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# Environmental Management Systems and ISO 14001

## What is an Environmental Management System (EMS)?

An environmental management system (EMS) is a process that your company can implement to encourage better organization of business priorities. An EMS provides a continual cycle of planning, implementing, reviewing and improving the actions that an organization takes to meet its environmental obligations.

An EMS not only focuses on environmental problems, but on *why* they happen. Over time, this systematic identification and correction of a system's deficiencies can lead to continuous process improvement, better environmental compliance and better overall business performance. An EMS becomes part of an organization's overall management structure to address the immediate and long-term impact of its products, services and operations on the environment.

The International Organization for Standardization (ISO) has established recognized quality management and environmental performance standards, beginning with ISO 9000 and ISO 14000.

Like ISO 9000 quality management system standards, ISO 14000 EMS's standard outlines a generic management systems approach to an organization's operations. While ISO 9000 is concerned with product quality and meeting customer requirements, ISO 14000 focuses on all aspects of a company's environmental operations. Minimizing environmental impacts and demonstrating environmental responsibility is yet another measure by which organizations are evaluated.

ISO 14000 is a series of standards of environmental management. ISO 14001 is the cornerstone of the ISO 14000 series. It specifies an EMS framework so an organization can get its program certified by a third party registrar.

## Why develop an EMS?

Successfully managing any organization requires adaptation and change. EMS implementation is a rapidly growing concept that is having a worldwide impact. For example, the European community has embraced this concept and it is anticipated that ISO 14001 implementation and certification will become requirements. Given the precedent set by the

acceptance of ISO 9000, the ISO 14001 EMS standard also is expected to be key to establishing environmental accountability, improving competitiveness and conducting business globally.

In addition to increasing global competitiveness, more direct benefits to implementing an EMS might include:

- helping your company save money by reducing resources consumed, reducing wastes and increasing efficiency;
- helping reduce the costs associated with environmental compliance and liability;
- improving access to liability insurance;
- attracting new customers and markets or at least retaining access to customers and markets with EMS requirements; and
- enhancing a company's image with the public, regulators, lenders and investors.

The U.S. Environmental Protection Agency (U.S. EPA) is also taking a hard look at ISO 14001 implementation as a option for demonstrating voluntary compliance with existing regulations. U.S. EPA has taken steps to reduce monitoring and

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reporting requirements for those organizations that already have an EMS in place.

## Developing an EMS

Most EMS' are built on a continual "Plan, Do, Check, Act" model.

- *Planning* includes identifying environmental aspects and establishing goals.
- *Doing* (or implementing) includes training staff and improving operational controls.
- *Checking* includes monitoring results and taking necessary corrective actions.
- *Acting* (or reviewing) includes periodic progress reviews and making changes to the EMS as necessary.

Although an organization's EMS does not have to be certified, some organizations want certification. Some industries, such as the automotive industry, encourage certified suppliers.

According to ISO 14001, the EMS must contain an environmental policy which states that the organization will implement pollution prevention, continual improvement and environmental compliance. The organization must identify environmental aspects of its operations and determine their environmental impact.

Most companies use ISO 14000 as a guide to form their EMS, then work through a registrar to gain certification. Certification materials are reviewed by an external registrar that audits a company's management system and verifies that it meets the requirements of the standard. The ISO does not perform audits and does not issue certificates. For more information on how to find a registrar, go to: [www.iso.org/iso/en/info/ISODirectory/intro.html](http://www.iso.org/iso/en/info/ISODirectory/intro.html).

Again, it is important to know that a company can implement ISO 14001 without seeking certification. It may just make good sense to implement the standards because a company wants to improve the efficiency and effectiveness of its operations.

The costs to develop an EMS include: internal resources, such as staff/employee time; the cost of training; the cost of hiring an environmental consultant; and possibly the cost of technical resources to analyze environmental impacts and improvement options.

## How can I get a copy of the ISO 14000/14001 standards?

You can purchase the ISO standards from:

- International Organization for Standardization (ISO) - e-mail: [central@iso.ch](mailto:central@iso.ch)

- American National Standards Institute (ANSI) - e-mail: [ansionline@ansi.org](mailto:ansionline@ansi.org)
- American Society for Testing and Materials (ASTM) - e-mail: [service@local.astm.org](mailto:service@local.astm.org)

## Can implementing an EMS benefit small- and medium-sized businesses?

Absolutely. Although there is a perception that implementing an EMS is too complicated and costly for small businesses, this is not necessarily the case.

