

Safety Regulations – How can they be applied more economically?

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Abstract. The international shipping industry is governed by regulations established at the International Maritime Organisation (IMO) and implemented by flag states. In addition, regional and national agreements plus classification society rules collectively form the maritime regulatory framework. With each novel or enhanced regulation for the shipping industry entering into force, requirements related to documentation increase. Classification societies are at the forefront of rule-making, in particular when working on behalf of flag states at IMO. In doing so, practicable solutions can be achieved and this paper briefly looks at five examples: Coating Performance Standard, Ballast-water Management, Fuel-tank Protection, Entry into Sulphur-Emission-Controlled-Areas, Ship Recycling. A view on the emerging goal-based standards and their potential effects concludes the paper.

1 Effects of new regulations on the shipping industry

Most new or updated regulations aim to reduce the risks to life or to minimise the environmental impact involved in shipping. And looking at the safety record over the last decades, the effect is largely positive. However, almost any new regulation requires new or additional documentation to be established and to be maintained. The crew onboard is responsible today for ever more paper work and sometimes neglect their primary duties like, e.g., safe navigation. Although ship management software helps in organising the daily administration onboard and onshore, maintaining compliance and knowledge on regulations becomes ever more time consuming and more difficult.

A pile of paper is currently prepared and maintained to comply with safety regulations. But could we do better? One example is the Environmental Passport issued by Germanischer Lloyd (GL) which collects all environment-related certificates into a single document. One might reason that one day a Ship Passport could combine all necessary documents and, thus, reducing the effort to maintain the certificates. Classification societies are at the forefront of rule-making, in particular when working on behalf of flag states at IMO and, by doing so, continuously work to ensure that new regulations can be implemented effectively. The following sections present five examples.

2 Coating performance standard

The new coating performance standard (PSPC 2007) focuses on coating for seawater ballast tanks. In the long-term, it will improve ship safety by ensuring a more uniform application. It requires that only certified coatings are applied under controlled conditions and with dedicated supervision. And a so called coating technical file (CTF) documents the coating application. Apart from this documentation, the CTF is not expected to be used during the life-cycle of the vessel. However, a new service under development by GL aims to generate the CTF electronically and to let it serve as initial condition for the hull life-cycle programme which continuously monitors and assesses the hull condition.

3 Ballast water management

The new (but not yet into force) convention on ballast water management (BWM 2004) aims to reduce the transfer of species through shipping. It is not clearly demonstrated whether this objective can be fulfilled, in particular since toxic hull paints have been banned and species might now travel outboard. It will be required to

establishing a BWM plan documenting procedures, responsibilities and potential hazards. As such, it is a full management system. A model booklet is offered by GL ease preparation of the BWM plan and to reduce the effort needed to establish the BWM system. In addition, GL offers a voluntary class notation “BWM” which includes thorough checks to ensure smooth ballast water exchanges at sea.

4 Fuel-tank protection

The new regulation on fuel oil tank protection (IMO 2007) will reduce the risk of fuel oil spills. It requires moving fuel oil tanks from the outer shell by a prescribed distance. Alternatively, one may demonstrate that the oil outflow probability is below a given threshold. This performance-based alternative offers more freedom to the designer to arrange tanks optimally. As not all designers have the capability of using this advanced approach, GL offers advice to identify designs with minimum cargo capacity loss using the probabilistic route.

5 Sulphur-emission controlled areas

The new regulation (IMO 2005) will immediately reduce sulphur emission in two dedicated areas: Baltic Sea (2006) and North Sea (2007). It requires that only low-sulphur fuel is used when sailing in these areas and that this needs to be documented. For ships with a single fuel system, a fuel change-over is a method to comply with the regulation. And the timing of the change-over is critical as the sulphur content can only be gradually reduced in the day tank and low-sulphur fuel is more costly than normal fuel. Therefore, GL developed the fuel change-over manual as a dedicated product for ship operators to facilitate easy and cost-effective compliance with the new regulation. The manual gives for any reasonable combination of high- and low-sulphur fuels the ship-specific time needed to change-over and estimates the amount of low-sulphur fuel needed for the operation.

6 Ship recycling

The new Ship Recycling Convention will likely be adopted in early 2009. It aims to reduce the risk to life and the environment during ship scrapping. It will affect the entire life-cycle of the ship and all involved stakeholders. And it will be required to document – for both new and existing ships – hazardous materials onboard specifying type, mass and location. The list is called inventory of hazardous materials (IHM) and it might contain several hundred or thousand items. In addition to the certification of the IHM, GL will offer tailor-made software to maintain the IHM over the life-cycle. This tool can then be linked to existing planned maintenance software tools.

7 Goal-based regulations

Goal-based standards (GBS 2006) will constitute a central element of the future regulatory framework for the maritime industry. By introducing goals, safety objectives and functional requirements, a consistent and transparent basis will be established for development of future regulations and rules. However, GBS address rule-making and, thus, will only have limited direct effect on ship owners and builders. Related to GBS – but still separated – is risk-based ship design and approval which will offer more freedom to designers selecting cost-effective solutions even beyond current rules. Once this approach is anchored within the regulatory framework (e.g. by linking to SOLAS I.5), designers can start to exploit in full the new opportunities. But already today, GL supports clients to implement innovative ship designs using risk-based approaches.

8 Conclusions

Almost any new regulation requires additional effort to comply. Classification societies continuously work to

ensure that new regulations can be implemented effectively. And classification societies offer support to transform new requirements into competitive advantages for their clients.

References

BWM 2004: International Convention for the Control and Management of Ship's Ballast Water and Sediments

GBS 2006: MSC82/24: Report on the eighty-second session of the Maritime Safety Committee

IMO 2005: MARPOL Annex VI, Reg. 14: Sulphur oxides

IMO 2007: MARPOL Annex I, Reg. 12A: Oil Fuel Tank Protection

PSPC 2007: SOLAS II-1, part A1, Reg. 3-2: Protective coatings of dedicated seawater ballast tanks in all types of ships and double-side spaces of bulk carriers

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