

ISO 9000: Practical Consideration Towards Ship Operators Classification

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**May 12, 1994
Ship Operations, Management and Economics Symposium
U.S. Merchant Marine Academy**



THE SOCIETY OF NAVAL ARCHITECTS AND MARINE ENGINEERS

New York Metropolitan Section

601 Pavonia Avenue, Jersey City, NJ 07306

Paper presented at the 1994 Ship Operations, Management and Economics Symposium
at the U.S. Merchant Marine Academy, Kings Point, NY, May 12, 1994

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No. 8

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ABSTRACT

There are various reasons for a shipowner to consider classification under the ISO 9000 system. These reasons could be related to shipper requirements, charterer requirements and emerging regulatory requirements.

This paper very briefly outlines the various procedures and standards which come into play when a ship owner is considering classification.

The main portion of the paper describes a typical certification process including the time span and approximate cost for the certification process. It summarizes potential pitfalls and describes methods for streamlining the process and optimizing the number of corporate and shipboard procedures.

INTRODUCTION

Quality and ISO 9000

Quality systems have been around for more than 30 years, in fact American experts migrated them to Japan in the 1960's and these systems are credited with that Country's advance into one of the predominant manufacturing nations of the world today. Quality system introduction was one of the leading contributors to the modernization and survivability of Japanese Industry including shipyards.

ISO 9000 is a recent addition to the quality scene and is a European based system of quality standards originally developed for product quality acceptance and more recently applied to "quality management" for all sorts of Companies including those not involved in manufacturing of products.

ISO 9000 has started to affect the Marine Industry over the past several years due to pressure being brought on by shippers and charterers. In addition underwriters have at least given lip service to the need for quality in ship management and ship operation. The pressure being strictly commercial rather than statutory at this time has allowed the ship-owning community to consider the implementation of quality management in a leisurely manner but more and more Companies are in the process of working towards certification or at least considering certification in the near future. Any additional pressure from the underwriters, Flag States or Port States will speed up this process.

ISO 9000 is a series of five quality system standards (two guidance and three commercial standards) developed by the International Organization for Standardization.

The standards that apply directly to Shipping Company's are:

- ISO 9001 - A full scope standard covering design, production, servicing and installation;
- ISO 9002 - A sub-set of 9001 and does not cover design.

For most shipping companies ISO 9002 is the preferred standard.

Although ISO 9002 is most commonly used for shipping companies it has to be marinated to some extent as the original ISO 9000 group of standards was developed for the manufacturing industry. In addition it has to be tailored to fit the particular shipping company's sphere of operation and the company's existing policies and procedures have to be reviewed and possibly revised to meet the intent of ISO Quality Management and the specific ISO 9000 standard chosen.

REASONS TO IMPLEMENT ISO 9000

There are a number of reasons to implement ISO 9000 Quality Management Systems including internal improvement (procedures and processes), marketing position, supplier control, ease of training new staff and customer or regulatory requirements. Briefly these can be described as follows:

- Internal improvement - improving the quality of operations increases efficiency as well as control over operations resulting in lower costs.
- Marketing position - a company with ISO 9000 certification in a bad market may well obtain employment when compared to a company without certification.
- Supplier control - ISO 9000 may be used as a method of supplier control.
- Ease of training - with properly documented procedures and work instructions (processes) it is easier to train new employees in accordance with the written instructions.
- Customer/regulatory - if Company Management commits to certification, ISO 9000 may well be the most effective method of meeting the multiple requirements of their customers and regulatory agencies with a single standard. This would include Shipper and Charterer requirements as well as Flag State, Port State and Classification Society Rules and Requirements.

SHOULD WE? - PRO AND CON

The shipping Industry is polarized by the debate on the role of Quality Management. Its advocates say that the Industry cannot survive without it, while its opponents say that there is no proven need and ISO 9000 is not the correct standard to use in the Industry. The arguments against quality systems and ISO 9000 to a great extent are the result of a lack of understanding of the role of quality systems particularly as they apply to a service industry.

It should be kept in mind that a quality system allows a deliverer of service greater control over the quality of the end service by formally defining the procedures used in delivering the service. The aim is to improve communication and remove any bumps in the processes used in the service chain. Once this is accomplished, fewer mistakes will be made or when mistakes are made the weak spots can be accurately identified and corrective action taken to strengthen the process.

