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EXTERNAL INSPECTIONS OF VESSELS

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Περιεχόμενα

ΠΕΡΙΛΗΨΗ

Η ναυτιλιακή βιομηχανία διαδραματίζει έναν ζωτικό ρόλο στο παγκόσμιο εμπόριο, μεταφέροντας αγαθά στους ωκεανούς και τις πλωτές οδούς του κόσμου. Τα δεξαμενόπλοια, ειδικότερα, είναι υπεύθυνα για τη μεταφορά πολλών κρίσιμων πόρων όπως το πετρέλαιο και το φυσικό αέριο, καθιστώντας έτσι την ασφάλεια και την αξιοπιστία ως μία κορυφαία προτεραιότητα. Μία από τις πιο σημαντικές πτυχές της διασφάλισης της ασφάλειας και της αξιοπιστίας των δεξαμενόπλοιων είναι μέσω εξωτερικών επιθεωρήσεων, οι οποίες έχουν ως σκοπό να εξετάζουν διάφορες πτυχές της δομής, του εξοπλισμού και των διαδικασιών του πλοίου για να διασφαλιστεί η συμμόρφωση με τα πρότυπα και τους κανονισμούς του κλάδου.

Ο κώδικας Διεθνούς Διαχείρισης Ασφάλειας (ISM) και τα Συστήματα Διαχείρισης Ασφάλειας (SMS) αποτελούν τα βασικά στοιχεία για τη διασφάλιση της ασφάλειας και της αξιοπιστίας στη ναυτιλιακή βιομηχανία. Αυτές οι κατευθυντήριες γραμμές προωθούν μια κουλτούρα ασφάλειας και λογοδοσίας, με σαφείς διαδικασίες και οδηγίες για τη διαχείριση των κινδύνων και την πρόληψη ατυχημάτων. Οι εξωτερικές επιθεωρήσεις επικεντρώνονται συχνά στη συμμόρφωση με αυτούς τους κώδικες και συστήματα, συμπεριλαμβανομένης της κατάλληλης τεκμηρίωσης και της εφαρμογής διαδικασιών ασφαλείας.

Το Διεθνές Ναυτιλιακό Φόρουμ Εταιρειών Πετρελαίου (OCIMF) παρέχει μια σειρά εργαλείων και πόρων για τη ναυτιλιακή βιομηχανία, συμπεριλαμβανομένου του Προγράμματος Αναφοράς Επιθεώρησης Πλοίου (SIRE). Το SIRE είναι ένα ολοκληρωμένο πρόγραμμα επιθεώρησης που αξιολογεί την ασφάλεια, τις περιβαλλοντικές επιπτώσεις και τη λειτουργική αποτελεσματικότητα των δεξαμενόπλοιων. Οι επιθεωρητές αξιολογούν μια σειρά παραγόντων, από τη φυσική κατάσταση του πλοίου μέχρι την ικανότητα του πληρώματος, ώστε να διασφαλίσουν τη συμμόρφωση με τα βιομηχανικά πρότυπα.

Το Tanker Management and Self-Assessment (TMSA) είναι ένα άλλο σημαντικό εργαλείο για τη διασφάλιση της ασφάλειας και της αξιοπιστίας στη ναυτιλιακή βιομηχανία. Το TMSA παρέχει ένα πλαίσιο στους φορείς εκμετάλλευσης πλοίων για να αξιολογήσουν και να βελτιώσουν τα συστήματα διαχείρισης ασφάλειας, προωθώντας μια κουλτούρα συνεχούς βελτίωσης στον κλάδο.

Οι εξωτερικές επιθεωρήσεις συχνά περιλαμβάνουν φυσικές επιθεωρήσεις του εξοπλισμού και των διαδικασιών του πλοίου, με επιθεωρητές να εξετάζουν τη γέφυρα, τους χώρους μηχανών και χώρους φορτίου για να διασφαλίσουν τη συμμόρφωση με τα πρότυπα και τους κανονισμούς ασφαλείας. Οι επιθεωρητές αξιολογούν επίσης το κράτος σημαίας του πλοίου, διασφαλίζοντας ότι το πλοίο είναι νηολογημένο και λειτουργεί σύμφωνα με τους κανονισμούς της χώρας καταγωγής του.

Σε αυτήν την εργασία, θα διερευνήσουμε τα διάφορα στοιχεία των εξωτερικών επιθεωρήσεων σε δεξαμενόπλοια, συμπεριλαμβανομένης της σημασίας της συμμόρφωσης με τα ISM, SMS, OCIMF, TMSA και άλλες κατευθυντήριες γραμμές

και κανονισμούς. Θα εξετάσουμε τον ρόλο των φυσικών επιθεωρήσεων στη γέφυρα και σε άλλους χώρους του πλοίου, καθώς και τη σημασία που έχουν οι επιθεωρήσεις του κράτους σημαίας για τη διασφάλιση της συμμόρφωσης με τους διεθνείς κανονισμούς. Μέσω αυτής της εξερεύνησης, θα αποκτήσουμε μια βαθύτερη κατανόηση του κρίσιμου ρόλου που διαδραματίζουν οι επιθεωρήσεις στη διασφάλιση της ασφάλειας, της αξιοπιστίας και της βιωσιμότητας της ναυτιλιακής βιομηχανίας.

Λέξεις – Κλειδιά : Δεξαμενόπλοια , Ασφάλεια , Εξωτερικές επιθεωρήσεις **,** Κανονισμοί , Πρόληψη ατυχημάτων

ABSTRACT

The global trade heavily relies on the shipping industry, moving goods across the world's oceans and waterways. Tanker ships, in particular, are responsible for the transportation of critical resources such as oil and gas, making safety and reliability a top priority. One of the most important aspects of ensuring the safety and reliability of tanker ships is through external inspections, which examine various aspects of the ship's structure, equipment, and procedures to ensure compliance with industry standards and regulations.

The code known as the International Safety Management (ISM) and Safety Management Systems (SMS) are key elements in ensuring safety and reliability in the shipping industry. These guidelines promote a culture of safety and accountability, with clear procedures and guidelines to manage risks and prevent accidents. External inspections often focus on compliance with these codes and systems, including the proper documentation and implementation of safety procedures.

The Oil Companies International Marine Forum (OCIMF) provides a range of tools and resources for the shipping industry, including the Ship Inspection Report Program (SIRE). SIRE is a comprehensive inspection program that evaluates tanker ships' safety, environmental impact, and operational efficiency. Inspectors assess a range of factors, from the ship's physical condition to the crew's competence, to ensure compliance with industry standards.

The Tanker Management and Self-Assessment (TMSA) is another essential tool for ensuring safety and reliability in the shipping industry. TMSA provides a framework for ship operators to assess and improve their safety management systems, promoting a culture of continuous improvement in the industry.

External inspections often involve physical inspections of the ship's equipment and procedures, with inspectors examining the bridge, machinery spaces, and cargo areas to ensure compliance with safety standards and regulations. Inspectors also evaluate the ship's flag state, ensuring that the ship is operated and registered in accordance with the regulations of its home country.

In this assignment, we will explore the various elements of external inspections in tanker ships, including the importance of compliance with ISM, SMS, OCIMF, TMSA, and other guidelines and regulations. We will examine the role of physical inspections on the bridge and other areas of the ship, as well as the importance of flag state inspections in ensuring compliance with international regulations. Through this exploration, we will gain a deeper understanding of the critical role that inspections play in ensuring the safety, reliability, and sustainability of the shipping industry.

Keywords: Global trade, Shipping industry, Tanker ships, Safety and reliability, External inspections, Equipment and procedures, Industry standards, Risk

management, Physical inspections, Bridge inspection, Machinery spaces, Cargo areas, Flag state, Compliance, International regulations, Safety standards, Accident prevention, Competence of the crew, Documentation.

CHAPTER 1: ACCIDENTS , POLLUTION AND COSTS

1.1 Major shipping incidents of oil tankers

Tankers are ships that carry dangerous cargoes containing flammable and toxic gases, highly poisonous to the crew. A small mistake can cause explosion, pollution and fire.

Great care is required in handling cargo during loading, transportation and unloading. The officers in charge must be knowledgeable and experienced so that they can safely carry out their mission.

Each crew member – and depending on the duties they have – should know what to do in an emergency situation such as fire, explosion, pollution or even if someone is infected with toxic gases.

Officers should reduce risk and take all measures to keep crew, ship and environment safe.

Maritime incidents can happen and cause substantial economic repercussions for the coastal state, fisheries, the environment, or result in loss of life.

Determining the exact financial impact of accidents is a highly challenging task. Think of the situation of oil spills, for instance. The kind of oil spill, regional location, oceanographic circumstances, and the efficiency of the oil response all affect how much such an occurrence will cost. Socioeconomic factor assessment is considerably more challenging.

The media rarely covers events with dry bulk carriers, because the majority of economic loss is related to the vessel's and its cargo's value. Giziakis and Goulielmos and Giziakis

provide methods for quantifying the financial effects of marine casualties, taking into account the welfare economics concept's handling of uncompensated costs. Accidental expenses are divided into three categories: material costs, which include the loss of property (ship and cargo), human casualties, and pollution costs. They advise policy makers to take into account the socially acceptable level of marine incidents, which can be determined at the point where the marginal costs of fewer accidents and accident prevention equal out.

Table 1 highlights some of the most significant oil tanker and passenger ship catastrophes that have occurred since 1912, ranging from the Titanic, which claimed 1517 lives, to the most recent passenger vessel tragedy, which claimed 1000 lives (Al Salam Boccaccio 98, 2006). The economic costs associated with vessel size or oil spills are not directly linked and can vary significantly. The International Oil Pollution Claim Fund (IOPCF) and the International Tanker Owners Pollution Federation (ITOPF) report costs ranging from USD 9.5 billion (Exxon Valdez, 1989) to USD 37 million (Sea Empress, 1996). Grey notes that accident costs can vary dramatically, ranging from as little as USD 667 per ton of oil leaked (Haven)

Table 1.

