Westvaco ISO 9002 certification: Why and how

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ABSTRACT: ISO certification is a complex process requiring elaborate preparation, from choosing a registrar and educating corporate personnel to organizing internal ISO teams, performing self-help audits, and communicating certification to internal and external audiences. Nonetheless, the benefits of ISO certification that arise in marketing, quality assurance, and global competitiveness more than offset the monetary and time costs associated with the process.

KEYWORDS: Certification, EEC, international relations, ISO, marketing, quality control, regulations, standards.

The International Standards Organization's (ISO) 9000 series of quality system management standards assures a registrant's customers that its quality management systems adhere strictly to documented procedures and instructions.

U.S. manufacturers with international interests are being compelled to seek ISO 9000 certification by the impending unification of 12 European nations into a single trading block with more than 350 million consumers and a US$ 5 trillion annual economy.[1] ISO 9000 series standards have been adopted as part of the unification program and are seen as a commercial requirement for doing business in EC-92. ISO 9000 is rapidly becoming a worldwide standard.

Aside from its value in providing entry into the business order of the European community, ISO certification has the ability to enact operational changes that improve the overall quality of products and services. It also strengthens a company for competition elsewhere in the world.

The quality initiative

As Kaoru Ishikawa put it in the book *What Is Total Quality?*, "Everyone in every division of the company must study, practice and participate in quality control. Total quality control is a thought revolution in management. It means putting quality first. Not short-term profit. Not cutting costs. And above all, quality means satisfying the customer, at a price he can afford, not just meeting product standards."[2]

With the emergence of product quality as a significant worldwide concern, the quest for quality has never been keener. It is no longer acceptable merely to say you offer quality products; companies are demanding documented assurance that their suppliers maintain the utmost standards of quality management and quality control.

What is ISO?

The International Standards Organization was founded in 1946 to establish a voluntary set of manufacturing, trade, and communications standards. No legal requirements force companies to embrace ISO standards, but most countries adopt them. The EC adopted the standards by 1987 in anticipation of the 1992 unification.

The ISO 9000 series is a regimented, systematic approach to quality management. It is designed to synthesize the various national and international quality system standards by forcing companies to keep detailed accounting of their procedures and work according to established guidelines.

Certification to the standard does not mean an individual product has been registered, approved, or proven to be of high quality. Rather, it means that a company has documented records to assure the consistency of its quality management systems.

The ISO 9000 series consists of five documents: ISO 9000, 9001, 9002, 9003, and 9004. The first, ISO 9000, is a guideline for the selection and use of the other series standards. It explains concepts, defines terms, and summa-

[1] Burgess, J., "Competing in a Diverse Market," The Washington Post, Dec. 6, 1991, p. A1.

[2] Ishikawa, K., What is Total Quality?, Prentice-Hall, New York, 1985.

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rizes how to select and use ISO 9001, 9002, and 9003.

ISO 9001 involves "Quality Assurance in Design/Development, Production, Installation and Servicing." It is the most comprehensive standard in the series because it runs the entire length of the product or service life cycle.

ISO 9002 is the "Model for Quality Assurance in Production and Installation" and is particularly relevant in industries where specific product requirements are based on established design or specifications. It is the standard utilized by the majority of manufacturing firms, as it focuses on the actual production process, testing, and delivery.

ISO 9003, the "Model for Quality Assurance in Final Inspection and Test," is the least detailed and least referred to of the 9000 series standards. It is often used by smaller corporations or corporate divisions because it concentrates more on end-product testing and measurement.

ISO 9004 provides "Quality Management and Quality System Elements Guidelines." It gives direction for developing and implementing quality systems and determining the extent to which each is applicable.

While ISO certification may not be a legal requirement for nonregulated product to enter a foreign market, it is fast becoming a recognized criterion to distinguish products and quality systems. At this time, 56 countries have adopted the ISO 9000 series as national quality management standards. Thousands of companies worldwide are ISO registered.

In 1989, the U.S. Department of Defense stated its intention to adopt ISO standards. At the time, the announcement generated great concern among government suppliers and contractors but stirred little interest from other U.S. corporations.

