

Aoki Work's Efforts to Obtain Certification under ISO 14001

Hiroshi Miyazaki

1. Introduction

In March 29, 1999, the Aoki Works of Sanyo Denki Co., Ltd. (hereinafter referred to as "Aoki Works") passed an audit by the Japan Audit and Certification Organization for Environment and Quality (an examining establishment) and obtained certification under the international standard ISO 14001, ahead of all other company workplaces.

The following is a report on how the Aoki Works made the decision to obtain certification, built up an environmental management system, conducted its environmental protection activities, and finally obtained certification.

2. Background of Obtaining certification

The decision that the Aoki Works would aim to obtain certification was made by the Committee of measure for Environmental, a company wide unit.

The Committee of measure for Environmental was set up in August 1994 in response to changes in the social situation surrounding corporations regarding environmental issues and to the request to set up a "Voluntary Action Plan on the Environment" from the Japan Electrical Manufacturers' Association, of which Sanyo Denki is a member.

The Committee of measure for Environmental began with setting up basic policies and action guidelines for the "Voluntary Action Plan on the Environment", and decided to proceed aggressively with cutting and recycling industrial wastes, streamlining energy use and other strategies.

Fueled by the public's interest in environmental protection, many firms were increasingly interested in Obtaining certification under the international environmental standard ISO 14001. Sanyo Denki also decided to obtain such certification.

The Aoki Works is a specialized factory with well organized consistent processes ranging from production to shipment of stepping motors and also because the factory does not contain more than one division which facilitates certification-obtaining activities. For these reason, Aoki Works was the first mover to obtain ISO 14001 certification.

3. Certification-Obtaining project

To launch the program, the Aoki Works set up an certification-Obtaining project.

The initial secretariat for the certification-Obtaining project consisted of two full-time and two part-time members. Two other full-time members were added in October 1996. However, a small team of only four members was to be in charge of proceeding with the project.

As everything was being carried out for the first time, the secretariat were not sure where to begin. They decided to begin with creating a "schedule for Obtaining certification." As major action was to be taken by March 1999, the secretariat

determined the following:

- (1) Building up an environmental organization
- (2) Kick-off
- (3) Education and dissemination of information
- (4) Field survey
- (5) Setting up and implementing environmental policies, objectives and targets
- (6) Conducting an internal environmental audit.

The following sections describe each of these activities.

3.1 Building up an environmental organization

To obtain certification, the secretariat selected environmental managers and environmental controllers and created an organization chart for environmental issues for the Aoki Works.

The organization was to contain an Environmental Conference, which was to meet periodically (once a month).

As the consultative body to the Environmental Conference, the secretariat set up task forces named "Wastes Management Task Force" and "Energy-saving Task Force."

The Waste Management Task Force began with selecting garbage bins for internal use in the works. The task force then established methods of collecting wastes separately and processing them, removed the incinerator in response to the abolition of garbage to be burned, posted labels for separate collection in each waste storage area, posted labels for representatives, and informed subcontractors working on the premises and all employees of the Aoki Works of how important waste management was.

As part of its environmental management in and around the Aoki Works area, the secretariat launched garbage-collecting events and posted "do not litter" and "stop idling" signs, thus informing all employees to address waste management issues and to inhibit global warming.

The Energy-saving Task Force discussed the utilization status, problems, and solutions regarding production equipment, compressors, air-conditioners, and lighting equipment and made a report to the Environmental Controller.

3.2 Kick-off

Kick-off was launched on April 2, 1997 to mark the startup of Obtaining certification, to make all employees aware of the company's project of Obtaining certification by March 1999, and to make sure that they would proceed with the project in one unit.

Kick-off was launched by the president, managers, and environmental controllers together with all other employees.

The secretariat handed out copies of a booklet it had prepared, entitled "Environmental protection Efforts for the Aoki Works," describing "What is ISO 14001? and containing a "Schedule to Obtaining Certification," and "Sanyo Denki's Policies and Future Efforts." The environmental controllers explained "what efforts the company will make" and appealed to all employees to help the Aoki Works obtain certification.



**Kick-off day
April 2, 1997**

3.3 Education and dissemination of information

Education and dissemination of information on environmental issues presumed the secretariat members' understanding of the requirements of ISO 14001. The members therefore began with deepening their understanding of the issues by obtaining and studying the ISO 14001 standard, documents describing the efforts made by other firms who had already obtained certification, other documented information, and by aggressively attending environmental seminars and training sessions.

For education and dissemination of information to employees, the secretariat posted environmental posters and conducted an "environmental questionnaire survey" to examine how much the employees were aware of the environmental issues. In so doing, the secretariat was able to confirm the high interest shown by employees with regards to environmental issues.

The secretariat members also learned from the ISO 14001 "presentation on standard specifications" and "video training sessions" which were provided by external instructors.



**A video training session
February 1998**

3.4 Field survey

The secretariat conducted a field survey to investigate actual conditions of the Aoki Works.