Major shipping incidents of oil tankers and passenger ships

Ship name	Year	Location	Spill size (ton)	Economic costs
Titanic	1912	North Atlantic		1517 lives
Torrey Canyon	1968	Scilly Isles, UK	119,000	No estimate
Sea Star	1972	Gulf of Oman	115,000	No estimate
Metula	1974	Magellan Street, Chile	47,000	No estimate
Jakob Maersk	1975	Oporto, Portugal	88,000	No estimate
Urquiola	1976	La Coruna, Spain	100,000	No estimate
Argo Merchant	1976	Nantucket Sound, USA	28,000	No estimate
Hawaiian Patriot	1977	300 nautical miles off Honolulu	95,000	No estimate
Amoco Cadiz	1978	Off Brittany, France	223,000	US$282 million
Independenta	1979	Bosphorus, Turkey	95,000	No estimate
Atlantic Empress	1979	Off Tobago, West Indies	287,000	No estimate
Irenes Serenade	1980	Navarino Bay, Greece	100,000	No estimate

Ship name	Year	Location	Spill size (ton)	Economic costs
Castillo de Bellver	1983	Off Saldanha Bay, South Africa	252,000	No estimate
Nova	1985	Off Kharg Island, Gulf of Iran	70,000	No estimate
Herald of Free Enterpr.	1987	Off coast of Belgium		193 lives
Dona Pax	1987	Philippines		4000 lives
Odyssey	1988	Off Nova Scotia, Canada	132,000	No estimate
Khark 5	1989	Off Atlantic coast of Morocco	80,000	No estimate
Exxon Valdez	1989	Prince William Sound, USA	37,000	US$9.5 billion
Scandinavian Star	1990	Baltic Sea		158 lives
ABT Summer	1991	700 nautical miles off Angola	260,000	No estimate
Haven	1991	Genoa, Italy	144,000	US$96 million
Aegean Sea	1992	La Coruna, Spain	74,000	US$60 million
Katina P	1992	Off Maputo, Mozambique	72,000	No estimate
Braer	1993	Shetland Islands, UK	84,700	US$83 million
Estonia	1994	Baltic Sea		852 lives
Sea Empress	1996	Milford Haven, UK	72,000	US$62 million
Nakhodkha	1997	Japan	17,500	US$219 million
Erika	1999	Off Coast of France	20,000	US$180 million
MV Joola	2002	West Africa		1863 lives
Prestige	2002	Off the Spanish coast	77,000	€778 million
Tasman Spirit	2003	Pakistan	30,000	US$291 million
Al Salam Boccachio 98	2006	Red Sea		1000 lives

Source: compiled by authors from various sources (spill size is in tonnes of oil spilled).

After notable events, the shipping sector often triggers changes in laws. The creation of the Oil Pollution Act (OPA90) in the United States was a result of the Exxon Valdez incident.

Similarly, the European Union (EU) adjusted its maritime laws across all areas of the shipping industry following the occurrences of the Erika (1999) and Prestige (2002) incidents near the coasts of France and Spain. This adjustment is referred to as the EU Third Maritime Safety Package. The goal, from the public's perspective, is to decrease the number of substandard vessels and promote safer, more secure, and environmentally friendly maritime transportation.

This reduces the possibility that a marine incident will result in significant financial losses.

1.2 Cost savings due to inspections

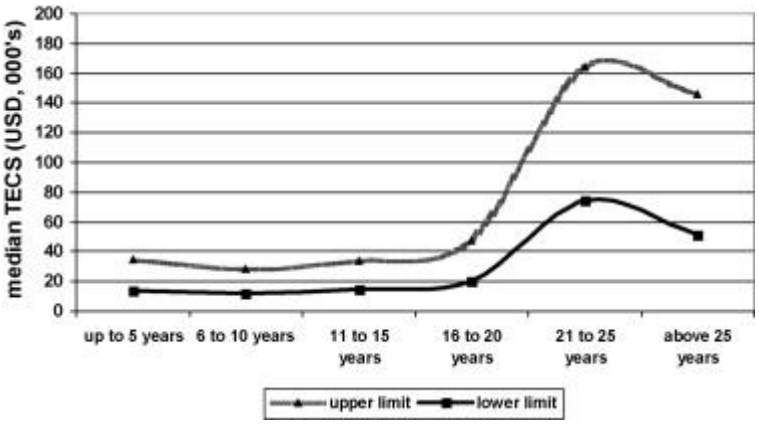
The procedures outlined above are utilized for calculating the total estimated cost savings (TECS) from inspections, which reduce the likelihood of total loss incidents for each ship arrival in the dataset. First, the total insured value (TIV) is determined by estimating the four components: hull and machinery costs, third-party liability coverage oil pollution limits, and the value of transported cargo per year.
The term "total insured value" (TIV) represents the maximum potential loss in the event of a complete loss involving the ship, its cargo, its crew, its passengers, and any external impacts such as pollution. This is analogous to a 100% total loss.
The second step is to calculate the survival gain (SG), which is the risk reduction brought about by an inspection .

Third, if TIV is used to convert SG to a monetary value, this gives TECS an upper bound, allowing us to get

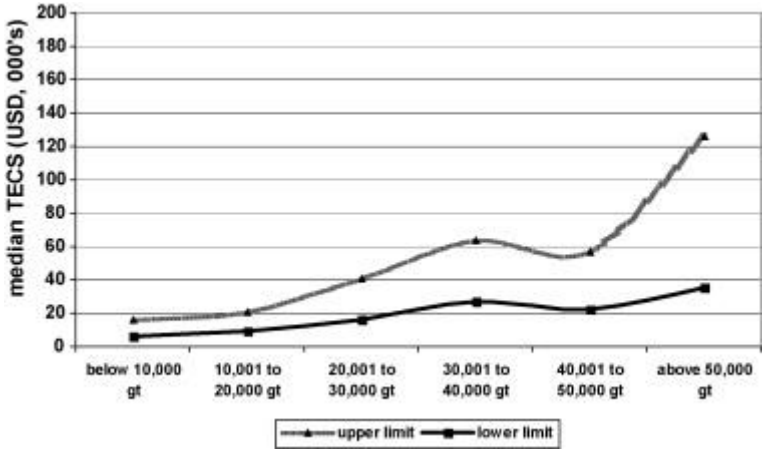
Upper bound: TECS = SG × TIV.

In case of a total loss, not all TIV components will be affected equally, such as when pollution is avoided or when the ship sinks but survivors are present. As a result, the fourth step includes reducing the value at risk by using logit probabilities for each TIV component. Because the real risks linked with complete loss accidents are greater due to the assessment of probabilities using a wider range of events than just total loss incidents, the resulting figures denoted by VALj (with j = 1 for the hull and machinery) signify a reduction in TIV., j = 2 for the loss of life, j = 3 for third party liability, and j = 4 for oil pollution) be used to represent the TIV.The mentioned ship's each value is multiplied by the indicated likelihood of occurrence, pj, to produce the following results.

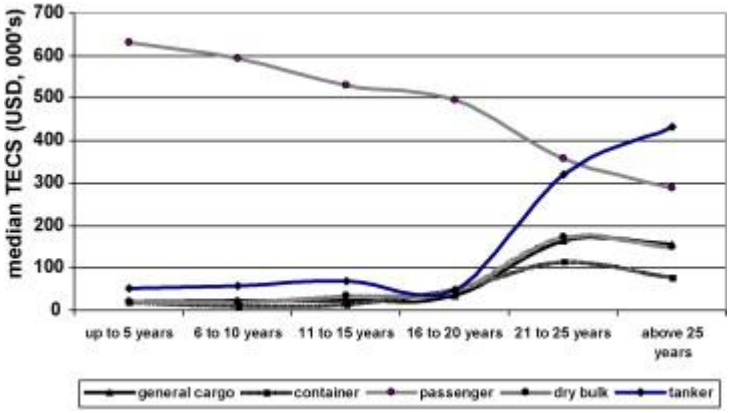
Lower bound : TECS = SG × (p1 × VAL1 + p2 × VAL2 + p3 × VAL3 + p4 × VAL4)



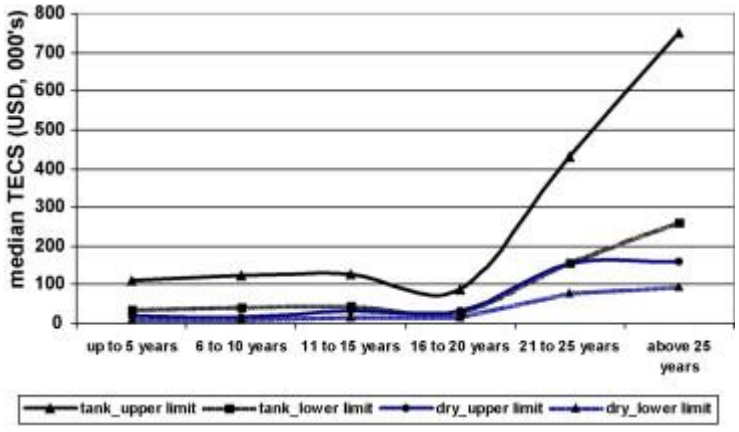
In Figure 1, the median TECS for port State control inspections on all ships is shown by age group.



