track

Thinking Big at Madison Precision Products, Inc.

Small- and medium-sized businesses can face unique challenges in developing an EMS. In particular, they often find it difficult to dedicate the requisite personnel and resources to the effort. Additionally, the level of documentation required for a certified EMS can be daunting. At the same time, small size can help an organization solicit employee input and support, facilitate collaboration, and build a sense of pride in its environmental mission. Madison Precision Products, Inc. (MPP), an automotive parts manufacturer with 400 employees located in Madison, Indiana, is an example of a small business that overcame limited resources to develop an EMS that successfully addresses numerous environmental aspects and allows for constant improvement and expansion.



MPP offers four guiding principles for other small companies implementing an EMS or obtaining ISO certification: educate yourself, make a plan, stick to it, and keep it simple. This formula brought the company great success with its EMS. In 2000, MPP won both the Indiana State Quality Improvement Award and the U.S. Senate Productivity Award—in part because of its EMS. According to Dennis Welch, who led the company's ISO 14001 certification, "The awards are great, but I really think that the biggest benefit is the position we have gained in the community. Our EMS is so successful that we receive phone calls on almost a weekly basis from others wanting to emulate our system, and we are always eager to help."

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—Dennis Welch, MPP

tration to the ISO 14001 standard. In May 1999, MPP commissioned Welch to spearhead the company's effort to achieve ISO 14001 certification. MPP hired Welch because of his knowledge of the ISO 9000 standards for quality management.

Before forming a steering committee to develop an implementation plan, Welch attended a 36-hour Registrar Accreditation Board ISO 14001 lead auditor course. Using the knowledge he gained in this 5-day course, Welch trained the steering committee and an internal audit team. A variety of personnel participated in the steering committee, including the vice president of human resources, a facility maintenance engineer, a consultant, a machine shop manager, a trim shop team leader, two maintenance associates, and two production workers.

Getting Started

During the mid-1990s, MPP developed a limited EMS to address environmental compliance issues. In 1999, MPP's largest customer, Honda, directed its suppliers to become ISO 14001 compliant. MPP expanded its EMS to meet the requirement and also decided to strive towards official regis-

After assembling the steering committee, MPP conducted a broad evaluation of its operations to determine its principle environmental aspects and set goals for improved performance. The company met many of its initial targets. In addition to reducing air pollution emitted by a cleaning process in its operations, MPP also installed an advanced wastewater treatment system to reduce the discharge of heavy metals, oils, and grease into the public water

treatment facility. MPP addresses targets it did not accomplish as part of its commitment—formalized in its EMS—to continuously re-examine challenging areas and introduce new environmental aspects.

Improving Efficiency

Although MPP did not initially target solid waste as an environmental aspect, waste reduction now ranks among the company's most significant achievements. In 2001, MPP sent 40 fewer tons of material to the landfill due to the goals outlined in its EMS and projects that it will send 70 fewer tons in 2002. Besides recycling standard materials such as cardboard, paper, and aluminum cans, MPP collects used toner cartridges and donates them to a local school. After establishing the foundation of its recycling program, MPP shifted its focus toward source reduction goals such as reducing printed reports, utilizing electronic reports and communications, and purchasing reusable shipping containers. The company credits EPA's WasteWise and National Environmental Performance Track programs with providing a constant infusion of new ideas and an incentive for continual improvement.

Welch admits that, "Our biggest challenge concerned manpower and making the system streamlined enough so that we wouldn't spend a dollar to save a dime." MPP addresses this ongoing challenge by providing incentives and training to employees to empower them to support the EMS.

Incentives include channeling money saved through waste reduction into charities and extra benefits for employees, such as a holiday party and prizes for the company's safety fair. Additionally, MPP reminds employees that helping the company become more efficient results in better raises or bonuses. MPP encourages managers to solicit employee input on procedures related to the EMS. If employees contribute to the decision-making process, they generally adopt procedures more willingly. Finally, MPP constantly revises its training program to educate its employees on the objectives and procedures of the EMS. On a monthly basis, Welch performs ISO orientation with all new employees, explaining the basics of an EMS and MPP's environmental policy. Team leaders then provide training on the specific EMS documents and procedures within each employee's department.