Today, however, the advent of a European common market that has adopted the ISO standards is here. As such, a wide range of American companies exporting to Europe now are examining the standards with an eye toward certification, which will give them regulatory permission to trade in the lucrative EC market. Currently, over 250 U.S. company sites are registered to one of the 9000 standards.

Requirements

Westvaco Corp. has achieved ISO 9002 certification for three of its manufacturing facilities. The first is the quality assurance system associated with the manufacture of paperboard produced at its Covington, VA, mill, including the Printkote line. The second location is Westvaco's carbon plant, which produces powdered, granular, shaped, and high purity activated carbon products. This facility, also located in Covington, passed its registration audit on May 20, 1992. The third location is a polychemical plant in Charleston, SC, which received registration in July 1992. This operation produces lignin-based specialty organic compounds such as dispersants, emulsifiers, and other resin products.

ISO 9002 certification requires the establishment, documentation, and ongoing maintenance of 18 quality management and quality system components. These include:

- Management responsibility. Clearly state and document quality policy and objectives to ensure the policy is carried out and maintained throughout all levels of the organization. Develop a sound quality management team which is responsible for implementing a system that provides long-term corrective action and continuous improvement.
- Quality system. Document the quality system to ensure that a product conforms to customer- and supplier-specified requirements. This requires writing out all quality system procedures and instructions in accordance with ISO standards.
- Contract review. Develop review standards to ensure that contract requirements are maintained, current, and documented; that requirements different from those stated are resolved; and that suppliers have the capability to meet contractual requirements.
- Document control. Implement procedures to control all documents and data relating to the ISO 9002 standard requirements.
- Purchasing. Ensure that products purchased from outside suppliers conform to specified requirements. This component also governs the selection of subcontractors based on their ability to meet quality requirements.
- Product identification and traceability. Identify the product by means of drawings, specifications, or other documents, throughout all stages of production, delivery, and installation.
- Process control. Recognize and plan any production and installation processes which directly affect quality to ensure that they are carried out under controlled conditions.
- Inspection and testing. Use documented procedures for inspection and testing as raw materials are received and the product is manufactured and prepared for shipment to ensure that the finished product conforms to specified requirements.
- Inspection and test status. Denote the inspection and test status of products through the use of markings, authorized stamps, tags, data sheets, labels, or other means to indicate conformance or nonconformance.
- Control of nonconforming product. Recognize and segregate from customer orders any product that is nonconforming with regard to specified inspection and test requirements. This applies to in-process as well as finished goods.
- Corrective action. Detect and eliminate potential causes of nonconforming product and apply preventive actions and controls to ensure that effective corrective actions are taken. Implement and record

changes in procedures that result from corrective action. Monitor results of corrective action.

- Handling, storage, packaging, and delivery. Utilize handling methods, storage facilities, and packing, preservation, and marking processes that avert product damage or deterioration and protect product quality after final inspection and testing.
- Quality records. Design systems and procedures for identification, collection, indexing, filing, storage, maintenance, and disposition of quality records.
- Internal quality audits. Conduct internal quality audits to verify whether quality activities comply with planned arrangements and determine the effectiveness of the quality system.
- Training. Appraise training needs and provide training for all personnel activities that affect quality during production and installation.
- Statistical techniques. Identify adequate statistical techniques required for verifying the acceptability of process capability and product characteristics.

Why ISO at Westvaco

Westvaco's decision to pursue ISO 9002 certification was made in the interest of enhancing product marketing, improving corporate quality systems, and complementing the company's global outlook.

Originally, the determination was made to seek certification only for those facilities exporting to Europe, beginning with Westvaco's Covington mill. The paperboard manufactured at the Covington mill comprises a large percentage of Westvaco's export sales, making ISO certification central to sustaining export growth. By becoming the first U.S. papermaker to be ISO certified, Westvaco would gain a substantial marketing advantage over its domestic competitors exporting to Europe. What we have found is that, in addition to the non-European countries adopting the standards, many domestic customers are expressing interest in ISO. As a result, all facilities, regardless of their exporting status, are seeking registration as well.

Adherence to ISO standards can help create a universal quality management system throughout the company. Procedures have been standardized and developed where sometimes none had previously existed. This has led to operational consistency. No longer is an operation dependent on the knowledge and experience of one individual.