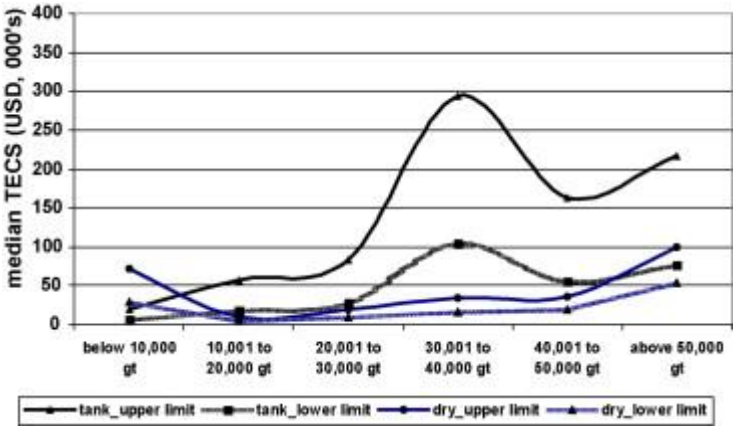
In port State control inspections, all ships are shown in Figure 2 with their median TECS categorized by size group.



In port State control, consider the median TECS ceiling for each age group and type of ship shown in Figure 3.



In the provided data, we can observe the median TECS based on different age groups in relation to industry inspections, specifically focusing on tankers and dry bulk.



In industry inspections for tankers and dry bulk, Figure 5 shows the median TECS by size group.
Lastly, we examine the expenses related to PSC and audit inspections. These prices differ depending on the nation and kind of examination.

Table 2 displays the mean values. Based on data directly collected from AMSA and USCG, as well as Knapp and Franses (2009), we examine here the expenditures associated with shore and shipside inspections. 20% of costs are related to administration on the coast.
AIP inspection costs can vary significantly overall, especially depending on the nation in which they are performed. For instance, PSC inspectors in Australia occasionally have to travel great distances, with travel expenses amounting to two thousand dollars, in order to reach ships situated in isolated regions. The kind of inspection may also affect the amount of time allotted on board.
If the vessel is held back, the examination might take a longer time and the expenses will go up substantially.

Table 2. Mean expense per inspection (in thousands of US dollars).

Inspection type	**Shore-side**	**Ship-side**	**Total**
PSC – Australia	0.95	0.29	1.24
PSC – United Kingdom	0.75	0.29	1.04
PSC – United States	1.25	0.29	1.54
Class annual survey	10.36	0.52	10.88
P&I Club inspection	3.05	0.44	3.49
Flag inspection	0.75	0.44	1.19
Vetting inspection – dry bulk	6.25	0.57	6.82

Inspection type	Shore-side	Ship-side	Total
Vetting inspection – tanker	4.38	0.57	4.95

We would like to emphasize that there is no direct comparison between the inspection expenses in Table 2 and the TECS values in Table 1. One explanation for this is that other expenses borne by the ship owner, including routine maintenance required to guarantee a sufficient degree of safety, are not included in the stated inspection costs.

In addition, the benefits depend on evaluating small reductions in risk that have significant monetary value. It is widely acknowledged that making decisions in situations with high value and low risk is challenging, as discussed in economic decision-making literature by McClelland et al. (1993) and Wakker et al. (1997). However, based on the cost reductions presented in Table 1, it can be concluded that targeting high-risk vessels for inspections is essential for achieving the greatest cost savings due to limited inspection capacities.

CHAPTER 2: EXTERNAL INSPECTIONS AND PROCEDURES IN TANKER SHIPS

1.1 EXTERNAL INSPECTION IN TANKER SHIPS

One of the most important ways to guarantee tanker ship safety and environmental compliance is through external inspection. Aspects of the ship's exterior are carefully inspected during external inspections in order to find any problems that can jeopardize safety or regulatory compliance. During external inspections, a few of the frequently found problems include:

- **Corrosion:** One prevalent problem that is frequently found during external tanker ship inspections is corrosion. The structural integrity of the ship may be compromised by corrosion, posing a risk to public safety and perhaps causing environmental harm .
- **Coating damage:** The tanker ship's hull coatings are intended to shield the structure from the corrosive effects of seawater and other external elements. Corrosion danger and the integrity of the hull might both be jeopardized by coating damage.
- **Cracks and deformations:** External inspections can detect cracks and deformations on the tanker ship's hull or other structural elements. These problems may point to structural flaws and jeopardize the ship's safety.
- **Pollution prevention equipment:** The installation and proper operation of pollution protection devices, such as oil discharge monitoring and control systems, are also verified by external inspections.

Maintenance procedures are adjusted in reaction to problems found during an external inspection. Corrective measures that the maintenance staff can take to resolve the problems could include:

- **Repairs:** To fix any problems found, repairs might be required. For instance, coatings may need to be restored or reapplied, or corroded sections may need to be removed and replaced.
- **Regular maintenance:** Implementation of regular maintenance can effectively mitigate the occurrence of difficulties. This may encompass predetermined inspections, cleaning procedures, and routine maintenance for coatings.
- **Enhancements and alterations:** Enhancements and alterations may be required to enhance the safety and ensure adherence to regulatory standards of the vessel. One potential scenario involves the necessity of upgrading pollution prevention equipment in order to comply with recently implemented environmental rules.

To sum up, external inspection is essential for spotting problems that could jeopardize tanker ship safety and legal compliance. The maintenance staff can then take corrective measures to address any concerns found and guarantee the tanker ship's continuing safe operation, including repairs, routine maintenance, and upgrades.

1.2 PROCEDURES AND GUIDELINES BEFORE THE EMBARKATION

Before starting a journey, it is customary for the ship's manager to provide the crew of a tanker vessel with specific sailing instructions and procedures to follow. These instructions and procedures might include the following elements:

A detailed voyage plan, including the planned route, ports of call, and expected arrival times, will be provided by the ship's manager. The voyage plan will also contain details about weather conditions, ocean currents, and other factors that could impact the vessel's route.The manager of the ship will provide comprehensive navigation protocols, which will include detailed instructions on how to use navigation equipment, charts, and other aids for navigation. Additionally, the protocols will include advice for navigating in places that have restricted access.

The ship's leadership must ensure communication protocols are in place to communicate with other ships, port authorities, and important stakeholders. This also involves creating emergency procedures to facilitate communication during a crisis.

The ship's manager will provide safety measures to protect the ship and its crew. These measures include guidelines for handling hazardous materials, emergency response protocols, and recommendations for safe navigation in challenging weather.

The ship's manager establishes a set of rules and protocols for maintenance procedures to ensure that the ship's equipment and systems are properly maintained. These procedures consist of instructions for regular maintenance activities and protocols for dealing with equipment failures or malfunctions.

The sailing instructions and procedures mandated by the ship's manager are essential in ensuring the safe and efficient operation of the tanker vessel. By following these prescribed processes and principles, the crew can effectively contribute to the safe and successful completion of the voyage.

1.3 JOB OF AN INSPECTOR

Upon arriving on a tanker ship, the main duty of an inspector is to thoroughly evaluate the vessel to ensure that it adheres to appropriate safety, environmental, and operational standards. The inspection process may vary depending on its purpose and scope, but typically includes the following steps:

• **Preliminary inspection preparation:** The inspector will carefully examine the scope and objectives of the inspection, collect pertinent information regarding the vessel's historical background and current operational condition, and strategically devise a comprehensive plan for conducting the inspection.

• Upon reaching the ship, the inspector will board and begin an initial inspection, covering both the exterior and interior parts of the vessel. This evaluation will include important areas like the hull, cargo tanks, machinery spaces, and other relevant sections. The initial examination helps the inspector identify any safety or environmental issues that may require further investigation.

• **Elaborate examination:** The inspector will perform a comprehensive examination of designated sections of the vessel, employing sophisticated tools and methodologies to detect any flaws or concerns. This may encompass non-destructive testing methodologies, visual inspections, as well as the evaluation of key systems and equipment.

• **Reporting:** The inspector will compile a comprehensive report that encompasses all findings and observations, encompassing any identified deficiencies or instances of non-compliance with relevant legislation and standards.

The inspector has the authority to mandate that the owner or operator of the vessel undertake necessary measures to rectify any flaws or instances of non-compliance that have been found. The inspector may additionally conduct a follow-up to verify the implementation of corrective measures and ascertain the vessel's adherence to all relevant requirements.

In general, the primary responsibility of the inspector is to verify the safety, reliability, and adherence to relevant norms and standards of the tanker vessel. Through the identification and subsequent resolution of any concerns encountered during the inspection procedure, the inspector plays a crucial role in guaranteeing the ongoing safe functioning of the vessel and the preservation of the surrounding ecosystem.

CHAPTER 2: TANKER MANAGEMENT SELF-ASSESSMENT

2.1 The importance of ISM Code

The International Safety Management (ISM) Code is an obligatory set of recommendations that has been formulated by the International Maritime Organization (IMO) with the aim of fostering secure practices and protocols aboard ships, as well as mitigating the occurrence of maritime accidents. The International Safety Management (ISM) Code is a regulatory framework that encompasses all commercial vessels with a gross tonnage over 500, encompassing tanker ships as well. It serves as a crucial mechanism for promoting safety and mitigating the occurrence of accidents within the shipping sector.

During the process of conducting inspections on tankers, the International Safety Management (ISM) Code assumes crucial function in guaranteeing efficient operation of the ship's safety management system (SMS) and the proficiency of the crew in doing their tasks in a secure manner. The International Safety Management (ISM) Code mandates that shipping businesses and their boats must establish an authorized safety management system. This system encompasses the formulation of rules and procedures aimed at effectively managing safety, recognizing potential risks, and promptly addressing emergency situations.

Tanker inspections carried out by flag state and port state authorities typically involve assessing the safety management system, documentation, records, and procedures of the vessel to ensure compliance with the ISM Code. Non-compliance with the International Safety Management (ISM) Code may result in the ship being detained, facing financial penalties, or having its operations suspended until necessary corrective actions are taken.

In essence, the International Safety Management (ISM) Code plays a crucial role in the inspection of tankers and is essential for protecting the safety of people, assets, and the environment. Adhering to the International Safety Management (ISM) Code helps reduce accidents and incidents on tanker vessels, leading to positive outcomes for the shipping industry overall.