The foundation of any quality system is documentation which formally defines the roles of all employees, the lines of responsibility and communication, the actual processes used, the measurement criteria and requires an accurate record keeping system with traceability for critical and controlled documents.

The opponents of ISO 9000 were initially justified in their concern relative to applying the standard to not only a service industry but specifically shipping. The standard was based on the BS 5750 and originally aimed at manufacturers and even today includes sections and terminology which are not familiar to us in the marine sector. Today this objection has been overcome as many

of the qualified institutions, particularly the major Classification Societies, have provided guidelines for ship owners, ship managers and shipping companies which make it slightly easier to comply with the standard.

The other aspect of this concern was the number of standards being pushed by various groups within the industry however today this is largely a thing of the past as recognition of ISO 9000 and specifically ISO 9002 is accepted as the most commonly applied quality standard in the shipping industry.

The question of the need for quality systems in shipping companies is the area of most contention; however this author does not believe anyone in our industry today would argue, in view of recent casualties impacted by human errors, against getting our house in order by starting to put more formal management systems into effect for all participants in the shipping business. One way to accomplish this is by implementing formal quality, safety and environmental systems within the company. Safety and environmental systems are or will be mandated by the Flag States and IMO by regulations promulgated as requirements. However, to date, although proposed at IMO, quality systems are not mandatory. All the more reason for those of us involved to implement a fair and reasonable standard now that actually helps us to carry out our business correctly. A good quality system properly initiated and implemented will not only help to streamline the company processes but will not result in a hindrance in the shipping company performing its business. Should any of you talk to members of a management team that has or is implementing a reasonable and well thought out quality system I believe that you would hear only positive opinions on quality systems. Of course you would also hear that it's not easy and that total commitment is necessary for success. For those who have implemented or are implementing a quality system and are still saying that it's not for them then this author's guess is that they are not receiving the proper assistance in developing their system.

STANDARD LEVELS OF DOCUMENTATION

Generally most ISO 9000 systems are comprised of at least three levels of documentation and ship owners may need assistance in compiling two to three of these levels. The levels are as follows:

- Level One Quality System Manual (21-24 sections depending on the standard chosen)
- Level Two Quality Operating Procedures driven by the Quality Manual and the type of operation (20-40 sections)
- Level Three Normal work instructions, manuals.

or plans relative to ship operation and maintenance, personnel and commercial operations. (should already be in use but are not always available or up-to-date.)

In addition the Company must be committed and organized in order to implement the Quality System including top Management involvement, steering committees, non-conformance reporting systems and corrective action systems, etc.

Subsequent to the preparation of documents, commitment, possible staff training, and implementing a sufficient run time using the system, Internal and External Audits must be held and as a result of these Certification obtained from a Certification Body.

HOW TO PREPARE FOR ISO 9000 CERTIFICATION - THE PROCESS

It is important to stress at this time that if the shipping company's senior management are not totally committed to implementing a quality system with all its implications and are not prepared to deal with cultural change within the organization then they should not proceed. To do so will be a time consuming, costly and frustrating experiment with little gain to the organization. Whatever the state of the company's organization, policies and procedures implementing the system will result in changes. The good news is that, done correctly, the changes will introduce more order into the company processes, better define responsibilities and reporting relationships, assist in training of personnel and ensure a more cost effective method of carrying out the company business.

Once the decision has been made to go ahead the senior management should decide which standard they are going to implement, who will be the responsible person and his team to lead the effort and whether a consultant will be used and if so, who.

Next the responsible person should review the documents presently in use by the company relative to the operation and ultimate servicing of the clients. These should include such documents as company policies and procedures, on board instructions, maintenance and operating procedures, letters to Master, reporting instructions, safety manuals, certificate books and other plans and manuals which will in the future be linked to the quality system documentation. Once this initial quick review is completed and a comprehensive listing of documents used in the business both on board the ships and in the office is developed a start can be made in defining the activity needed to be covered by the quality system.

Once this preliminary work has been done a Quality Manual has to be developed reflecting the standard to be

applied and the actual operation within the company. This is a time consuming process and will drive the first set of changes within the company to create the linkage required. In general most shipping companies will already have many of the elements necessary but in different forms than that required by the standard or in a more ad hoc way. The development of the Quality Manual in accordance with the standard is the key step in setting up the quality system and will drive the development of the quality procedures and the linking of the company's policies and procedures and operating instructions. The Quality Manual will include the company's Quality Policy Statement and possibly a company Mission Statement. During this developmental process the company should set up a quality steering committee and nominate a quality representative or quality manager. Additionally training should be considered at this point, at least for the management group in quality systems.

