

Screen 1: Title slide

My name is Paul Wright. I am a Master Mariner and Fellow of the Nautical Institute. This lecture is titled SOLAS and the ISM.

The lecture aims to explore the content of the Safety of Life at Sea Convention with a particular focus on Chapter IX 'Management for the Safe Operation of Ships' which requires the mandatory compliance of the International Safety Management (ISM) Code.

Slide 2: Aims and Learning Outcomes

At the conclusion of the lecture you should be able to:

- Outline the contents of the Safety of Life at Sea (SOLAS) Convention
- Examine the objectives and implementation of SOLAS Chapter IX and the importance of the ISM Code
- Distil the responsibilities of the ship's Master and the shipping company for the development and implementation of a Safety Management System (SMS)

Slide 3: Background to SOLAS

The Safety of Life at Sea Convention (SOLAS) was first adopted in 1914 in response to the sinking of the RMS Titanic. Revisions to the convention occurred in 1929, 1948, 1960 and last in 1974

The present edition of SOLAS is SOLAS 1974 as amended.

SOLAS 1974 is regularly amended through the 'tacit agreement' process to ensure that the Convention develops with changing technology. The main objective of the SOLAS Convention as stated by the International Maritime Organisation is to '*specify minimum standards for the construction, equipment and operation of ships, compatible with their safety*'.

Slide 4: Sinking of the RMS Titanic

The sinking of the RMS 'Titanic' the *unsinkable ship* gave rise to the development of the Safety of Life at Sea (SOLAS) convention – keystone maritime convention. Areas covered in the original 1914 convention including, construction, life-saving appliances, safety of navigation, wireless telegraphy and certification can still be identified in the present (1974) SOLAS convention.

Slide 5: SOLAS 74 – a general overview

There are presently 13 Chapters in the SOLAS Convention each covering a different topic of interest. It is expected that a fourteenth Chapter concerned with the adoption of an international code for the safety for ships operating in polar waters (Polar Code) will be added in 2017.

Flag States are responsible for ensuring that ships under their flag comply with the requirements of SOLAS.

A number of certificates are prescribed in the Convention and are retained on board the ship as proof that the flag State has complied with its responsibility

This lecture will consider Chapter IX Management for the safe operation which requires the compliance of all ships with the International Safety Management (ISM) Code, which is concerned with improving the quality of ship management

Slide 6: Introduction to the ISM Code - SOLAS Chapter IX

The development of the ISM Code was the direct result of the capsizing of the RO-RO ferry 'Herald of Free Enterprise' in 1987.

The Inquiry into the capsizing established that there were serious deficiencies in the management of the ship and of the company.

The judge who conducted the inquiry, Lord Justice Sheen stated *'from top to bottom the body corporate was infected with the disease of sloppiness'*. The incident was only one of many in the nineteen eighties in which concerns were raised about the human factor and safety culture in the shipping industry.

The ISM Code was the response which supported change in attitudes towards safety in the shipping industry where a *'a culture of 'unthinking' compliance with external rules moved towards a culture of 'thinking' self-regulation of safety and the development of a safety culture'*, that is a culture in which every individual feels responsible for actions taken to improve safety.

Slide 7: Objectives of the ISM Code

The ISM Code states that the objectives of the Code are to ensure 'safety at sea, the prevention of human injury or loss of life and the avoidance of damage to the environment'.

To ensure that the objectives can be accomplished the shipping company must devise safety management objectives which among other matters:

- provide safe practices in ship operation and a safe working environment
- assess risks to the ship, personnel and environment
- improve the safety management skills of personnel ashore and aboard ships including preparation for emergencies

Slide 8: Safety Pyramid

The Safety Pyramid shows the relationship between unsafe acts, near misses, lost time and death. Time and effort spent in reducing unsafe acts will reduce the number of accidental deaths.

Slide 9: SMS

To enable the objectives of the ISM Code to be reached every ship is required to have a *safety management system (SMS)* which includes the following:

- a safety and environmental protection policy
- instruction and procedures to ensure the safe operation of the ship and protection of the environment in compliance with international and state legislation
- defined levels of authority and lines of communication between shore and ship based personnel
- procedures for reporting accidents and 'non-conformities'
- procedures to prepare for and respond to emergency situations
- procedures to undertake internal audits and management reviews

Slide 10: Commitment and Implementation of the ISM Code

Developing a Safety Management System requires commitment *from the top*, that is from the directors, managers, supervisors. It also requires commitment from other employees. Without commitment the effort will be wasted.

Each company will differ in detail but the directors will need to provide the material and financial resources needed to develop and maintain the Safety Management System.

For many years there have been barriers between ship and shore. For a Safety Management System to be made effective the barriers have to fall. All persons, both sea and shore personnel have to be encouraged to cooperate in the development and maintenance of the Safety Management System.

Slide 11: The ISM Code - Shore-based Responsibilities and Authority

Designated Person Ashore (DPA): to ensure the safety of the ship and that links are provided between the company and those on board a ship a member of management will be given the responsibilities to confirm the effectiveness of the SMS, to report deficiencies to the highest level in the company and organize safety audits.

DPA will be experienced in safety and pollution control

Slide 12: Ship Master's Responsibility and Authority

The *ship's master* has overall responsibility and authority for the safety of the ship. He is required to implement the SMS on board the ship to observe the safety and environmental policies established by the Company, and motivate the crew

Importantly the ship's master has a direct link with shore management for safety matters though the DPA.