Although MPP began working toward ISO certification in 1999, the company's entire process of developing a comprehensive EMS evolved through gradual steps over the course of several years. Because an EMS can take a significant amount of time to develop, small businesses might need to start slowly by first establishing an environmental policy statement and then establishing a tracking and measurement system. With these steps complete, organizations can proceed to identify environmental objectives and targets. Building gradually, even a small organization can make a significant impact on environmental quality.

Kodak and Climate Change: A Snapshot of Success

Eastman Kodak Company pledged to reduce its annual GHG emissions by 20 percent from 1997 levels by the end of 2003 as one of the primary goals of its EMS. Kodak pursues this climate change target, in part, through waste reduction activities. Every stage of a product's life cycle—material acquisition, manufacturing, distribution, use, disposal, and decomposition—affects GHG emission levels. Correspondingly, waste reduction activities that improve resource efficiency and minimize waste disposal can lead to significant emissions reductions. Understanding this relationship, Kodak designed its EMS to address all aspects of its products' life cycles and support waste reduction activities, such as increased collection of disposable cameras and reuse of coated photographic paper. Kodak has achieved great success with this effort—in 2001, the company's waste reduction activities prevented 57,000 metric tons of carbon equivalent (MTCE) from being created. This amount is equivalent to taking 43,000 cars off the road for an entire year!

According to George Thomas, Kodak's pollution prevention program manager, "The monitoring portion of our EMS that requires us to track our performance against our objectives is the most beneficial. What gets measured gets done." Partners can track MTCE levels and GHG reductions with the WARM spreadsheet, which every WasteWise partner receives after submitting an annual report. EPA developed the WARM spreadsheet to help organizations calculate the quantity of GHGs prevented through specific waste prevention and recycling activities. The spreadsheet calculates climate benefits in the commonly used MTCE unit and in British Thermal Units (BTUs).

All of Kodak's 29 major manufacturing sites are now ISO 14001 certified and committed to reducing GHG emissions. Kodak is already working on its next set of EMS goals, due in 2004, which will again include measurable GHG reductions. Thomas offers advice on successfully incorporating GHG prevention into an EMS: "Keep it simple and use language to explain the EMS that you would use to explain it to your family at the dinner table. Avoid as much of the ISO, EMS, and GHG jargon as you can."



Louisiana-Pacific— Going Green Company-wide



Louisiana-Pacific Corporation (LP) is one of the largest building products manufacturers in the United States. A WasteWise partner since 1994, LP currently has an EMS in place at nearly 80 percent of its facilities and plans to incorporate an EMS into all of its manufacturing facilities by 2003. For LP, implementing its EMS signified a complete re-invention of its corporate thinking on environmental issues. The company's success makes it a model for how to establish a new EMS and continuously improve environmental performance.

Problems Addressed

LP opened an oriented strand board (OSB) facility in Olathe, Colorado, in 1984 to meet increasing product demand. By the early 1990s, LP faced serious problems related to air quality and pollution control. In need of an immediate solution, LP developed a pilot EMS, which grew out of the company's Corporate Policy on Protection of the Environment. The pilot EMS focused on analyzing the root causes of pollution, ensuring proper use and maintenance of monitoring equipment, and developing prompt corrective solutions, while continually improving environmental performance.

Soon after LP implemented its EMS, EPA held an unscheduled 2-day inspection, during which the company demonstrated substantial improvements in key areas, resulting in 100 percent compliance. The EPA inspector was impressed by the employees' high level of environmental awareness. With this success fresh in the company's mind, LP implemented the EMS across the company. LP's expanded EMS focuses on a broader scope of issues and addresses every feature of the company's business—from production floors to corporate offices. Similarly, LP incorporates all employees into the EMS process to make environmental performance standards a part of each employee's daily activities, and to

encourage employees to contribute their knowledge and expertise to the company's environmental practices.

The Foundation for Success

LP successfully implemented an EMS by committing the requisite personnel to the effort and developing and adhering to a clear implementation process. LP's core environmental management team includes corporate environmental managers, plant environmental managers, business team managers, and mill employees. In addition, each of LP's more than 8,000 employees receives at least 2 hours of formal environmental training.