The main aim of the International Safety Management (ISM) Code is to establish a universally accepted framework for ensuring the safe management and effective operation of ships, while also addressing concerns related to preventing pollution.Resolution A.443(XI) of the Assembly had previously extended invitations to all Governments to undertake the requisite measures in order to ensure the shipmaster's ability to fulfill their duties pertaining to maritime safety and the preservation of the marine environment.

The Assembly passed Resolution A.680(17) to recognize the need for establishing an effective management structure to meet the needs of individuals on ships, with the main objective of achieving and maintaining high levels of safety and environmental conservation.

Recognizing the varying nature of shipping companies and shipowners, as well as the different operating conditions of ships, the Code is based on fundamental principles and objectives. These include the thorough assessment of all identified risks related to a company's vessels, personnel, and the environment, and the subsequent implementation of appropriate protective measures.

The Code is designed to be widely applicable, allowing it to be used by various levels of management, whether on land or at sea, each of which will require different levels of understanding and awareness of the elements mentioned.

The key to successful safety management lies in the clear commitment and backing shown by top-level management. The final result in safety and environmental protection issues depends on the commitment, skill, attitudes, and drive displayed by people at every level of the hierarchy.

2.2 Amendments to the ISM Code

The International Safety Management Code was officially adopted in 1993 through resolution A.741(18) and became mandatory on 1 July 1998, after the incorporation of the 1994 changes to the Safety of Life at Sea (SOLAS) Convention which introduced a new chapter IX.

Amendments to the ISM Code were made in 2000 through resolution MSC.104(73) and came into force on 1 July 2002.

Revisions specified by resolution MSC.179(79) in 2004 took effect on 1 July 2006.

Adjustments outlined by decision MSC.195(80) were implemented on 1 January 2009.

Changes specified in resolution MSC.273(85) were implemented on 1 July 2010.

Changes specified in resolution MSC.353(92) were implemented on 1 January 2015.

Additional provisions

There are additional provisions relevant to SOLAS chapter IX and the ISM Code. These include updated guidance on the practical implementation of the International Safety Management (ISM) Code by organizations (MSC-MEPC.7/Circ.8).

This guidance document addresses the necessary qualifications, training, and experience required to fulfill the duties of the designated person based on the provisions outlined in the International Safety Management (ISM) Code (MSC FAL.7/Cir.6).

The document "Guidance on near-miss reporting (MSC-MEPC.7/Circ.7)" offers instructions and recommendations for reporting near-miss incidents.

The document "Guidelines on maritime cyber risk management (MSC-FAL.1/Circ.3)" provides extensive guidance on managing cyber risks in the maritime sector..

The focus of the conversation is about addressing cyber risks in the maritime sector under the guidelines of Safety Management Systems, as specified in resolution MSC.428(98).

2.3 OCIMF & SIRE (OCIMF)

The Oil Companies International Marine Forum (OCIMF) was established in April 1970 in direct response to growing public concerns about marine pollution, specifically related to oil incidents. In the last fifty years, OCIMF has grown significantly and become a leading authority on safety in the global marine industry.

Currently, it has over 100 member companies and is recognized as a key advisor to the International Maritime Organization (IMO). The organization publishes numerous editions with guidance and recommendations for the effective implementation of SMS.

The assessment of tankers is significantly influenced by the Oil Companies International Marine Forum (OCIMF) as it establishes industry standards for tanker safety, environmental protection, and operational protocols. As a representative organization for oil companies and charterers, OCIMF works to advance their interests. OCIMF collaborates with regulatory bodies, industry associations, and stakeholders to promote best practices within the industry.

This organization's primary goal is to take a leadership position in the international marine industry by promoting the safe and environmentally friendly transportation of crude oil, oil products, petrochemicals, and gas. It also seeks to apply these principles to the supervision of offshore marine operations by creating optimal guidelines for the design, construction, and safe operation of tankers, barges, and offshore vessels. Additionally, the organization highlights the significance of considering human factors in all its activities.

OCIMF has made a significant contribution to tanker inspection by providing a variety of tools and inspection programs. These resources are used worldwide by vessel owners, operators, managers, and charterers to enhance the safety of their operations. Moreover, OCIMF has played a crucial role in developing industry standards and guidelines for tanker safety, including the Tanker Management and Self-Assessment (TMSA) program, the Vessel Inspection Questionnaire (VIQ), and its updated version, the Re-organized Vessel Inspection Questionnaire (ROVIQ). These documents offer a comprehensive framework for assessing and improving the safety and operational aspects of tanker vessels, and are widely utilized by ship operators, charterers, and inspectors.

Moreover, the Oil Companies International Marine Forum (OCIMF) conducts research and analysis related to safety and environmental issues linked to tanker vessels. OCIMF also provides advice and recommendations to the industry on the necessary actions to address these concerns effectively. Along with its main responsibilities, OCIMF delivers comprehensive training and educational initiatives to professionals in the

industry, focusing on implementing best practices for tanker safety and environmental protection.

In the tanker sector, OCIMF holds a significant position as an organization, with its regulations, criteria, and suggestions playing a crucial role in advancing safety, environmental conservation, and best practices within the industry.

2.4 SIRE

The SIRE inspection holds significant importance within the context of tanker inspection, as it serves as a means of obtaining an impartial evaluation of the vessel's safety and operational protocols. This evaluation is conducted by inspectors who possess extensive expertise and have undergone specialized training. The SIRE inspection serves the purpose of identifying prospective safety concerns and areas necessitating enhancement, hence contributing to the prevention of accidents and incidents occurring on tanker boats.

Moreover, it is common practice for numerous oil firms and charterers to mandate the completion of a Ship Inspection Report Programme (SIRE) assessment for tanker vessels prior to engaging in any charter agreement. This stipulation serves to guarantee that the tanker vessel satisfies the safety and operational criteria mandated by the oil firm or charterer, and possesses the ability to securely transport their cargo.

The SIRE inspection holds significant value within the context of tanker inspection due to its role in offering an impartial evaluation of the tanker's safety and operational standards. This assessment serves the purpose of identifying potential safety concerns and areas that require enhancement. Furthermore, it is commonly mandated by oil companies and charterers as a prerequisite for engaging in a charter agreement.

The Safety and Integrity Rating Evaluation (SIRE) was initially introduced in 1993 as a tool for managing risks associated with tankers. It has been widely adopted by various stakeholders to improve safety in the maritime industry. The SIRE system is an extensive database that encompasses comprehensive information pertaining to the operations of tankers and barges. In particular, the OCIMF has prioritized the proficient execution of procedures in accordance with safety regulations and standards. The SIRE

system comprises several components, namely the Vessel Inspection Questionnaire (VIQ), Barges Inspection Questionnaire (BIQ), Uniform SIRE Inspection Report, Vessels Particulars Questionnaire (VPQ), and Barge Particulars Questionnaire (BPQ). These features have been implemented with the aim of enhancing the user experience and facilitating ease of use for operators and companies utilizing the SIRE program. The oil business has witnessed a growing utilization of this practice, aimed at ensuring that vessels adhere to safety regulations and procedures mandated by both government and the organization.

The primary SIRE database has a substantial collection of ship reports, totaling over 22,000, as well as a significant number of barge reports, exceeding 8,000 in count. The service can be used at any time, as it is operational around the clock through the designated website. All reports can be electronically accessed with essential papers such as Vehicle Inspection Questionnaires (VIQs), Basic Inspection Questionnaires (BIQs), and crew matrices.

The Oil Companies International Marine Forum (OCIMF) engages in collaborative efforts with several international organizations, including the International Maritime Organization (IMO), in order to effectively address the issue of sub-standard ships and work towards their eradication. Port state inspectors are extended invitations to partake in specialized training programs specifically designed for tankers, as well as to attend conferences and events that are pertinent to their field of expertise. Port authorities have access to SIRE inspection results at no cost.

The SIRE program is characterized by a collection of regulatory documents that establish the protocols, criteria, and conduct that are anticipated from all participants, whether individuals or organizations. The aforementioned documents encompass a diverse array of topics, spanning from the examination of potential conflicts of interest to the evaluation of inspectors' competence and the integrity of inspection reports. At the commencement of each year, it is mandatory for all SIRE inspectors to affix their signature to an updated ethics agreement and statement. The Compliance Manager, designated by OCIMF, is responsible for ensuring that participants in the Ship Inspection Report Programme (SIRE) comply with the standards outlined in the governing regulations. Additionally, the Compliance Manager oversees the complaints

procedure and conducts necessary investigations into reported concerns or potential conflicts of interest.

2.5 Uniform Vessel Inspection Procedure

Participating submitting companies must adhere to a standardized Vessel Inspection Procedure as part of the program. This procedure consists of an Inspection Element and a Report Element. Depending on the type of vessel under inspection, the Inspection Element utilizes various thorough inspection questionnaires that address issues related to pollution control and safety. Inspectors engaged by submitting companies are generally expected to provide responses to all of these inquiries, with some exceptions. Questions often come with advisory notes and references to original sources aimed at aiding the inspector's response. The inspector submits the completed computerized questionnaire either directly to the SIRE website or to the submitting business for further processing before it is sent to SIRE and the vessel operator, forming the foundation of the Report Element.

2.6 The Vessel Inspection Questionnaires, ROVIQ, and VIQ Computer Programmes

Oil corporations and other charterers utilize the Tanker Vessel Inspection Questionnaire (VIQ), a tool created by the Oil corporations International Marine Forum (OCIMF), to evaluate the operational and safety requirements of tanker vessels. The Ship Inspection Report (SIRE), which is a comprehensive evaluation of the tanker's state, maintenance protocols, and operational processes, is one of the sections of the VIQ.The 3rd Edition revisions to the SIRE Vessel Inspection Questionnaires and their accompanying Inspection Reports introduced significant changes to the scope and presentation of the Programme.