After the completion of the Quality Manual, a set of Quality Procedures will have to be developed reflecting the directives present in the manual and tailored to the existing company operational policies, procedures and instructions.

Once the Quality Manual and Quality Procedures are completed then the company policies, procedures, instructions, operating procedures, subject specific manuals and plans must be reviewed for compliance with the standard and upper tier documents and accepted or modified to comply. This is a multi stage effort involving personnel on board the company vessels as well as the whole marine staff. There are two cautions to be applied throughout this process, first to keep the system as simple and applicable as possible and second to ensure that all procedures actually reflect how the procedure or process is carried out within the company.

During the process of development the quality representative and the quality steering committee should review all documents for accuracy and applicability and sanction each step taken in respect of the quality system. This is a critical component of the quality system development and is to be documented as part of the quality records. At the same time a quality filing system will be established in order to provide the document retention and traceability requirement of the quality system.

The quality filing system in itself is a rather complex system, which consists of paper tracking and filing procedures, procedure manual originals (generally kept on word processing systems) flowcharts and communications lists.

All these documents have to be rationally, continuously and systematically updated, which can be quite a time consuming task. If not properly organized such updating (caused by, say, changes in telephone numbers, or personnel) can quickly make the whole set of

ISO 9000 documents worthless.

To facilitate such changes, investigations are presently taking place in identifying, or developing computer programs, which treat the system as a whole. Such a system would update all affected procedures and manuals when a detail changes in the System, and provide all affected parties with the manual updates. Eventually such a system could make all manuals computer based, where users could actually search their ISO 9000 system on the computer for useful instructions and guidance.

At this stage, computer based ISO 9000 systems would not be fully acceptable, since the certification of a ship operator is based on paper manuals, but as a future goal such systems could be quite attractive.

As can be noted from the above general description of preparation the quality system is much like a pyramid with the top being the Quality Manual, the next level being the Quality Operating Procedures and the foundation level being the actual instructions, policies, procedures, manuals and plans used in the day to day operation on the vessels and in the office.

IMPLEMENTING THE PROCESS

After the preparation of the Quality Manual, Quality Operating Procedures and the considerable work required in most companies on the third level documents and review and acceptance of all of the three levels of documents by senior management and the quality steering committee the company is now ready to implement the system as a real life test. The quality documents and revised operating documents must be transmitted to all responsible persons in the fleet and within the office in a controlled manner using standard transmittal sheets with response forms and indicating the proper document and revision numbers.

Implementation in most cases will take time as there will be many changes in the way processes are documented and some changes in the actual processes themselves. The company managers must expect that there will be suggestions and comments on the efficiency of the existing and new procedures as well as suggestions on how to make them better or proposals for additional procedures. This will be accomplished through the quality system non-conformance reporting system and dealt with by the system corrective action system. Rather than creating concern at the management level this should be viewed as an opportunity to improve the company operation and permit the company to deliver its service in a more effective way with fewer mistakes and with benefit to the bottom line. All resultant changes in documentation shall be covered and documented using the proper numbering system and revision numbers and dates.

The implementation period will be a time of continuous change for the betterment of the company as

a whole and as implementation takes hold the changes will stabilize at a reasonable level.

During the implementation phase training should be conducted throughout the company on quality systems in general and specifically on the company quality system.

This phase cannot be rushed as change comes slowly but can be influenced by the amount and quality of training provided.

TESTING THE SYSTEM - THE INTERNAL AUDIT

Prior to the initial audit it is necessary to have hired an auditor on staff or trained a staff member or members in audit procedures.

Internal audits should be carried out by the designated auditor on all of the procedures and processes dictated by all three levels of documentation referred to earlier in this paper both in the office and on board company vessels.

The results of the internal audits will be reviewed by the auditor, the quality representative and the quality steering committee and corrective action taken as necessary to correct deficiencies and make changes in processes, procedures and documentation in order to correct or enhance the quality system. Again all new or revised documents must be in accordance with the quality system.

PRE-CERTIFICATION

Although not required for certification a pre-assessment or pre-certification is an opportunity for the group that will ultimately certify the quality system to review the documentation and to offer advice as to the completeness of the quality system and review some of the procedures in use, giving feedback as to the actual implementation.