LP's success also depends on the quality of its policies and procedures. LP's EMS includes a company policy statement, 17 corporate-level standard operating procedures (SOPs), an average of 30 site-level SOPs, six major goals, an environmental charter, an EMS manual, an environmental handbook for employees, an environmental handbook for managers, an EMS assessment tool, and several EMS tools and resources on LP's Intranet site. While the amount of personnel and materials committed to EMS implementation might seem overwhelming, LP found that a well-designed system can be comprehensive, yet also simple and

effective. LP's EMS now plays a central role in the way it does business and is leading to significant results, including achievement of the company's waste reduction goals. In 2001, LP reported to WasteWise that it prevented nearly 3,000 tons of waste and recycled nearly 3 million tons of materials—decreasing GHG emissions by more than 1,576,000 MTCE.

Two Steps to Continued Excellence: Evaluate and Improve

LP analyzes and improves its efforts on an ongoing basis. The company regularly conducts EMS self-assessments at all facilities that have implemented an EMS. In conjunction with the self-assessments, the business team, plant environmental managers, and project managers conduct in-depth assessments. In addition, the corporate internal audit department conducts audits to see how the individual facilities are progressing, with 17 scheduled for 2002. Through the audits, monthly reporting, and other means of assessment, LP tracks six major goals and reports progress to all employees, senior management, and the board of directors. Lee Kuhre, vice president of environmental affairs, states that the reports include data on the hours of environmental training completed, amount of waste disposed, number of notices of violation, number of waste minimization projects started, number of corrective action plans completed, and amount of environmental related cost savings.

The evaluations help LP improve its EMS to ensure that the system appropriately reflects changes in the company and new goals. LP also removes or adds EMS components based on their success or usefulness. Kuhre explains, "For example, we streamlined the plant environmental manager's monthly report format to focus on the most relevant information. We simplified the environmental policy statement to improve comprehension and awareness. We are also in the process of merging many of the pure EMS resources with regulatory-focused documents."

LP strongly encourages all staff to propose new ideas and share comments on the EMS and its implementation. Kuhre notes, "We get many ideas from mill employees for improving the environment. For example, in 2002, we started approximately 41 new waste minimization projects based on ideas originating from mill site employees." LP encourages

communications between staff and the EMS teams through its "We Want to Hear From You" program, company newsletters, and the monthly environmental reports prepared by the plant environmental managers. Most suggestions focus on individual facilities, but LP also incorporates a small number of company-wide proposals. Shannon Tocchini, corporate environmental project manager, notes that employees initiated the following projects:

- Donating boiler ash to farmers for soil amendment.
- Recycling polyester strapping waste.
- Donating/selling wood waste for biofuel and compost.
 - Recycling scrap steel.
 - Recycling paper and cardboard.
 - Reducing glue waste and wash water.
 - Recycling plastic bundle wrap and packaging.
 - Returning material that would otherwise be waste back to the production process.
 - Reducing demolition material going to landfills.

For Organizations Considering Implementing an EMS

Before implementing an EMS, organizations should consider the time and commitments required, as well as the need to obtain company-wide support for initiating the work. "Keep the EMS simple and practical," Kuhre suggests. "Integrate it deeply into all parts of the organization. Obvious and ongoing top management support is very important, as is continued communication and awareness." Tocchini adds, "Set relevant goals, recognize success, and track and report progress to maintain momentum in the program."

According to Kuhre, the most difficult part about implementing an EMS is "competing for employees' attention due to heavy workloads." Even so, with dedication and determination, the process of implementing, evaluating, and continually improving an EMS can lead to great accomplishments. Increasing efforts for environmental training, decreasing the number of violations, and reducing landfilled waste represent just a few ways in which an EMS helped LP become more environmentally responsible. For further information on LP's EMS, visit <www.lpcorp.com/environment/e_ems.jsp>.



Federal Agencies Commit to EMSs

Executive Order (EO) 13148 requires all federal agencies to implement EMSs by the end of 2005 at all applicable facilities. On April 1, 2002, the Council on Environmental Quality (CEQ) and the Office of Management and Budget (OMB) sent a memorandum to the heads of all federal agencies emphasizing the importance of developing EMSs.² In addition, on June 27, 2002, OMB reminded federal agencies to include resources for EMSs in their funding requests for FY2004 budgets.³ More than 180 federal facilities have already developed and are implementing EMSs, and hundreds of other facilities are beginning the education process critical to ensuring commitment to an EMS.