These were:

1. The updated Program categorizes gas, chemical, and oil carriers, as well as combination and shuttle carriers, based on their size for inspection purposes.

2. Barges are employed to transport chemicals, gas, or petroleum products, while vessels are utilized for moving packaged gas or petroleum products. Transporting the same commodities is the responsibility of road tankers, and tow boats are used to transport barges carrying these goods. The set of inspection questionnaires used for these vessels is commonly referred to as "Vessel Inspection Questionnaires" or "VIQs" in the VIQ papers.

3. In the third and later editions of the VIQ, individual questions were used more often instead of the core question and sub-question model from the earlier editions, except for a few cases. Nevertheless, responses such as "Yes," "No," "Not Seen," or "Not Applicable" continue to be employed, similar to the earlier versions.

2.7 Re-organized Vessel Inspection Questionnaire (ROVIQs)

The Oil Companies International Marine Forum (OCIMF) created the Re-organized Vessel Inspection Questionnaire (ROVIQ) as an update to the VIQ (Vessel Inspection Questionnaire). The ROVIQ is an extensive checklist that addresses every facet of tanker vessel safety and operational requirements, encompassing environmental protection, crew training, maintenance, management, and safety equipment.

Tanker vessel safety and operational standards are evaluated by ship inspectors and charterers using the ROVIQ. The twelve sections of the ROVIQ, which span over 300 questions, address a variety of subjects including cargo operations, safety equipment, crewing, navigation, vessel specifics, and pollution prevention.

The ROVIQ, as opposed to the original VIQ, aims to simplify and enhance the inspection process. To uphold the safety and environmental protection of tanker vessels, the questions in the ROVIQ have been reorganized and updated to comply with

current industry best practices and regulatory standards. Furthermore, the questions now concentrate on the most critical areas.

The ROVIQ is often utilized by oil corporations, charterers, and ship inspectors to ensure that tanker vessels meet the highest safety and environmental criteria. It serves as a valuable tool for evaluating the operational and safety standards of tanker vessels.

The 2000 SIRE amendments introduced the Reorganized Vessel Inspection Questionnaire (ROVIQ) as a new feature. ROVIQ presented the guiding notes and VIQ questions in the order typically followed by an inspector during an inspection. The 2018 Edition of the VIQ will continue to use the Reorganized Vessel Inspection Questionnaires (ROVIQs), which present the questions in the expected sequence for an inspector conducting an inspection, just as in previous editions. Inside the SIRE Report Editor Software application, there is a "Vessel Selection Wizard" used to select the appropriate questionnaire for each specific inspection. Users are required to answer a series of questions presented by this Wizard. Upon completion of the Wizard, the relevant questionnaire, such as the Reorganized Vessel Inspection Questionnaire (ROVIQ), can be printed in various formats. These questionnaires are necessary for every inspection. Following the inspection, the findings must be transferred from the pocketbook to the relevant VIQ computer software. This process involves using the SIRE Vessel Inspection Questionnaires ("VIQs").

In the inspection questionnaires utilized in this program, there are several safety and pollution control inquiries tailored to the type of vessel under inspection. These questions are categorized into different chapters and are assigned sequential numbers. Inspectors are required to address a specific set of questions within each chapter. Each question may be accompanied by guidance notes for inspectors, references to relevant regulations or industry standards, and indicators to highlight situations necessitating inspector remarks. The inclusion of regulatory/industry references and previously highlighted recommendations serves to enrich the questions and assist inspectors in their responses If, based on the instructions and references, the inspector concludes that the question warrants a positive response, they must mark the "Yes" box in the VIQ computer application. Conversely, if the guidance and reference sources imply a negative answer is appropriate, the inspector should mark the "No" box.

4. The "Not Seen" or "Not Applicable" box should be checked when applicable. All inquiries pertinent to the kind of vessel under inspection must be addressed by the inspector. Should this not be done, the principal who commissioned the inspection will not be able to process the inspection report via the SIRE website. When answering a question with a "No" response box, the inspector is required to include an Observation. The reason for a negative response must be made clear and explained in the observation. FurthermoreIf a box is labeled "Not Seen," the accompanying Observation section must contain an explanation for the response. In situations where a "Not Applicable" response is necessary, it is treated similarly to a "Yes" response, and the explanation may not need to be included in the Observations section. However, if the inspector deems it necessary to provide an explanation, they may do so in the "Comments" section next to the question to help the recipient of the report better understand it. There are situations where the Report Editor is programmed to automatically display "Not Applicable" if certain queries are considered unsuitable for the type of vessel being inspected. Often, there is no option to select "Not Applicable" for the query. When a question includes a guidance note, the inspector must respond based on the requirements mentioned in the highlighted part of the guidance. The presence of this requirement is indicated by italicized and underlined content in the guiding notes in the printed VIQ. The Report Editor software highlights it in yellow in the electronic version. At the end of each chapter, there is a section for Additional Comments. Inspectors can use the Additional Comments section to provide further remarks on topics not covered by the chapter's specific inquiries. There are 13 chapters in VIQ, and the inspector should review all of them during their usual 9-10 hour onboard stay.

Chapter 1: General Information: This chapter includes the vessel's name, IMO number, and flag state, among other basic details.

Chapter 2: Documentation and Certification

Chapter 3: Crew Management: In this chapter, the credentials and experience of the crew members of the vessel are discussed.

Chapter 4: Navigation: This chapter discusses the tools, protocols, and techniques used by the ship for navigation.

Chapter 5: Management of Safety The life-saving equipment on board, including the rescue boats, life jackets, and life rafts, is covered in this chapter.

Chapter 6: Preventing Pollution

Chapter 7: The Structural State

Chapter 8: Petroleum-Cargo and Ballast Systems

Chemicals in Chapter 8: Cargo and Ballast Systems

Chapter 8: LPG-Powered Cargo and Ballast Systems

Chapter 8: Ballast and Cargo Systems Gas Lighter

Chapter 9: Reflection

Chapter 10: Interactions

Engine and Steering Compartments in Chapter 11

Chapter 12-Overall Presentation and State

Chapter 13: Ice Activities

Responses to questions can be "yes," "no," "not seen," or "not applicable." The inspector must provide remarks when anything is "no" or "not applicable," which are considered observations, although they are also optional in other situations.

CHAPTER 3: SAFETY MANAGEMENT SYSTEMS

3.1 SAFETY MANAGEMENT SYSTEMS

All shipping companies must establish and implement a safety management system to ensure compliance with shipping industry regulations and guidelines. These systems' operational requirements should cover policies for environmental protection and safety, procedures for safe vessel operation according to national and flag state laws, defined roles and responsibilities for personnel, accident reporting procedures for onshore and offshore personnel, preparedness procedures for special or emergency situations, and internal and external auditing procedures.

The maritime industry's frequent hazards and emergencies have increased the need for laws and other actions to support risk management and risk hedging. Safety management systems are among the strategies suggested and implemented to address this need. In addition, implementing safety management systems is required to improve safety regulations in the maritime industry and minimize potential hazards effectively.

Maritime operations require adherence to comprehensive safety protocols known as Safety Management Systems (SMS) to ensure safety. It is crucial for all merchant vessels to comply with the regulations outlined in the Safety Management System

(SMS). The Short Message Service (SMS) contains detailed information about the vessel's daily activities, the crew's responsibilities during emergencies, and the approach used for crew training. Normally, an SMS is segmented into the following sections as per Raunek (2021):

This paper will cover the following subjects: overall considerations, policies regarding safety and the environment, the selected individual, staffing and resources, the responsibilities and powers of the captain, and the duties and powers of the company.

The following elements are essential in ensuring the smooth functioning and safety of an organization:

1. Operational procedures: These are established protocols and guidelines that outline the step-by-step processes involved in carrying out daily operations. They provide a systematic approach to tasks, ensuring consistency and efficiency.

2. Emergency procedures: These procedures are designed to address unforeseen events or crises that may arise. They outline the necessary actions to be taken in emergency situations, such as evacuations, communication protocols, and emergency response plans.

3. Reporting of accidents: Accurate and timely reporting of accidents is crucial for maintaining a safe working environment. This includes promptly documenting any incidents, injuries, or near misses, and reporting them to the appropriate authorities or management.

4. Maintenance and records: Regular maintenance of equipment, machinery, and facilities is essential for their proper functioning and longevity. Keeping detailedThe user's text does not contain any content to rewrite. In particular, a Short Message Service (SMS) adheres to a standardized method as outlined below:

The initial step in the process involves the formulation of a comprehensive plan. The organization necessitates the formulation of a novel declaration in the form of a Short Message Service (SMS) to delineate its policy concerning its approach.

Step 2 - Execute an SMS should clearly delineate the corporate hierarchy. The company is required to document the precise hazards that it will encounter in the future.

Step 3 - The third step involves conducting a check. It is imperative to establish protocols for the purpose of monitoring safety performance. In addition, it is imperative to undertake this stage in order to assess the health and environmental impact. This stage encompasses not only the aforementioned categories, but also encompasses the potential for introducing novel activities and protocols in the event of an emergency, such as an accident.

In the process, the fourth step involves taking action, which includes analyzing and implementing actions based on the collected information. Achieving excellence in

Health, Safety, Security, and Environment (HSSE) requires the effective use of a Safety Management System (SMS). Operational excellence in the HSSE sector is essential for continuously improving Key Performance Indicators (KPIs) sustainably. Developing and implementing the SMS will lead to the introduction of new certification procedures. The Document of Compliance and Safety Management Certificate is valid for five years and will undergo continuous assessment. It's crucial to recognize that the SMS needs to cover current and easily accessible procedures and guidelines for all individuals. The Data Protection Authority (DPA) is responsible for all matters related to Short Message Service (SMS), including overseeing and validating its proper functioning. Because of this, it's vital for the DPA to establish strong connections with top-level executives to ensure the necessary support for the successful implementation of the SMS. The successful implementation of the SMS depends on various elements, such as human resources, maritime vessels and equipment, and established protocols.