This step can be conducted after implementation and well before actual certification giving the company time to address any problems found in an organized manner.

- Some organizations will in addition to pre-assessment conduct training on quality systems and for internal auditors at the same time, which is an advantage to the company.

CERTIFICATION

Certification is, of course, the target for companies implementing quality systems both to provide themselves assurance that they have accomplished what they have set out to do and to show to the industry that they have a legitimate quality system in place.

The certifying authority selected will audit the

company offices and a representative sampling of the company vessels to ascertain whether the quality system is in fact working as stated in the quality documents, that the documents are complete and relevant and that the company personnel know their responsibilities within the quality system and as covered by the operational instructions.

The initial certification may require a number of visits by the auditors depending on the readiness of the company and may well result in deficiencies which have to be addressed by the company by way of additional documents or corrective action.

Once the audit is complete to the certifying authority's satisfaction a certificate will be issued testifying that the company is certified to the standard and subject to future periodic audits. Certification is not a one time event and maintenance of the quality system is essential to retain certification. As stated earlier in this paper, the majority of shipping company quality certifications are carried out by the major Classification societies to the ISO 9000 standard.

ONGOING IMPROVEMENT

The real value and the most quoted purpose of implementing a quality system is to improve the system in effect for running the company with the resultant payback in fewer mistakes, less lost time, increased productivity and a more profitable operation.

Other one time changes in operating procedures aside from quality system implementation can accomplish the same goal however the inherent non-conformance and corrective action loops contained in quality systems are the best way for a company to accomplish ongoing improvement in a planned rational way. In addition the personnel training implicit in a quality system guarantees a work force committed to improvement of the internal systems, procedures and processes to create added efficiencies in the company.

Throughout the process companies will experience better communication, more team approaches to projects and problem solving and reductions in unnecessary costs due to reworking, loss of hire and possibly in the future reduced insurance costs.

AN AMERICAN SHIPPING COMPANY - AN EXAMPLE

This writer has had the opportunity to work with an American shipping company who is presently proceeding through a quality effort with the target being certification to ISO 9002 and my experience as well as those from within the company is that although it represents considerable effort the end result will be worthwhile and

it will improve the operation. Although not yet implemented, some benefits have already accrued by increasing communication about policies and procedures both in the office and between the vessels and the office, by capturing in specific documents policies and procedures which were separated into many different manuals and forms of instructions and by creating document retention and retrieval procedures to facilitate project control.

The company involved is an excellent shipping operation with all of the required manuals, procedures, instructions and plans necessary for operation within the U.S. trades. However, even with this full degree of compliance, significant work is involved in developing the Quality Manual, Quality Operating Procedures and correlating the third level of documentation. At the same time the company elected to take the opportunity to formalize many operating procedures and processes that were not previously required by their operation.

An advantage encountered early on in the process was that the documentation of procedures and processes enables new hires to quickly assimilate into the company and to their particular assignment.

The experience to date with this sample company indicates that implementing an ISO 9002 quality system is doable, consists of dedication and hard work and will be worthwhile for the company over the long run.

TIME AND COST

Two of the most asked questions relative to quality systems are "How long does it take?" and "What does it cost?" and both are difficult to answer as all companies will vary depending on the current state of their operational documentation as well as how many people they can dedicate to the effort. Both can contribute to both time and cost.

In the writer's experience the question of dedicated people is the most critical in view of the fact that today all companies involved in shipping are lean in terms of manpower and implementing a quality system not only takes time but more importantly takes management time.

A rough estimate of time from the decision to implement to certification would be from 18 months to two years with the costs being a combination of management time costs, consultants fees, documentation costs, training costs, pre-assessment fee and certification fees. The author has heard from some companies that a low estimate is in the \$100,000 range with high estimates in the \$300,000 range.

THE FUTURE

It would take a brave individual to make written

predictions as to where the shipping industry is headed let alone where quality systems in shipping are going. However this writer believes that the introduction of quality systems in shipping companies will continue and increase over the next few years for several reasons. Firstly as more and more recognition is given to operators whose operational results are better than average due, in

part, to quality systems the credibility of these systems will become better recognized and secondly with the advent and scheduled implementation of the IMO International Safety Management Code which fits nicely with implementation of the ISO 9002 standard shipping companies will recognize the benefits of quality systems as a method to smoothly conform to the IMO code.