“Effective EMSs, where decision-makers integrate environmental performance into daily business decisions, improve awareness and assure compliance with regulatory requirements, and can result in significant cost savings at federal facilities. The federal government must be a leader in using this tool of effective management.”

—Mitchell E. Daniels, Director, OMB
& James L. Connaughton, Chairman, CEQ

USPS Delivers Sustainability

Federal agencies can look to the U.S. Postal Service—Northeast Area as a model for implementing an EMS. Starting in 1995, the Northeast Area created two EMSs—one for its 55 higher-risk process and distribution centers and vehicle maintenance facilities, and one for its 3,150 post offices—to make certain that every facility followed a

San Diego Flourishes in EPA's Pilot

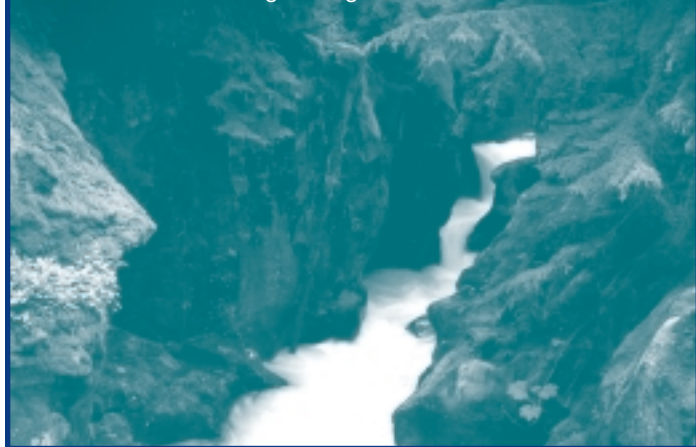
In August 1997, EPA launched a 2-year pilot program to help local governments create EMSs. The program tested the benefits of an EMS in the areas of environmental performance, compliance, pollution prevention, and stakeholder involvement. *Final Report: The U.S. EPA Environmental Management System Pilot Program for Local Government Entities*, published in January 2000, summarizes the results of this EPA initiative. The study found that local government EMSs improved efficiency and environmental awareness, but suffered from a lack of public acceptance and top-management involvement. Due to the overall success in the initial pilot, EPA launched a second pilot program in early 2000.

Currently, eight organizations around the country act as EMS Local Resource Centers, helping local, county, and state governments create EMSs to improve their overall environmental performance and compliance. To locate a Local Resource Center visit www.peercenter.net/resourcecenters.

WasteWise partner, the **City of San Diego, California**, implemented a highly successful EMS through EPA's second pilot program. Within 2 years of joining the program, the city's Environmental Services Department's Refuse Disposal Division became ISO 14001 certified. The department now looks to certify its other divisions and is currently creating an EMS Web site. Employee support provided a strong base for the division's success—workers helped design the system and now received monthly refresher training on the EMS.

Through its EMS, the Refuse Disposal Division implemented innovative conservation measures, including using more efficient groundwater contaminant sampling procedures to reduce purged groundwater by 94 percent; eliminating the use of drinking water for dust control; increasing the quality of mulch and compost; and reducing vehicle exhaust emissions. According to Steven Fontana, deputy environmental services director, “Although spreading understanding of our EMS throughout the entire organization was a unique challenge, we have seen significant environmental improvements. We've also experienced significant economic benefits, with annual savings of \$850,000.”

“It takes firm commitment and support from upper management,” he said. “It's hard work, but the results are worthwhile. It's the right thing to do.”



² See www.ofee.gov and click on “EMS” for a copy of the memorandum.

³ See Circular No. A-11, section 31 at www.whitehouse.gov/omb/circulars/a11/2002/part2.pdf.

Virginia Promotes Progress

Through its voluntary Virginia Environmental Excellence Program (VEEP), the Virginia Department of Environmental Quality (DEQ) encourages Virginia-based organizations to develop EMSs and implement pollution prevention projects. VEEP was the central component of the Virginia Innovations in Pollution Prevention initiative, a state program launched in 1999 to improve environmental quality and reward innovation, leadership, and performance.