3.2 FACTORS FOR THE DEVELOPMENT OF SMS

It's crucial to recognize that the SMS needs to cover current and easily accessible procedures and guidelines for all individuals. The Data Protection Authority (DPA) is responsible for all matters related to Short Message Service (SMS), including overseeing and validating its proper functioning. Because of this, it's vital for the DPA to establish strong connections with top-level executives to ensure the necessary support for the successful implementation of the SMS. The successful implementation of the SMS depends on various elements, such as human resources, maritime vessels and equipment, and established protocols.

It is important to handle any issues that may arise from cultural differences among team members effectively.Prioritizing the development of interpersonal confidence is crucial to promoting and strengthening connections between crew members and office personnel.Interpersonal confidence has been proven to have a positive impact on building and sustaining a safety culture.

3.3 SAFETY CULTURE IN SHIPPING INDUSTRY

Safety culture in the shipping industry pertains to the shared attitudes, values, and actions exhibited by individuals and organizations with regards to workplace safety. The concept incorporates various dimensions of safety, encompassing personal safety, occupational safety, and environmental safety.

The shipping business is intrinsically characterized by inherent risks, encompassing a multitude of dangers that have the potential to lead to significant accidents, injuries, and environmental harm. Hence, the establishment of a robust safety culture is imperative in order to safeguard the welfare and security of all individuals engaged in the maritime sector, encompassing seafarers, port personnel, and the broader populace.

The concept of safety culture is not clearly defined in the International Safety Management (ISM) Code. Developing and improving a safety culture is essential for the successful implementation of the Safety Management System (SMS). Failure to incorporate a safety culture into the design and execution of the SMS can result in difficulties in maintaining procedural uniformity. Moreover, the absence of a safety culture encourages a feeling of complacency and can result in the misinterpretation of regulations and procedures.

The safety culture encompasses the common values and beliefs that impact how a company is structured, including the assessment of Safety Management System (SMS) processes, in order to create new standards of behavior for all staff members.The safety culture is an integral component of the organizational culture, hence exerting influence on the overall growth trajectory of the company. The establishment of a safety culture necessitates the cultivation of an educated culture, wherein workers possess the essential knowledge to effectively manage and operate systems. In order to establish a culture of this nature, it is imperative to establish a reporting culture that effectively consolidates and synthesizes safety-related information. One can achieve a third type of culture known as the just culture, which necessitates the establishment of a confident environment and the personnel's comprehension of the distinction between acceptable and inappropriate behavior.

Shipping companies promoting a culture of safety require all staff to demonstrate behaviors that uphold safety principles. Understanding and internalizing this culture is crucial for employees, as relying only on written procedures and rules may not ensure the safe operation of the vessel and the organization as a whole. Without a dedicated commitment from the staff to follow the established culture and comply with safety standards, the desired safety level cannot be guaranteed.

3.4 DEFINITION OF TMSA

TMSA, an acronym for Tanker Management and Self-Assessment, refers to a comprehensive framework utilized in the maritime industry for evaluating and enhancing the management systems and operational performance of tanker vessels. The program in question has been designed by the Oil Companies International Marine

Forum (OCIMF) with the aim of assisting tanker operators their management systems and overall performance are measured and improved.

The TMSA program provides a structured framework for tanker operators to assess how effective their safety and environmental management systems are compared to the highest industry standards. The subject matter encompasses a diverse array of domains, such as vessel operations, crew management, safety management, environmental management, and emergency preparedness.

The TMSA program encompasses a series of surveys and guidelines that enable tanker operators to evaluate their management systems and performance. The program has been specifically built to possess a high degree of flexibility and adaptability in order to cater to the unique requirements of each particular tanker operator.

The Tanker Management and Self-Assessment (TMSA) program is extensively utilized within the tanker industry and is acknowledged by prominent oil corporations and other relevant parties as a highly efficacious mechanism for enhancing safety and environmental outcomes. Through engagement in the TMSA program, operators of tankers have the opportunity to showcase their dedication to safety and environmental stewardship, thereby enhancing their competitive edge within the industry.

Historically, oil trading corporations have primarily relied on vetting procedures to assess vessels for potential chartering, wherein they determine whether or not to engage the services of a certain vessel. In an effort to enhance the efficacy of inspection procedures, the members of the Oil Companies International Marine Forum (OCIMF) made the decision in 1993 to establish the Ship Inspection Report Program (SIRE). Subsequently, in 1997, they introduced a novel inspection procedure that adheres to a comprehensive set of documents outlining the inspection protocol. The significance of the outcome of the Tanker Management and Self-Assessment (TMSA) is substantial, since it directly impacts the vessel's ability to successfully undertake a voyage. These metrics play a crucial role in determining the vessel's operational capabilities. While the primary use of TMSA is observed in tanker boats, it is important to note that these vessels are also intended for utilization in several other sectors of the shipping industry. TMSA, or Tanker Management and Self-Assessment, assesses the degree of risk based on specific key performance indicators the utilization involves four different levels of

estimation, with the lowest being Level 1. The other three levels combined contribute to improving best practice guidelines..

The TMSA has experienced evolutionary transformations throughout its history, leading to the development of multiple editions. Further development of the TMSA framework is anticipated, with the objective of incorporating supplementary key performance indicators (KPIs) that are designed to uphold a resilient safety standard. The TMSA technique consists of a book, an internet application, and a database that work together to enable the creation of reports. The Ship Inspection Report Programme (SIRE) is an initiative established by the Oil Companies International Marine Forum (OCIMF) with the purpose of providing a comprehensive framework for evaluating the potential hazards and risks connected with tanker vessels. The Tool for Management System Assessment (TMSA) is classified as a subset of the broader category of Management System Assessment (MSA). Also, has developed MSA as a tool for assessing the risks associated with management systems in accordance with industry standards and practices. Each Metropolitan Statistical Area (MSA) consists of multiple criteria that are employed in the computation of its performance. These elements comprise a set of inquiries that are directly linked to each corresponding facet.

These stages serve as indicators of the level of management quality that the company is now functioning at. It can be inferred that a higher stage corresponds to a greater standard of management. Once the aspects and stages for each MSA have been established, a multitude of inquiries are addressed based on the chosen Key Performance Indicators (KPIs). These KPIs serve as indicators of the ultimate performance and are evaluated in comparison to established benchmarks. The values attained at each stage are subsequently computed in order to determine the overall performance of the MSA. The Marine Safety Assessment (MSA) for Tanker Vessels comprises a total of thirteen distinct parts. The evaluation of performance and risk associated with these vessels can be determined by employing various Key Performance Indicators (KPIs) that are specifically outlined within each individual element. The findings of this estimation provide a concise overview of the performance, highlighting identified gaps that can provide recommendations for improving performance.

3.5 TMSA EDITIONS

The TMSA program has experienced multiple adjustments subsequent to its inception in 2004. The program undergoes regular updates to incorporate modifications in industry best practices, regulatory mandates, and developing concerns.

This document provides a concise summary of the various iterations of the TMSA program.

The inaugural iteration of the TMSA program was implemented in the year 2004. The framework offered by this initiative enables tanker operators to evaluate the effectiveness of their safety management systems and measure their performance in accordance with industry standards and benchmarks.

The second iteration of the TMSA (Tanker Management and Self-Assessment) program was implemented in the year 2008. The revised version of the text incorporates enhanced emphasis on environmental management and disaster preparedness, alongside the introduction of novel segments pertaining to risk assessment and incident investigation.

The third iteration of the TMSA (Tanker Management and Self-Assessment) program was implemented in the year 2017. The modifications incorporated revisions to align with evolving industry standards and growing concerns, such as cybersecurity and human aspects. Additionally, it implemented a novel risk-based methodology for evaluation, enabling tanker operators to concentrate their efforts on the most critical areas of concern.

The creation of the fourth edition of the TMSA program is currently underway. It is anticipated that subsequent revisions will be made to include modifications in industry standards and developing concerns, as well as to integrate input from stakeholders regarding prior iterations of the program.

The various iterations of the TMSA program have significantly contributed to enhancing safety and environmental outcomes within the tanker business, while also fostering a culture of ongoing enhancement among operators in this sector.

3.5.1 TMSA ADVANTAGES

The Tanker Management and Self-Assessment (TMSA) program offers a multitude of advantages for tanker operators and the broader shipping sector. Outlined below are several significant advantages:

The participation in the TMSA program enables tanker operators to enhance their safety and environmental performance by identifying areas of improvement in their management systems and implementing appropriate actions to mitigate them. This phenomenon has the potential to result in a decrease in both accidents and incidents, as well as a reduction in environmental consequences, thereby making a positive contribution to the safety and sustainability of the entire industry.

Tanker operators' involvement is crucial in the TMSA program can lead to an improvement in their reputation and competitiveness. This is achieved by showcasing their dedication to safety and environmental responsibility. This phenomenon has the potential to generate enhanced business prospects and foster stronger connections with key stakeholders, including customers, regulators, and investors.

The TMSA program offers a standardized framework for evaluating safety and environmental management systems within the tanker business, promoting industry alignment. This method fosters uniformity and coordination among operators of tankers, hence facilitating the establishment of industry-wide standards and optimal approaches.

The primary objective of the TMSA program is to foster a culture of perpetual enhancement within the tanker operator community. Tanker operators may effectively enhance their management systems and performance by conducting frequent assessments in accordance with industry best practices. Through this proactive approach, operators can identify specific areas that require improvement and subsequently adopt appropriate actions to address these identified areas.

