

ISO 14001 CERTIFICATION - A CASE STUDY

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In December 1998, ABB Automation Inc. achieved ISO 14001 certification at its Columbus, Ohio plant. The experience confirmed our impression that achieving certification requires a considerable commitment. However, it also convinced us that business organizations interested in improving the environment should seriously consider making a similar commitment.

This case study outlines ABB's ISO 14001 implementation project, along with business reasons for approving the project. It also offers first hand advice that should prove useful to businesses planning for ISO 14001 certification.

ISO Standards

The ISO (International Organization for Standardization) is a worldwide federation founded in 1947 to promote the development of international manufacturing, trade and communication standards. There are two types of standards: specification and guidance. In the 14000 series of standards, ISO 14001 is the only specification standard. The rest are considered guidance standards.

A specification standard "contains only those requirements that may be objectively audited for certification purposes." A guidance standard "provides guidance on the development and implementation of environmental management systems (EMS) and principles, and their coordination with other management systems." Businesses are not certified to ISO 14000 as a series. They are certified to ISO 14001, the standard that specifies the requirements for an EMS.

Many people are familiar with the widely accepted ISO 9000 series of quality system standards. ABB's ISO 9001 experience - our Columbus plant achieved ISO 9001 certification in 1994 - and the resulting documentation greatly helped us plan and execute our project for implementing an EMS.

Implementation Team

During 1997, there was considerable discussion at ABB concerning potential benefits and drawbacks of seeking ISO 14001 certification. The final decision to move ahead was made in early January 1998, just prior to the first formal meeting of the implementation team. By that time the team had the full support and commitment of local management.

When selecting implementation team members and defining their roles, we made an effort to include all areas of our business that could have a significant environmental impact. No additional staff was hired and all team members were expected to accomplish their regular job duties, in addition to participating in the implementation of the EMS. Members of the team included:

- vice president of manufacturing
(top management representative),
- manufacturing operations analyst
(site champion),
- manager of environment, health and safety
(subject matter expert),
- facility manager,
- engineering representative, and
- supply management representative.

EMS Training

The next step was the formal training of the team. We selected an outside consultant with experience in implementing an EMS and achieving ISO 14001 certification. The team attended an intensive three-day training session that proved essential to the success of the project. Subjects of the session included:

- core elements of ISO 14001 EMS standard;
- EMS development, assessment and implementation techniques and methodology; and
- useful tools for developing an EMS within each participant's area of responsibility.

The same outside consultant was brought back in June 1998 for a two-day training session for EMS internal auditors. The ISO standard requires that organizations establish and maintain programs and procedures for periodic EMS audits. Competent internal auditors can staff these audits.

Environmental Policy

By late February, local management had approved an "environmental policy." The policy was signed by all members of top management and posted prominently in the facility's main lobby. According to the standard, the policy must be appropriate to the nature, scale and environmental impact of the organization's operations, products or services. It should also include a commitment to continual improvement and compliance with environmental regulations.

Aspect Identification

Once the environmental policy was approved, the team conducted a comprehensive review of the facility and its processes to identify "environmental aspects." An aspect is any element of a company's operations, products or services that might interact with the environment. Examples include air emissions, waste production, energy and materials use.

The team ultimately developed a list of environmental aspects for the site, as well as for suppliers and products. Since the standard requires a systematic approach to assessment, even trivial aspects must be considered. At ABB, we utilized a significance assessment model that rated each aspect on a scale of 1 to 3 in the following criteria:

- environmental legislation and regulations,
- public opinion,
- economic impact (material, waste, scrap),
- severity of environmental impact, and
- potential for a significant environmental occurrence.

For example, in the model, under the "potential" criteria, an aspect with a "medium or high risk" rated a 3, "low risk of significant impact" rated a 2 and "process cannot cause significant impact" rated a 1. As a result, aspects were scored between five and fifteen points. Those scoring nine or higher were considered to be significant.

Objectives, Targets & Programs

After identifying significant aspects, the team established objectives and targets. Although the number of objectives is a company's choice, it must be evident to an auditor that all significant aspects were considered and that the number of objectives established is reasonable and defensible. Targets should support broad objectives. For example, a specific target to introduce waterborne paints might support a broad objective of reducing VOC emissions. Programs also should be designed to provide the means to deliver targets and objectives on a timely basis.

EMS Procedures

Each EMS requirement spelled out in the ISO 14001 standard should be supported by appropriate procedures. At ABB, these were written concurrently with aspect identification and rating review and with the development of objectives, targets and programs. We chose to store these documents electronically, since all employees at the ABB Columbus facility have access to personal computers. When procedures are printed, a notice appears at the bottom of each page, which warns the reader, "This document valid for 24 hours only," along with the time and date. There is never any question whether the reader has the latest approved version. There are two levels of procedures: company procedures, which encompass several facilities, and division procedures, which are site specific. Each division procedure should be directly associated with an identified significant aspect.

Procedures must address relevant requirements spelled out in the ISO 14001 standard. However, judgement is needed to determine which subjects should be included in procedure documentation. For example, in a procedure covering chemical handling, an organization might choose to include the updating of Material Safety Data Sheets (MSDS). However, since MSDS's and hazard communication are normally considered safety, not EMS matters, an organization can legitimately choose to exclude the discussion of MSDS's from the procedure.

Be cautious about including additional requirements. Since auditors use company specific procedures - as well as ISO 14001 standards - as references during conformance audits, you can bet that an auditor will seek conformance to every requirement that is included in company or division procedures.

Training, Awareness & Competence

The standard requires all personnel whose work may have a significant environmental impact to have appropriate training. This training must be documented and kept current. At ABB we found that holding training sessions by department was particularly effective in promoting overall awareness. Qualified instructors reviewed the Environmental Policy and relevant significant aspects, along with appropriate objectives, targets and programs. At the end of each training session, selected employees were asked to state the main points in the policy or to discuss the environmental impact of the processes they control. This awareness training paid off during the certification audit.

Management Review

The driving force for continual improvement - a key requirement in the standard - mainly comes from management reviews. These reviews are intended to examine how well the EMS has worked, how well objectives have been met, and what changes are needed. Outside auditors scrutinize management review minutes to assure:

- meetings were held as scheduled;
- full range of issues was discussed; and
- key members of top management, as well as EMS team members, were present.

Audit and Certification

In contrast to the broad review by local management, reviews by external auditors are detail oriented - with emphasis on assuring the EMS is being used properly. Auditors first review documentation. They then review environmental aspects for completeness and relevance. Finally, the organization and outside audit firm mutually agree on how ready the organization is for the certification audit.

In certification audits, auditors can recommend one of the following: “approval”, “approval pending” or “approval open (follow up audit required).” In ABB,’s case, several nonconformances were identified and “approval pending” was recommended. Upon providing appropriate documentation of corrective actions to the auditor, ABB was certified to ISO 14001 in December 1998.

Since certification we have realized numerous benefits, including:

- Meeting environmental objectives helped us reduce energy costs as well as the costs of handling and disposing of hazardous waste.
- Certification has allowed us to communicate the achievement to present and prospective customers.
- Implementing an EMS helped us adopt environmentally beneficial procedures earlier than originally planned.
- Implementing an EMS has helped raise employee morale by showing the company’s commitment to protecting the environment.

Although the process took significant effort and time, the results and benefits far outweighed the effort.