

WHY ALL THE FUSS?

ISO-Certification of the Norwegian Hydrographic Service

As of March 2003 the Norwegian Hydrographic Service (NHS) received its ISO 9001:2000 Management System Certificate from Det Norske Veritas Certification AS. This paper sheds some light on the reasons for wanting such a system and provides insights into the NHS road to certification.

Quality is the hallmark of hydrographic services around the world. Traditionally, all processes involved in the making of a nautical chart are steeped in quality. Personnel take pride in delivering quality and living up to standards. So why the hassle about ISO-certification?

Winds of Change

Along with most other Hydrographic Services, we too were shaken out of our complacent groove by the advent of Digital Processing and the disturbing possibilities provided by bits and bytes. All our processes were well known; Gold Plated Quality Control was in place and generally all was well with our hydrographic world.

It all started with a wish to do something with the onerous task of surveying. We first did away with the tedious plotting of positions. Then we went on to automatic sounding acquisition and annotations. When the first flood of hydrographic data hit the chart compilers there was no turning back. We had rubbed the lamp and the genie of data handling was asking questions about problems we had never known existed!

Stumbling Forward

In the early 1980s the Norwegian Hydrographic Service began the massive transition from a more or less purely analogue production line to a new digital form of production. Digital technology in our field was, at that stage, far from sufficiently developed and we experienced considerable problems trying to cope with the multitude of day-to-day hiccups and grosser mistakes encountered in trying to move forward. Ours is a comparatively small organisation. The people who needed to make the transition into a digital world were the same ones that were needed to keep the wheels turning producing paper charts in the traditional fashion. Doing the paper work for documentation of the new processes and description of the new routines was put on the back burner. Besides, processes took time to mature and proper routines could only be written when all interface problems were resolved.

The prime requisite for quality control is that you have determined quality requirements and documented procedures on how to attain the quality objectives. An ISO certification audit reviews the extent and relevance of your documentation. Everyone is kept on his toes establishing the quality system foundation for the organisation. The threat of subsequent audits keeps routines and documentation up to scratch.

People Empowerment

Along with the technical evolution and the emergence of new categories of personnel needed to drive development forward, it was soon realised that new forms of management principles were required. No longer can you "throw the book" at an employee when the book belongs to another world. Gone is the day when the Governor, by force of his omnipotent knowledge within hydrography, cartography, geodesy etc, could take anyone to task. Managers have come to realise that they are, to a large extent, at the mercy of the Sorcerers of the ubiquitous bits and bytes.

Liability Issues

The possibilities for precise positioning and recent development of the Electronic Chart have led to a far greater exploitation of Chart Data by the navigator. Previously, chart data was normally by an order of magnitude more accurate than what the average navigator was able to attain. This has traditionally led to a cautious approach when navigating, giving wide berths to dangerous areas. There is a tendency among navigators in the electronic chart realm to exploit the new chart data by entering waters which might earlier have been avoided due to uncertain navigation or by taking more "close shaves" in dangerous areas. This is done with the confidence instilled by ease of navigation brought by the electronic chart and with the proven accuracy in GPS navigation.

Most Hydrographic Services will for a number of years yet have to issue charts comprising data of lesser navigation accuracy than that obtainable through DGPS and the electronic chart.

With the average navigator's, often limited, knowledge of the reliability of chart data a growing amount of litigation based on documentation difficult to refute may safely be expected. Hydrographic Services might get off the hook by issuing warnings of accuracy and reliability less than desired. It will be the area of negligence that then leaves the Hydrographic Services vulnerable. Besides its intrinsic value, a quality system will be the best guarantee against allegations of negligence.

Reaping Benefits of ISO

It was realised that reconstructing quality control in the Norwegian Hydrographic Service required a systematic approach. The model was found in the international standard for Quality Management Systems ISO 9001:2000.

In its new 2000 issue the standard provides a sound basis for developing efficient and practical solutions to our problems. Based on the ISO 9001:2000 standard our quality policy has been determined, the principles for how this policy is implemented have been laid down in our Quality handbook, quality objectives have been determined and the principles by which leadership and communication is practised have been spelled out. The various departments and units throughout the organisation have determined and described their processes and their interfaces. A major challenge is to "walk the talk". The fact that the personnel responsible for the processes have laid down and maintain their own guidelines is the best guarantee for the continued relevance of the documentation. This work being done under the auspices of the Total Quality Management principles adopted by the management has proved successful and led to the certification by Norwegian Veritas of the Norwegian Hydrographic Service to the ISO 9001:2000 standard.

Going the Whole Hog

An early decision was to have the quality system encompass all the processes required to produce the charts and other nautical publications required by international law to be carried by ships. The quality system therefore also extends to the actual acquisition of survey data. Where we ourselves survey, principles are laid down, the processes and requirements for improvement determined and routines, manuals etc. all form a part of the overall system. Where we contract out, whether it is for surveying or for chart production, audits of the contractor's quality system are a part of the pre-qualification process.

The surveying vessels, qua ships, come under the IMS-rules.

A question often asked is whether the quality system has resulted in any tangible improvements. Coming up with an answer to this poser is like trying to decide whether the patient has improved due to the medication or has grown better despite the medicine. Particularly irksome is the question whether the system can be proved to be profitable! Many a fledgling quality manager has been shot down with this ammunition. What one can safely say is that the lack of a quality system carries a far greater risk of expenses in the form of repetitive errors, inefficiency and downright lawsuits than if one's "house" is in order and driven by a well adapted and functioning quality system.

In the Norwegian Hydrographic Service the process of establishing the quality system compliant with the ISO 9001:2000 standard has had a series of salutary effects.

The production of quality manuals has compelled all process owners to precisely define their processes and their interactions with the neighbouring processes. The big surprise to everyone came when it was realised that this basic requirement was far from clear in the beginning. The result from this part of the job alone is a much more smooth line of production.

Quality Then and Now

In earlier days quality very often took ascendancy over productivity in chart production. In the present day and age it is realised that uncompromising demands for quality will not allow us to provide the navigators with comprehensive volumes of chart data on a digital form within reasonable time. Together with the intensive, all absorbing development of the total digital line-of-production, the aspect of quality was one victim left bleeding by the roadside in our progress towards the New Age. Quality aspects, once so inbred in our personnel, can no longer be taken for granted. Developing the quality system has contributed to resurrecting requirements for quality as a state of mind. The ISO-standard places emphasis on systematic improvement. Improvement is nothing new. However, organising a drive for improvement as part of our quality system has resulted in significant salutary results for the NHS.

Quality system audits play an important role. Both internal audits and audits performed on us as part of maintaining the ISO-certificate keep us on our toes, preventing the organisation slipping into a state of disorganisation. Through quality audits our personnel are now far more able to evaluate the contractors currently playing an increasing role in our production. To try and put a figure on all these effects is, however, an exercise not worth the effort in view of the inherent uncertainty.

Achieving the ISO-certificate is a major milestone for the Norwegian Hydrographic Service. Our main objective being the provision of safety of navigation, we feel that the cost-effective satisfaction of customer requirements, needs and expectations is best served if provided under the auspices of the ISO-standard. We are doing our level best.