To monitor the status of energy use in the Aoki Works, the secretariat subjected the works to an "energy-saving diagnosis" by an external consultant.

The "energy-saving diagnosis" surveyed the consumption rates of power and fuels (such as kerosene, heavy oil, and LPG) in the factory. The secretariat then identified the problems on the basis of analysis results of the cost ratios of power and fuels with regards to sales and received advice on possible solutions.

Solutions proposed by the consultant were used to determine the solutions with which to obtain the environmental objectives and targets outlined in section 3.5.

3.5 Setting up and implementing environmental policies, objectives, and targets

The environmental policies were determined by the managers and presented in the environmental manual. An "environmental policies card" was then created and distributed among all employees to make sure that they would learn and implement the policies .

The environmental policies included the following as important requirements for environmental management for the Aoki Works:

1. Energy-saving by reducing power consumption
2. Reducing and recycling wastes (waste oil and liquids)
3. Reducing the consumption of paper (copy paper)
4. Reducing the consumption of heavy oil.

With emphasis on the above requirements, the secretariat decided to create an environmental management program that presented the names of the persons responsible, actions to be taken, and schedules to proceed with the solutions accordingly.

The following is a list of the Aoki Work's environmental objectives.

- Regarding power reduction in (1) , reduce the unit requirement for power sales by 14.5% from the fiscal 1998 level by fiscal 2001 (ending in March 2002).
- Regarding waste reduction in (2) , reduce the amount of waste by 9.5% from the fiscal 1998 level by fiscal 2001, thus turning the recycling ratio to 93%.
- Regarding reduction of paper consumption in (3) , reduce by 35% from the fiscal 1998 level by fiscal 2001.
- Regarding reduction in heavy oil consumption in (4) , reduce by 5.0% from the fiscal 1998 level by fiscal 2001.

To fulfill the above environmental objectives, the secretariat took the actions listed below.

Regarding power reduction, "Typical Problems and Solutions" presented in the report made by the "Energy-saving Task Force" are listed below.

<Power reduction>

1.Effective use of direct production equipment

(Problems)

- The equipment requires too large an amount of standby power time.
- The drying furnace has unperiodic operation times.

(Solutions)

- Reduce the consumption of standby power to a necessary minimum.
- Operate the drying furnace centrally.

2.Effective use of indirect production equipment (such as PCs)

(Problems)

- Wasteful use of power.
- The equipment requires too large an amount of standby power time.

(Solutions)

- Unify the OFF settings on the display screen.
- Switch off the equipment when not in use.

3.Higher operation efficiency of the compressors

(Problems)

- Excessive air leakage.
- Waste from too many pipes connected to a single port and the use of superfluous piping.

(Solutions)

- Reinforced measures against air leaks and periodic checks.
- Elimination of too many pipes connected to a single port and of superfluous piping.

4.Higher operation efficiency of room coolers, heaters and air-conditioners

(Problems)

- Warmed air accumulates in the ceiling area or escapes outside.
- The temperature settings on the room coolers and heaters are not unified.

(Solutions)

- Use of reversible fans.
- Leveling of room temperatures.

5. Power-saving of lighting equipment

(Problems)

- Room lamps and proximity lamps are left on when not required.
- Too many fluorescent lamps.

(Solutions)

- Measure brightness and appropriate illuminance.
- Remove fluorescent lamps appropriately.

<Reducing wastes>

(1) Use long-lasting cleaning and grinding fluids.

(2) Recycle Styrofoam and waste plastics.

<Reducing paper consumption>

(1) Promote the use of copying on both sides and the use of the verso.

(2) Use email, bulletin boards, and circulatory methods of communication.

(3) Let a single unit handle the information and share it.

<Reducing the consumption of heavy oil>

(1) Level room temperatures.

(2) Recycle duct exhaust gases.

The following is a track record that the company initiated in August 1999, regarding the implementation status of the above measures.

- Regarding power reduction, there was an 8% reduction from the fiscal 1998 level.
- Regarding waste reduction, there was a 24% reduction in the amount of waste from the fiscal 1998 level, Obtaining a recycling ratio of 89%.
- Regarding paper consumption reduction, there was a 49% reduction from the fiscal 1998 level.
- Regarding heavy oil consumption reduction there was a 36% cut from the fiscal 1998 level.

All environmental objectives presented in the fiscal 1999 program were fulfilled by August 1999.

Aoki Work's Environmental Policies

Basic Philosophy

Sanyo Denki Co., Ltd. For society and the natural environment we will help preserve the global environment and contribute to the prosperity of mankind through our corporate activities.