Slide 13: SMS summary diagram

The diagram illustrates the important component parts of a Safety Management System associated with the ISM Code. All elements are part of good 'operational practice'. The diagram is adopted from 'A Seafarers Guide to ISM' originally published by the North of England P&I Club.

Slide 14: Training and familiarisation

Training and familiarisation are critical issues for the SMS:

- Statutory safety training courses have to be undertaken by all sea staff as required by the Standards of Training Certification and Watchkeeping convention (STCW).
- Training drills carried in accordance to the SMS and will cover likely emergency situations.
- Crews required to be familiar with all ship operations including those required by the SMS.
- Familiarisation ensures that duties, including SMS duties, are maintained at effective performance levels.

Slide 15: Shipboard Operational Plans

It is a requirement of the ISM Code that Company should establish '*Plans for Shipboard Operations*'. The subject matter of plans can be developed for many activities. The 'Guidelines on the application of the IMO International Safety Management Code' published by the ICS lists

suggested subjects to be included in operational documents under five scenarios namely; General, The ship in port, preparing for sea, the ship at sea and preparing for arrival at port.

Special shipboard operations are those 'where errors may become apparent on or after they have created a hazardous situation or accident has occurred' - such as charts not being updated. Critical shipboard operations are those where an error could immediately cause an accident or situation which could 'threaten people, the environment or the ship' – such as navigating in in high density traffic areas.

Slide 16: Emergency preparedness

A company is required to establish procedures to identify describe and respond to potential emergency shipboard situations. The SMS is required to ensure that any emergency situation can be responded to by the company regardless of time of day or location. Emergency preparedness involves both shipboard and shore-based contingency planning.

Within a shore based contingency plan the following are likely to be included:

- the establishment of an emergency response team and the duties of team members
- procedures to follow for different types of accidents
- ships information including plans, stability information and details of safety equipment on board
- checklists to be used in different scenarios

A shipboard contingency plan will consider the different types of emergencies which may occur and is likely to include:

- the allocation of duties on board
- actions to be taken to regain control of a situation
- communication methods used on board and between ship and shore
- procedures for dealing with the media

Slide 17: Emergency shipboard situations

There are many potential areas which may give rise to an emergency shipboard situation including fire, collision, grounding, main engine failure, structural failure, cargo shifting, man overboard, heavy weather damage and terrorism or piracy.

Can you think of other areas which could give rise to an emergency ship board situation?

Slide 18: Reports of Non-conformities, accidents and Hazardous occurrences

Very simply under the SMS, the master should report the following to the DPA; accidents, hazardous occurrences, non - conformities within the SMS and suggested modifications to the SMS. The reports should be analysed and after analysis may lead to corrective action being taken.

Slide 19: Ship and Equipment Maintenance

It is incumbent on the Company to establish procedures to ensure that the ship and its equipment is maintained as required by the relevant international, national and company regulations and requirements.

Procedures should ensure that maintenance, repairs and relevant surveys are carried out in 'a *planned safe and timely manner... ensuring the seaworthiness of the ship at all times*'.

Slide 20: Documentation

A Company is required to establish and maintain procedures to control all documents and data relevant to the SMS. The documents may be referred to as the Safety Management Manual, kept in a form that the company considers most effective. Electronic, paper or a combination of both. Under SOLAS Chapter IX a Document of Compliance (DOC) is issued to every company which complies with the ISM Code by the flag State. The DOC is valid for five years.

A ship is provided with a Safety Management Certificate (SMC) by the flag State following an initial verification of compliance with the ISM Code and that the company responsible for the operation of the ship has an appropriate DOC. A SMC is valid for five years.

Slide 21: Audit of the Safety Management System

Section 13 of the ISM Code concerns the issue and validity of the DOC and SMC. This involves the initial verification, intermediate verification and renewal verification. The work is undertaken by the flag State at the request of the company.

In addition to the external verification mentioned above and recognising the self-regulatory principle of the ISM Code, companies are required to undertake *internal processes* to control the Safety Management System. The processes include company/shipboard SMS audits, SMS reviews, reports by the DPA and feedback systems associated with the reporting of non-conformities, accidents and hazardous occurrences.

Details and guidance of how SMS audits are undertaken, including the Competence of authors, Audit scheduling, preparation and planning, Conduct of audits and the Reporting of audits are comprehensively covered in the ICS publication covered in the '*Guidelines on the application of the IMO International Safety Management Code*'.

Slide 22: ISM Code – Summary

The reasons for the development of the ISM Code was to improve the quality of safety management on ships. The basic idea was to establish 'best practice' across the international shipping fleet. Overall this has been done although there is criticism as how much additional bureaucracy some systems have created.

Since the full implementation in 2002 there has been a significant reduction in maritime casualties and lives lost at sea established self-regulation and a safety culture.

Slide 23: Review of learning outcomes

At the conclusion of the lecture you should be able to:

- Outline the contents of the Safety of Life at Sea (SOLAS) Convention
- Examine the objectives and implementation of SOLAS Chapter IX and the importance of the ISM Code
- Distil the responsibilities of the ship's Master and the shipping company for the development and implementation of a Safety Management System (SMS)

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Screen 6

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SOLAS and ISM

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Screen 17

Fire

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Collision

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Life ring

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Storm

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