ISO's Technical Committee 207 on Environmental Management has been evaluating EMS implementation by small businesses. The information gathered will be used to advise ISO how best to improve the experience and value for small businesses that implement ISO 14001. For more information, visit their Web site at [www.tc207.org/](http://www.tc207.org/).

## EMS Success Stories in Ohio

### Appleton Papers, Inc. - West Carrollton Mill

Appleton produces carbonless copy, thermal fax, coated freesheet and other specialty papers. Appleton's environmental policy calls for each of their facilities to develop an EMS, following the "Plan, Do, Check, Act" model.

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Each major business sector of Appleton has been involved in environmental strategic planning on a regular basis since 1997. The company assessed its strengths, weaknesses, opportunities and threats. It also benchmarked against other companies. The company performed ISO 14001 gap analyses at all of their manufacturing plants and mills. Appleton examined options for waste stream elimination, recycling, product substitution and efficiency improvements.

In the fall of 1998, Appleton's Executive Committee accepted the Environmental Strategic Plan, which called for attainment of ISO 14001 certification at all of their locations within five years. One hundred percent compliance with regulations continues to be the top priority. At the West Carrollton Mill, there were 22 separate recommendations from the plant-wide assessment. The top six (with a combined savings of \$200,000) were:

- 1) recover heat from the paper machine vents;
- 2) recover usable fiber from low-consistency screen rejects;
- 3) install oxygen and carbon monoxide monitoring equipment to control boiler combustion;
- 4) reuse Uhle-box seal water;
- 5) reduce silo temperatures; and
- 6) add a fluidized-bed boiler.

A core team of both union and management members worked on the EMS. All levels of the organization were represented. Management committed to the core team volunteers by participating in management review meetings and championing ISO 14001 related activities.

Management intends to involve more employees in more of the process. Management continues to find cost savings associated with ISO 14001 objectives. Finally, management intends to keep the process going and the peoples' interest high. They feel they need to keep everyone interested and involved in order to keep the process going.

## **Keithley Instruments, Inc.**

Keithley Instruments, Inc., located in Cleveland, Ohio, is ISO 14001 certified. The company markets instruments and data acquisition products that measure low levels of voltage, resistance, current, capacitance, and charge. The company also markets complete system solutions for high volume production and assembly testing.

Keithley has developed an Environmental Policy and has prepared an ISO 14001 Manual. They make sure that their Environmental Policy is understood and followed by all employees on all levels of the company. From their regulatory and compliance review, they developed action plans

for objectives and targets. Keithley also has installed an environmental record keeping system. They have implemented a procedure to approve all chemicals before they are used and monitor quantities consumed. They also have established a rigorous corrective and preventive action process. The company implemented a recycling program for cardboard, aluminum cans, paper, wooden pallets, computer equipment, batteries and dross. In addition, they are establishing a Chemical Review Board, and are looking at long-term options such as lead-free soldering.

The company is committed to environmental protection and compliance with all applicable environmental, health and safety requirements. Keithley is committed to pollution prevention and eliminating negative impacts to the environment associated with their facilities, activities, services and products. Keithley is committed to the continual improvement of their environmental, health, and safety management systems and performance.

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## How Can Ohio EPA Help?

Ohio EPA's Office of Compliance Assistance and Pollution Prevention (OCAPP) encourages companies to develop an EMS since it is a complete system that focuses on both environmental compliance and pollution prevention (P2).

One of OCAPP's main goals is to help organizations identify strategies to reduce waste and prevent pollution at its source. To this end, OCAPP offers several resources, including a comprehensive library of technical information and P2 case studies. In addition, OCAPP conducts on-site P2 assessments. OCAPP can also help small businesses with their regulatory compliance requirements.

Although OCAPP has several resources available to help you, it's important to know that the office does not perform ISO-related audits or issue EMS certifications. We can, however, help you get started in the right direction, both in P2 and achieving compliance with the regulations, the building blocks of a successful EMS program. For more information or assistance, contact OCAPP at 800-329-7518, or visit our Web site at [www.epa.state.oh.us/ocapp/ocapp.html](http://www.epa.state.oh.us/ocapp/ocapp.html).

## References and Resources

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