ISO has helped to create an environment which fosters improved operational efficiency as well. Communications have improved. Employees now speak the same language. The very nature of the certification process has increased employee participation and created a home for new ideas.

In addition, ISO certification has given Westvaco important third-party recognition where the standard is recognized in other parts of the world. This also means that customer audits may be satisfied more easily or in some cases waived entirely.

As a company, Westvaco is placing increasing emphasis on the global marketplace. Export sales is one of the fastest growing segments of its business, and one which offers unlimited growth potential as it progresses toward the next century. ISO certification will continue to afford important competitive advantages as Westvaco proceeds on this course.

Achieving certification

Choosing a registrar

The initial step in preparing for certification, aside from obtaining the requisite management commitment, is choosing an independent registrar to audit and approve your quality management system against the ISO 9000 standards. There are more than 30 such registrars worldwide.

The facility audit is much like a financial audit in that a sound system and proper document control are necessary to meet the ISO standard's requirements. The audit lasts two to three days and involves two or three auditors.

Each facility must also define the "scope" of the audit and registration. It is possible and often advisable to limit the initial audit to one or two primary manufacturing or service areas. At a later date, management may decide to expand the realm of the scope. This method helps allocate limited resources during the preparation, documentation, and training period.

After a site is certified, at least four surveillance audits over a two-year period are necessary to maintain certification. Approximately one quarter of the quality systems will be examined in each surveillance audit.

Various U.S. organizations are accredited as qualified to offer third-party quality management system audits based on the ISO 9000 criteria. Whether a registrar is qualified to perform a quality system certification is not solely a matter of accreditation, however.

A registrar's quality system audit and subsequent certification of a facility must be acceptable to the rest of the industry and the rest of the world. Many feel that a registrar should have some knowledge of the industry in which the company seeking certification operates. However, others claim that because ISO 9000 certification covers quality management systems, knowledge of the particular industry involved in the audit is unimportant, as the doctrines of good quality systems apply to all industries.

It is also important to consider whether a specific registrar is required or preferred by a customer. Monetary and time costs and geographic compatibility are other important factors.

Costs vary by the size of the company or facility seeking certification, the ISO series designation selected, and the breadth of the certification being sought. Audit fees generally run between US$ 15,000 and US$ 25,000, up to and including the final certification audit. Time costs are more difficult to measure but range from two to four man-years. This figure includes addi-

tional clerical, administrative, and implementation support.

After a comprehensive search, Westvaco chose Underwriters Laboratories (UL) as its third-party auditor. UL maintains a Memo of Understanding with the British Standards Institute (BSI), and the Dutch RvC, the two primary European registrars, which allow cross-certification. As such, the significance of Westvaco's certification is not diminished.

Internal organization

Once Westvaco had chosen its registrar, internal ISO teams were organized on two levels. At the corporate level, a steering committee initially was established to develop an appropriate approach for all Westvaco facilities seeking ISO certification. Corporate Marketing Services now coordinates, guides, and unifies all companywide ISO activities.

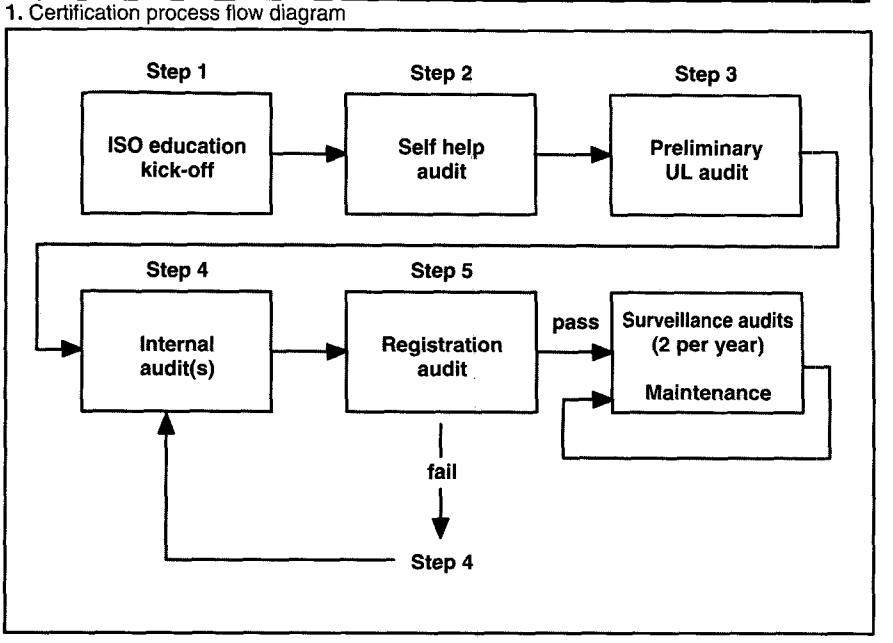
Marketing Services helps to define responsibilities, guide ISO education efforts, and schedule audit activities with UL. It also monitors facility progress, helps facilities with ISO activities and education, and collects and disseminates ISO news and updates.