Virginia is one of several states that has developed technical assistance and recognition programs to promote EMSs. According to Tom Griffin, a DEQ pollution prevention specialist, “EMSs—such as ISO 14001 and the chemical industry’s *Responsible Care*® standard¹—provide a comprehensive framework for improving long-term environmental performance.” Griffin adds, “These types of EMSs are rapidly becoming industry standards for doing business. In the near future, organizations may find themselves at an economic disadvantage if they do not have an EMS in place.” Correspondingly, DEQ designed VEEP to encourage the development of EMSs and provide a proactive approach to keep Virginia businesses competitive in the changing market.

VEEP provides for two classes of participation—the Environmental Enterprise (E²) designation for facilities that have made substantial progress in the development of their EMS and the Exemplary Environmental Enterprise (E³) designation for facilities with a fully-implemented EMS. According to Griffin, “VEEP’s dual classification system rewards organizations that already have an EMS in place and provides assistance and guidance to companies that are just beginning to develop an EMS.”

Organizations participating in VEEP must report annually and show continued improvement with their EMS to stay in the program. To support participants’ efforts, DEQ provides recognition, technical assistance, and regulatory flexibility in exchange for actions that provide greater environmental protection than are provided through current practices. As of July 2002, 20 organizations representing more than 100 facilities received E² certification. In addition, 11 organizations received E³ certification, and five more organizations are in the certification process.²

Leading By Example

DEQ is also implementing its own EMS at its headquarters, seven regional offices, and several environmental labs throughout the commonwealth. The EMS is designed to eventually meet the ISO 14001 standard and the Commonwealth’s own E³ standard. To ensure the integrity of E³ certification of its EMS, DEQ will require a peer group evaluation from companies who already meet the E³ and/or ISO 14001 standards. “We are the first state regulatory agency to take this on, yet we are still relatively new to the concept,” says Griffin. DEQ has already received praise in publications from the Center for Energy and Environmental Management and the Environmental Council of the States. Griffin expects DEQ to meet its goal of E³ certification by early 2003.

¹ See <www.americanchemistry.com> for more information on the *Responsible Care*® standard.

² See <www.deq.state.va.us/veep/member.html> for a complete and current list of E² and E³ organizations.

standard blueprint for achieving compliance and sustainability. Since implementation in 1997, the Northeast Area regularly updates and revamps its EMSs, checks their consistency across all locations, and ensures that routine internal inspections are conducted, as well as less frequent third-party audits.

Continual improvement plays an integral role in Northeast Area’s EMS. According to Charlie Vidich, area environmental compliance coordinator, “There is a tendency to rest on one’s accomplishments and that can be the first sign of slippage in the EMS. The constant application of the auditing and training programs is the key to maintaining our EMS success.”

Vidich found that the technical review processes of an EMS occasionally detract from the energy needed to improve the environmental attitudes of employees. His overall support for the EMS, however, is bolstered by “a sense of accomplishment and teamwork that comes from partnering with hundreds of managers and thousands of employees and finding

that they understand our basic environmental objectives.” Vidich leaves future EMS creators with this advice: “An effective plan requires management commitment and support to be successful. For that reason, we have found that a team-based approach to EMS development is critical to full-scale implementation of environmental programs and objectives.”

EPA’s EMS

To reap the benefits of an organized environmental plan, EPA developed an EMS for its own facilities. Through its EMS, EPA commits to improving its environmental performance and complying with all regulatory requirements. EPA’s plan focuses on compliance, pollution prevention, purchasing, and public outreach. Details of EPA’s EMS can be found online at <www.epa.gov/ems/policy/own.htm>.

For more guidance on developing an EMS and complying with EO 13148, visit <www.epa.gov/ems/federal/index.htm>.

R e s o u r c e s

for Environmental Management Systems



The following EMS-related publications are available online and through EPA's RCRA Call Center, unless otherwise noted. To order, call 800 424-9346 (or 800 553-7672 TDD for the hearing impaired). In Washington, DC, the number is 703 412-9810 or TDD 703 412-3323. The RCRA Call Center is open Monday through Friday, from 9 a.m. to 6 p.m. EST.

▼ **Environmental Management System Tools: A Reference Guide**

EPA300-B-02-012, 2001

Developed by an interagency work group, the guide gives advice on how to assess an organization's EMS. The assessment of gaps and strengths can greatly assist in building better EMSs.