Basic Policies

The Aoki Works, Ueda Station of Sanyo Denki Co., Ltd. is located in Aoki-mura, Chiisagata-gun in Nagano Prefecture. In the midst of beautiful naturalistic Shinano, the factory manufactures stepping motors used in printers, copiers, and other equipment. In view of these considerations, the Aoki Works will run its activities with emphasis on the following:

1. The Aoki Works will build an environmental management system, prevent contamination, and take continual measures to eliminate adverse environmental effects according to ISO 14001.
2. The works will survey and evaluate the environmental effects of corporate activities and products, determine environmental objectives and goals, and revise its environmental management system periodically.
The Works will also address the following as important requirements for environmental management:
 - (1)Energy-saving by reducing power consumption
 - (2)Reducing and recycling wastes (waste oil and liquids)
 - (3)Reducing paper consumption
 - (4)Reducing heavy oil consumption.
3. The Works will observe all legal regulations related to environmental issues, all agreements made with Aoki-mura, and other requirements agreed on by the organization, and will establish a set of voluntary control standards for air pollution stemming from boiler combustion and water turbidity for the Urano River in an attempt to conserve the environment.
4. The environmental policies will be documented, implemented and maintained. They will be made known to all employees to increase their awareness. These policies will also be made known to all suppliers, who will be required to cooperate. These results will then be reflected on the environmental management activities.
5. The environmental policies will be disclosed to the general public.

April 1, 1999

Katsuhiko Baba

Manager of the Servo Systems Division
Aoki Works Ueda Station Sanyo Denki Co., Ltd.

Aoki Work's environmental policies

3.6 Conducting internal environmental audits

The secretariat selected six internal environmental auditors, who attended an external "Course for Internal Environmental Auditors."

Internal environmental audits must be conducted to examine whether the system satisfies ISO requirements, whether the activities and related results are implemented and maintained as scheduled, and whether the system is legal and effective.

The secretariat drafted an implementation procedure and, before the first-run audit, conducted an audit on each department according to that procedure.

4. Examination by a third party

The Aoki Works selected the Japan Audit and Certification Organization for

Environment and Quality (JACO) as its examiner.

The following is a report on how the audit proceeded in a sequential manner.

4.1 Application

The secretariat submitted a "provisional application" in January 1998. In June, the secretariat filed an "official application" form with JACO and signed an agreement with the latter.

4.2 Preliminary audit

On completing an environmental manual, the secretariat filed the manual with JACO in September. With the findings of the audit in consideration, a preliminary examination was conducted on October 7 and 8, 1999.

The preliminary audit was an optional one (not a compulsory one) to be conducted by the auditing body. It was conducted anyway to allow the Aoki Works to become accustomed to the audit procedure.

Audit of the environmental manual produced approximately sixty findings throughout the text, including minor points.

The plant tour audit produced findings related particularly to oil leakage prevention in the factory, labeling of waste oil storage and chips storage, and other facility enhancement.

To solve the oil leakage problem in the factory, the secretariat conducted maintenance and servicing of the equipment and facilities in the factory. To solve the waste oil storage and chips storage problems, the secretariat switched to an alternative method of discharging wastes, thus enhancing the facilities.

4.3 First-run audit

In December 1998, the revised environmental manual from findings presented in the preliminary audit was filed with JACO. The Aoki Works then received a first-run audit on January 28 and 29, 1999.

The first-run audit came up with eight findings. Two of these findings were major defects.

These major defects were the lack of a specific description of the administration procedures of the environmental facility and the lack of emergency preparation.

To solve the administration procedures problem, the secretariat revised the works procedure with regards to the maintenance of the environmental facility and trained the personnel concerned. To solve the emergency preparation problem, the secretariat revised first-aid measures in the case of assumed emergencies and conducted training as to the additions made with regards to leakage of fuels and dangerous substances and leakage of oils from the central coolant, chips storage, and waste oil storage.

4.4 Registration audit

The registration audit took place on March 15 and 16, 1999.

This audit was conducted mainly to check whether the system cycle was functioning properly, rather than whether the environmental management system was properly set up. The plant tour audit identified four minor defects.

These four defects were corrected immediately. As a result of the audit conducted by the auditing body, the Aoki Works obtained certification on March 29, 1999.

The works was registered as the 569th establishment in Japan, and obtained this certification in March 1999—just as scheduled.

5. Conclusion

This paper has so far outlined how the Aoki Works worked to obtain certification under ISO 14001.

Sanyo Denki's corporate philosophy defines its environmental guideline as to "For society and the natural environment we will help preserve the global environment and contribute to the prosperity of mankind through our corporate activities" The philosophy also states that all works of the company are to obtain certification under ISO 14001 by March 2001.

At the moment, the Fujiyama Works and the Technology Center are proceeding with its certification—obtaining project and are scheduled to obtain such certification by the end of this year.

The obtainment of certification under ISO 14001 is not the final stage of addressing environmental issues. Rather, the obtainment of such certification is just the start of performing environmental protection activities.

ISO 14001 is a system designed to build up an environmental management system, by administering the cycle of Plan, Do, Check, and Action, and conduct continuous improvement.

It is my belief that the obtainment of certification under ISO 14001 will become significant when each and every employee thinks of what to do to save the earth and the environmental management system developed by the employees themselves is further upgraded.

Hiroshi Miyazaki

Joined company in 1982

Engineering Management Division

Worked on quality control and production engineering,
then on environmental management