Because of its bird's-eye view of all division activities and capacity to market ISO activities externally and internally, Marketing Services closes the communication loop by apprising senior management and division heads of all ISO activities. It reports directly to Westvaco's CEO designate, emphasizing the corporate commitment.

In addition, Marketing Services provides assistance to Westvaco's customers and suppliers who are seeking their own ISO certification. Customers view this as a value-added service, which makes it an effective marketing tool.

At the mill level, an ISO facility coordinator has been appointed to develop internal audit schedules, establish goals, and appoint ISO work, documentation, and audit teams. The facility coordinator is empowered to make necessary changes to the quality system to meet ISO 9002 requirements and serves as a liaison with corporate management. An organization's facility coordinator should have leadership, organizational, and detail related skills. Often this temporarily becomes a full-time position.

1. Certification process flow diagram



Audit time frame

It generally requires 12–24 months to complete the ISO certification cycle. Impressively, the Covington mill finished the process in 12 months.

The process is perhaps best characterized in the flow diagram shown in **Fig. 1.** Activities that should occur before the preliminary audit (Step 3) are:

- Management commitment
- Education of mill personnel through a study of the ISO standard
- Assembly of an ISO team(s)
- Begin documentation of all operating and quality procedure manuals
- Design a quality documentation control system
- Develop an action plan and timetable
- Write general first draft of quality manual and submit to registrar
- Develop recordkeeping, calibration, and training systems
- Train mill personnel to become internal auditors.

Activities that should occur during Steps 3-5 include:

- Fine-tune documentation to fit standard as revealed in the preliminary audit
- Conduct internal audits in all areas and correct remaining discrepancies.

Education

Westvaco's ISO education efforts began in a general educational seminar which introduced plant and mill managers, superintendents, and supervisors to the ISO process and detailed the time and resources necessary to achieve certification. A more elaborate seminar was then conducted for the department supervisors and superintendents involved to explain the ISO process and why it was being undertaken and to clarify expectations for each department. This was done by the ISO coordinator and training personnel.

As a general rule, it is important to actively enlist cooperation and contribution by union representatives during this initial training. Reticence may

be encountered, but support will follow once operational goals and quality benefits are understood.

Several key points helped to gain the backing of the Covington mill personnel. It was communicated to the mill employees that the ISO certification process would not necessarily change the way they performed their jobs. It was also made clear that the program was being carried out in keeping with corporate goals and with the total involvement of senior management. Input at all operational levels was absolutely crucial to facilitate the process.

After gaining their support, Covington mill personnel were instructed in how to prepare quality assurance documents in accordance with ISO standards and how to conduct self-help audits. In some organizations, it may be necessary to have an outside consultant explain this process if no internal personnel have experience in this area.

Formation of work teams

After key personnel had been educated, the Covington mill ISO facility coordinator assembled a certification team consisting of two ISO deputies and various ISO area leaders to assist in the implementation. Individuals who exhibited excellent leadership, organizational, motivational, and "detail" abilities were sought for the certification team.

The ISO area leaders represented different functional areas of the mill, including the paper mill, quality assurance, administration, and sales and marketing. These individuals were highly regarded within their respective departments and, like the ISO facility coordinator, were empowered to implement changes as needed.