▼ **Environmental Management Systems: An Implementation Guide for Small and Medium Sized Organizations**

www.epa.gov/owm/iso14001/wm046200.htm

This common-sense guide, published by NSF International with funding through a cooperative agreement with EPA, is for organizations interested in implementing an EMS, using the basic "Plan-Do-Check-Act" model. It includes a number of updated examples, and is useful for organizations of all sizes.

▼ **Final Report: The U.S. EPA Environmental Management System Pilot Program for Local Government Entities**

EPA832-R-00-003, 1996

www.epa.gov/owm/iso14001/emsrepor.pdf

This report documents the results of an EPA-sponsored EMS pilot program to test the applicability and benefit of an EMS for local governments. The document provides information on EMS development and implementation, average resource commitments, benefits and barriers, and sources of additional information.

▼ **Integrated Environmental Management Systems Implementation Guide**

EPA744-R-00-011, 2000

www.epa.gov/opptintr/dfe/tools/iemsguide.htm

This document provides simple, thorough worksheets, examples, and step-by-step guidance to help organizations create and document their own Integrated Environmental Management Systems (IEMSs).

▼ **Integrated Environmental Management Systems Implementation Company Manual Template for Small Businesses**

EPA744-R-00-012, 2000

www.epa.gov/opptintr/dfe/tools/iemsguide.htm

This template offers an example of how companies can effectively develop their IEMSs when working with the above manual. It contains tables and other features that companies can customize along with procedures and associated formats for an IEMS.

▼ **Generic Protocol for Conducting Environmental Audits of Federal Facilities**

EPA300-B-96-012B, 1996

www.epa.gov/compliance/resources/publications/incentives/ems/genprotocol3.pdf

A guide, developed jointly by EPA and the Department of Energy, designed to help federal agency managers who are considering adopting an EMS at a federal facility.



EPA Web Resources:

▼ **EPA Environmental Management Systems Resource Center**

www.epa.gov/ems

This center provides EMS information and resources, including research reports, best-practice manuals, and EMS templates.

▼ **EPA Standards Network**

<http://es.epa.gov/partners/iso/iso.html>

This Web site provides an overview of ISO and includes contacts and an online request form for more information on the subject.

▼
EPA's Environmental Management System

www.epa.gov/ems/policy/own.htm

View the outline of EPA's EMS, which focuses on compliance, pollution prevention, purchasing, and public outreach.

▼
EPA's National Environmental Performance Track Program

www.epa.gov/performance-track

Performance Track is a voluntary program designed to recognize facilities that consistently meet their legal requirements and have implemented high-quality EMSs.

Other Web Resources:

▼
International Organization for Standardization (ISO)

www.iso.ch/iso/en/isoonline.frontpage

The ISO Web site provides a range of information about the organization and its standards, including press releases, news bulletins, guidance documents, training materials, a calendar of ISO-related events, and contact information.

▼
Local Government Environmental Assistance Network

<http://lgean.org>

This network provides environmental management, planning, funding, and regulatory information for local government officials, managers, and staff. It provides contact information for eight national resource centers that help local governments create EMSs.

▼
EMS-Plus Environmental Management Systems Evaluation Tool

<http://ems.rti.org>

EMS-Plus helps organizations evaluate individual EMSs based on comparing the components the organization has included to those currently known to promote environmental improvement.

▼
National Database on Environmental Management Systems (NDEMS)

<http://ndems.cas.unc.edu>

This site presents the research results of the National Database on Environmental

Management Systems (NDEMS), including studies on facilities that are implementing EMSs. The site also provides access to research papers, reports, protocols, and databases produced by this study, as well as other resources on EMSs.

▼
The PEER Center


www.peercenter.net

The Public Entity Environmental Management System Resource (PEER) Center provides EMS guidance, tools, and training. This Web site connects you with real-life mentors, technical assistance, and problem-solving strategies.

▼
The ISO 14001 Guidance Manual

www.ncedr.org/guides/iso.htm

The National Center for Environmental Decision-Making Research (NCEDMR) developed this manual to assist organizations interested in developing an EMS consistent with the ISO 14001 standard.

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