The TMSA program ensures regulatory compliance by adhering to internationally recognized standards, including the International Safety Management

(ISM) Code and the International Convention for the Prevention of Pollution from Ships (MARPOL). Through active engagement in the TMSA program, tanker operators can effectively assure compliance with regulatory requirements and be informed about the latest developments in the industry.

• KPIs are given to aid in assessing risks at a higher level, with further guidance provided for each step of the assessment process.

• New objectives are established based on the recommended best practices specified for each stage.

• The TMSA framework pertains specifically to company management, aligning with established management standards.

• Risk and performance evaluation is carried out using measurable criteria, following thorough market research.

The TMSA program offers chances to all members of OCIMF to engage with vessel operators that have demonstrated exceptional performance in their assessments, and who uphold rigorous safety standards and policies to safeguard the environment. Thus, the concept of TMSA can be characterized as a comprehensive, systematic, purpose-driven, and well-organized approach in its procedural framework. The evaluation tool holds considerable importance for the operator of a vessel as it provides guidelines to fulfill the needs of each individual constituent.

3.5.2 CONTINUAL IMPROVEMENT TMSA

The Tanker Management and Self-Assessment (TMSA) program places significant emphasis on the importance of ongoing improvement. The primary objective of the TMSA program is to foster a culture of ongoing enhancement among operators of tankers. This is achieved by focusing on improving safety and environmental performance, as well as establishing a set of industry-wide best practices.

The structured framework provided by the Tanker Management and Self-Assessment (TMSA) program allows tanker operators to assess and improve their

safety and environmental management systems. It consists of twelve different aspects, each focusing on a specific area of safety and environmental management, covering aspects like management commitment, risk management, onboard activities, and emergency preparedness.

The TMSA program enables tanker operators to identify areas of potential enhancement in their safety and environmental management systems, and subsequently adopt actions to effectively mitigate these areas. The program additionally offers a means to evaluate performance in comparison to established industry standards, as well as a platform for exchanging knowledge and best practices among fellow tanker operators.

To attain ongoing enhancement, it is recommended that tanker operators engage in periodic self-evaluations utilizing the TMSA program and establish objectives and benchmarks to enhance their safety and environmental efficacy. Individuals are also motivated to actively observe and assess their performance in relation to these objectives and benchmarks, and to execute appropriate remedial measures when deemed required.

The TMSA program has been intentionally developed to possess a high degree of flexibility and adaptability, enabling it to effectively respond to shifts in industry best practices, regulatory mandates, and technological progress. This measure guarantees the program's sustained relevance and efficacy, fostering ongoing enhancements in safety and environmental outcomes within the tanker sector.

Elements are strategically developed to facilitate the enhancement of enterprises' Short Message Service (SMS) capabilities. This task can be accomplished by following the procedures outlined below:

The proposed course of action It is imperative for companies to establish robust and efficient strategies that can be successfully executed within a limited timeframe. Furthermore, it is imperative to allocate duties to individuals who possess the requisite knowledge, skills, and expertise necessary to effectively execute the established goals and objectives.

The personnel of the Act must demonstrate proactive engagement and ensure the efficient and accurate execution of all plans. It is imperative to effectively communicate policies and procedures to people in order to ensure their understanding of the operational protocols of the organization, both in routine circumstances and in exceptional scenarios.

The concept of "measure" refers to the process of quantifying or determining the size, amount, or extent of something. It The company assesses the results of the preceding stage and identifies any discrepancies or modifications that may arise from the undertaking. • Enhance During this phase, novel strategies and objectives are established in order to facilitate advancements. It is recommended that plans be modified to include the measures that were proposed during the preceding stage.

CHAPTER 4: THE INSPECTION

4.1 The Physical Inspection

After completing the Documentation and Certification process in the Master's office, the inspector will move on to examining different areas, such as the bridge, external accommodation, poop and main decks, pump room, cargo control room, machinery spaces, galley, and food handling areas..

Furthermore, the Chief Engineer will be interviewed by the inspector to go over scheduled maintenance and inventory levels of spare parts. To conclude the inspection, a closeout meeting will be held in the Master's office. Throughout the inspection, it is essential for a crew officer to be present to accompany the inspector during the physical inspection process. The officer must display a high level of confidence and possess the necessary capabilities to effectively address any inquiries from the inspector. It is important for the officer to maintain unwavering focus throughout the entire physical inspection and avoid any form of distraction.

The Navigation Officer, with the support of the Master, must be present on the bridge for the navigation section inspection. When inspecting the machinery spaces, the inspector must be accompanied by the Chief or the 2nd Engineer, and the Electrician may be called upon if necessary. It is the responsibility of the Chief Engineer to carry out the Vessel’s Planned Maintenance System and External spare parts control system. The individual accompanying the inspector in the machinery spaces must be dressed in a protective uniform.

The inspector expects to see a crew member demonstrate skill in using the listed equipment and at times starting certain equipment items as long as it doesn't disrupt the vessel's operations.

- the engines used in lifeboats.
- the implementation of an emergency generator using two distinct starting methods.
- the concept of an emergency fire trump.
- the concept of funnel flaps.
- Fire suppression systems
- oil spill pumps designed specifically for mitigating pollution.
- When considering the pressure/vacuum valve, it is important to constantly take into account the hydrogen sulfide (H2S) content of the cargo.
- Foam monitors are devices used in fire protection systems to deliver foam-based extinguishing agents.
- The primary isolation valves for the fire/foam deck system.
- Wearing respiratory equipment
- Protocols for entering the pump room
- The high-level suction flaps of the pump room extraction fan are noteworthy.
- The alarms for high-level and overfill conditions in cargo tanks.
- The utilization of a portable oxygen meter for the purpose of assessing the oxygen concentration within the inter gas that is being supplied to the cargo tanks.
- The fore peak and up to two other water ballast tanks can only be visually inspected from the deck level, and this inspection must be conducted by a single individual.

- the alarms and set point of the Inter Gas System. In the domain of accommodations, it is imperative for the individual responsible to demonstrate proficiency in utilizing the following:
- Navigation equipment and electronic position indicating radio beacon (EPIRB) are the two items that are being discussed.
- the Switched Access Remote Test System.
- pyrotechnics in an external context.
- Oil Discharge Monitoring Equipment.
- This inquiry pertains to the calibration process of portable meters used for measuring oxygen and combustible gases, as well as the utilization of poisonous gas detectors. Additionally, it seeks to ascertain the appropriate calibration gases to be employed for each specific type of meter.
- The remote actuation of quick-closing valves on fuel oil tanks.
- Cold rooms may be equipped with locked-in alarms to enhance safety.
  It is crucial for the person in charge to have a thorough understanding and adeptness in utilizing various components such as bilge alarms in the machinery space.
  Key components such as the main and auxiliary engine oil mist detector, bilge separator 15ppm alarm, and the 3-way valve for the bilge separator are all integral to the system. The bilge well alarms are also crucial for safety. The topic at hand is the operation of steering gear in both normal and emergency modes.The first item is an emergency air compressor, which is used to quickly and efficiently provide compressed air in emergency situations. The second item is a set of high and low-voltage earth leakage detectors, which are designed to detect and alert users to any leakage of electrical current to the earth, whether it be at high or low voltage levels.

• The fire safety systems rely heavily on the emergency fire pump.

Within the planned maintenance system (PMS), the responsibility lies in maintaining records and issuing class approval certificates. When it comes to the inspection, it is the duty of the Master to ensure the following:

Prior to arrival, all individuals on board have been notified about the upcoming inspection at the port and have made adequate preparations.

All ship personnel are wearing appropriate Personal Protective Equipment.

The safety, security, and well-being of the inspector are ensured throughout the entire inspection process.

The inspector is not questioned regarding their experience, abilities, and qualifications.

A ship’s officer is constantly available to accompany the inspector at all times.

The inspector has the authority to request any testing that does not interfere with or disrupt the vessel's operations. It is expected that crew members refrain from getting into disputes with the inspector and answer any questions in a professional and honest manner. According to INTERTANKO (2015), if the Master considers the inspector's behavior to be unreasonable, they should communicate with the company. The company will then decide on any further steps to be taken.

4.2 The inspection close-out meeting

The inspector has the authority to request any testing that does not interfere with or disrupt the vessel's operations. It is expected that crew members refrain from getting into disputes with the inspector and answer any questions in a professional and honest manner. According to INTERTANKO (2015), if the Master considers the inspector's behavior to be unreasonable, they should communicate with the company. The company will then decide on any further steps to be taken.

As a result, it is crucial for the Master to carefully document observations and then submit a thorough report to the Shipping Company. It is recommended to ask the inspector officer during the close-out meeting to repeat and give more explanation on any unanswered or unattended queries.

4.3The Response to the Inspection

The corporation should be cautious and hold off on making any decisions until they receive the full SIRE inspection report from the oil or chemical company responsible for conducting the inspection. It's common for there to be differences between the inspector's recorded observations and those in the report. If any unfavorable observations come up that the ship's personnel can fix, it's the company's responsibility to communicate with the vessel and provide guidance on what corrective action to take if needed.

When the company provides its response, it is recommended to refrain from using terms like "corrected" or "fixed" in their responses. The explanation of a response to an observation should clarify:

The underlying cause that led to the occurrence of the "problem" is under investigation.

The proposed action to address the issue at hand, specifically regarding how the company plans to resolve it, is referred to as the corrective action.

The steps taken to mitigate the error should be reported by the company, detailing the measures taken to prevent the same mistake from happening again in the future.

It is important to share the lessons learned with all ships in the company's fleet to ensure that every crew member is aware of the information and takes necessary steps

to prevent similar errors from happening again. Before addressing an observation mentioned in an inspection report, the organization must distinguish between objective flaws that require corrective actions and mere observations that do not need any remedial measures. It is crucial to understand that the vetting inspection is just one part of the screening process. Submitting the SIRE report does not guarantee any decision regarding the vessel's suitability for a particular screening department.