Because area and machine operators possess the most thorough knowledge of their job functions and responsibilities, they were held accountable for writing many operating procedure manuals. Area leaders were then responsible for applying ISO standards and guidelines to the individual operating areas, documenting procedures and work instructions, and further defining operational intricacies.

Self-help audit and corrective action

Corporate and mill personnel who had been trained in auditing techniques then conducted self-help audits to measure Westvaco's existing quality assurance procedures against ISO guidelines. Self-help audits, like the official certification audit, cover all 18 elements of the standard.

The key was to ensure that each of the operating procedures was documented and formatted to ISO standards, that the mill could demonstrate documentation for each, and that all of the policies and procedures were understood, maintained, and implemented throughout all organizational levels.

Once these audits were completed, a list of specific actions and audit points needed to be addressed in order to conform to ISO criteria. The ISO team members were assigned specific tasks and responsibilities in order to correct the actions and audit points identified in the self audit. Regular meetings were held between team members and the ISO facility coordinator to discuss the progress.

During this time, the ISO facility coordinator continued writing the comprehensive Quality Manual, incorporating the work of the ISO team members.

Preliminary UL audit

The preliminary third-party audit is not a required step in the ISO certification process, but it is one that is of great benefit. Seventy-five percent of facilities that participate in a preliminary audit and implement the necessary corrective action go on to receive ISO certification.

The purpose of the preliminary audit is to familiarize the company's personnel with how the applicable ISO 9000 standard requirements relate to each site as well as to determine the facility's state of readiness for certification.

At this stage, the third-party auditor is a friend, not an adversary. Westvaco's UL auditors were accompanied during the audit by the ISO facility coordinator, the ISO deputies and one ISO area leader. An open dialogue took place, during which many questions and concerns were addressed.

The auditors looked at the quality systems and the quality manual and identified discrepancies with the applicable clauses of the ISO 9000 standard—in effect, the areas that still needed to be addressed prior to ISO certification. These results were stated in a preliminary evaluation report.

Following closely UL's preliminary report, as well as any additional observations or comments made throughout the course of the audit, Westvaco took additional corrective actions to address the remaining discrepancies. Three months prior to the final audit date, a second self-help audit was held to ensure that Westvaco's Covington mill was in total compliance with the ISO 9002 standard.

Having made the necessary minor adjustments, Westvaco's Covington mill achieved ISO 9002 certification in October 1991. Biannual surveillance audits conducted by UL will ensure continued adherence to the standard.

It is important that the system be audited by an internal audit team regularly. Where documentation/systems are missing or inadequate, corrective action requests are issued and must be responded to in a given time period. This process is the same one that the registrar uses for the surveillance audit.

Post-certification communications

After Westvaco attained ISO 9002 certification, it was important that the company communicate its achievement to vital external and internal constituents. External communications focused on shareholders, vendors, and international customers. Press releases were issued to gain publicity in international special interest publications, local newspapers at all company locations,

national media, paper, packaging trade press, business publications, and daily newspapers in key cities.

The central message communicated to the company's international customers was that Westvaco's Covington mill was the first U.S. paper mill to receive such certification. This provided credentials for its quality systems, which will aid in the marketing of the mill's and its customers' products in Europe and other international markets.

For Westvaco's domestic customers, communications stressed that ISO 9002 certification means added value and assured quality. Furthermore, for those customers seeking ISO certification themselves, it was pointed out that the product they purchase from Westvaco meets ISO standards for incoming raw materials.

Internal communications concentrated on Westvaco's corporate and mill employees, management, and sales force.

It was important for Westvaco's sales force to be versed in the importance of ISO 9002 certification so that the benefit to the customer could be clearly communicated. A letter was drafted which outlined exactly what ISO certification is, what it means, and how Westvaco achieved it. Reprints of significant publicity also were sent to all sales offices.

Summary

The elaborate preparation required by ISO certification is helping Westvaco's organization run more efficiently and ensures that everyone adheres to the same principles of quality management and speaks the same language.

Adherence to ISO tenets also is central to customer satisfaction. It helps eliminate substandard products and ensure that relationships are carried out in accordance with previously agreed-to covenants.

In short, ISO certification is a solid, common-sense business decision that may require little or no change in basic operational systems but imparts far-reaching benefits in marketing, quality assurance, and global competitiveness. TJ

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