The feedback from owners, combined with inspection results, influences the screening decisions made by each vetting department or charterer. Each oil company that uses vetting procedures as a risk management tool has established its own customized rules and systems to meet their specific needs. The SIRE or CDI inspection is a crucial part of the vetting group's procedural framework, which is considered along with other factors and deliberations before making a final assessment and decision on accepting a vessel for its intended use.

The company begins the screening process by filling out the Harmonized Vessel Particulars Questionnaire and Officer's Matrix online. It's crucial for the company to keep both online services regularly updated. After this, there are three main stages:

First, an oil or chemical company performs a comprehensive inspection of the vessel.

Next, the inspector's report, which includes any additional comments or observations, is provided to the operator to prompt their response. The company's reaction, known as "Owners comments," is then uploaded to the SIRE and CDI database for users of the SIRE or CDI system to access and evaluate by downloading.

Lastly, the report can be utilized by individual members of SIRE or CDI, such as chemical firms and terminals, to aid in the process of making vetting decisions that align with their respective company rules. Both the SIRE and CDI systems employ a universally standardized Vessel Inspection Questionnaire that is utilized by all inspectors who have obtained accreditation. The process of granting official authorization or consent. Some organizations use a system of "approvals" to determine if a vessel meets their standards for a certain period of time. The term "approval" is no longer used in vetting departments. Normally, the vetting department of an organization only evaluates a vessel when it is being considered for a particular commercial project by the organization's chartering department.

Determining whether to proceed with a screening will depend on multiple factors, such as the final report from the inspection. Furthermore, the company's evaluation by the vetting department, the vessel's previous records, the Port State Control and

terminal reports will also factor into the decision. It's important to recognize that different companies may have varying levels of willingness to take on risk.

Various factors can be used to assess a vessel's suitability, including:

▪ Prerequisite for membership in the International Association of Classification Societies (IACS) for a class society

▪ The current status of the class survey

▪ The past history of any recent class modifications

▪ The most recent dry dock and special survey conducted

▪ The implementation of the Condition Assessment Program (CAP)

The following factors are relevant for consideration in assessing the vessel's characteristics and operational history: the vessel's age, the type of hull it possesses, the flag state under which it is registered, any recent changes in flag state, historical data on casualties, classification for the cargo it is designed to carry, current ownership, previous ownership history, the company responsible for day-to-day operations, the reputation of previous technical managers or operators should be taken into account. It's also crucial to refer to the most recent version of Tanker Management and Self-Assessment for more details. Submitting or presenting something for assessment is an important action to take.

The concept of an "Officers Matrix" refers to a framework or organizational structure that outlines the roles, responsibilities, and hierarchical relationships of officers within a certain institution or entity.

The following topics will be discussed in an academic manner: - flaws identified during Port State Control Inspections - Detentions resulting from Port State Control - Detentions conducted by the United States Coast Guard - Inspection flaws identified by the United States Coast Guard

The following components will be examined in this study: the most recent SIRE inspection reports and the corresponding comments from the companies involved, feedback received from terminals, and feedback received from commercial sources.

4.5 PREPARATION FOR THE INSPECTION

The process of preparing for an inspection is a complex matter, since there are numerous circumstances that may prevent the ship from being examined at the intended port due to various causes. The London P&I club holds significant importance within our comprehensive strategy for mitigating losses. The loss prevention articles are developed based on input and experience provided by members. Furthermore, they have

provided accessible material to aid individuals pursuing a Master's degree and professionals in the field of surveying in their preparation for inspections.
Scheduling inspections often takes place while ships are in operation. It is crucial to ensure that the inspection does not cause any delays to cargo operations or the ship's schedule.

Ships that are in drydock or undergoing repairs typically do not undergo inspection, unless deemed necessary by the Club. If a surveyor becomes aware of a vessel being in drydock or undergoing repairs while the Club remains unaware, it is vital to promptly communicate this information to the appropriate Inspection Coordinator. It is also recommended to actively seek further instructions in such situations.

The Club requires a thorough inspection of the ship, which must be completed by one inspector within an eight-hour day. Before extending the time or adding more inspectors, approval must be obtained from the Club's managers. Inspectors should make contact with local agents or the Owner's representative to schedule their presence on the vessel at the most convenient time.The inspection ought to be carried out exclusively during daytime hours, unless prior arrangement has been established with the member.

Inspectors must to use utmost diligence in order to minimize any potential disruption to the rest hours of crew members. It is imperative to consistently adhere to the prescribed minimum rest hours mandated by the Standards of Training, Certification, and Watchkeeping for Seafarers (STCW).

ISPs require ships to have advance knowledge of all visitors. Therefore, it is crucial for inspectors to promptly acknowledge receipt of orders from the Club and confirm by promptly responding with the name(s) of the inspector(s) present.

4.6 THE INSPECTION

Upon embarking the vessel, it is imperative for the Inspector to promptly establish his presence to the gangway watchman and furnish a photographic identification document. It is imperative for him to adhere to any search requests put forth by the security personnel of the vessel. The individual in question ought to be accompanied to the office of the Master or their designated representative prior to commencing the inspection.

A preliminary meeting ought to be conducted with the Master and/or senior officers to provide a comprehensive explanation of the inspection's scope and magnitude. It is advisable to convene a concluding meeting subsequent to the inspection's completion, during which the identified observations and outcomes are deliberated about with the Master.

It is important for the inspector to follow the Ship Inspection Record and conduct the inspection in a way that causes the least disruption to the Master and crew.

If the inspector comes across any high-risk findings during the inspection that are considered to pose an unacceptable level of risk and are likely to result in a major claim in the near future, it is crucial to inform the Club's managers immediately by phone. Additionally, it is advisable to provide a written description of the issue and the proposed corrective actions by the Master.

Inspectors should follow the safety requirements specific to the local port, the terminal, and the ship when conducting inspections. If such regulations are not in place, the Inspector must always conduct the inspection according to the best safety protocols.

The Inspector must strictly adhere to all safety regulations and procedures for using electrical equipment in areas with potentially hazardous gases. It is essential to use only equipment certified as "intrinsically safe" and meeting ex-certification requirements.

During inspections, it is important for inspectors to ensure that a ship's officer is present, and they should also allow Owner's representatives to join if requested.

Testing should focus on verifying operations, such as engine room bilge alarms, cargo hold bilge alarms, emergency fire pump, emergency generator, and emergency illumination. Moreover, it is necessary to conduct tests on equipment listed in the inspection checklist, especially the steering gear, when there are significant uncertainties.

CHAPTER 5: THE INSPECTION DOCUMENTATION

The complete documentation must be submitted in electronic format and comprises three components:

- Ship Inspection Record (SIR)
- Summary of Findings report (SIF)
- Photograph Album (SIP)

Inspectors are to utilize the Club's forms exclusively, refraining from attaching their own logos or altering questions or numbering.

5.1 The Ship Inspection Record

The Ship Inspection Record comprises a comprehensive checklist that is organized into ten distinct sections. Each segment delineates various common regions and activities that are prone to usual losses. The concluding segment of the Ship Information Report (SIR) pertains to the individual ship type.

Every question is assigned a unique number, and there are four columns provided next to each question for recording verified answers. The first column is designated for the purpose of documenting instances where the information is deemed irrelevant or not applicable. Column 2 is designated for the purpose of documenting instances where an inspection has not been conducted. Conversely, Column 3 is intended for the recording of findings, which can be categorized as either affirmative (YES) or negative (NO). For each question, it is necessary to fill one of the three columns provided. A negative response does not inherently indicate that the ship fails to meet a certain criterion. All responses provided to inquiries must be grounded in objective evidence.

In the event where ship personnel have already detected and documented a deficiency that can be resolved using the resources available onboard, it is still necessary for the inspector to document this as a Finding. The inclusion of any strategies or measures undertaken by the company to address identified deficiencies should be incorporated within the Summary of Findings report.

Moreover, an additional supplementary column is provided to assist inspectors in briefly recording more details, such as using the designation "R" for rectified before

departure, "B" for best practice observed, "D" for thorough examination, and "T" for tested.

The Ship Inspection Record for submission should not have any additional comments or annotations appended to it.

The main purpose of this format is to help inspectors efficiently check the condition, methods, and activities, thus reducing the administrative workload. Regular updates will be made to the inspection record forms.

Inspectors should exclusively use the Club's forms and should refrain from adding their own logos or altering questions or numbering..

5.2 The Summary of Findings Report

The Summary of Findings report encompass the data acquired throughout the execution of the Ship Inspection Record. In accordance with the protocol outlined in the Ship Inspection Record, any inquiries yielding a negative response are required to be transcribed in a tabular format within section 1 of the Report. Detailed directions on how to accomplish this task are available on the official website of the Club. The Master will be provided with a sole copy of this particular segment.

The comprehensive report might be finalized subsequent to the departure of the inspector from the vessel.

Section 1 will comprise the aforementioned table, which will comprehensively present the supporting information for each reported finding. If the identified issues were resolved prior Upon the inspector leaving the ship, this section will contain records of this event.

Section 2 of this report will document the inspector has identified the presence of Best Practices in the areas, based on their professional judgment.

Section 3 will cover additional discoveries or observations made by the inspector. These findings may include aspects that are not covered in the Ship Inspection Record questionnaires, along with any extra observations made by the inspector. The documented findings should only consist of factual statements and should not include comments about repairs, corrections, or recommendations.

5.3 The Photograph Album

Photograph albums can play a significant role in documenting the maintenance, repairs, and inspections conducted onboard tanker ships. The albums have the capacity to encompass a diverse range of visual documentation, including photographs depicting an assortment of components and equipment, such as valves, pumps, tanks, and pipes. Additionally, these albums may also feature images that capture any repairs or upgrades that have been executed.

Photograph albums can serve as valuable tools for ensuring the proper and timely execution of maintenance and repair tasks by capturing various elements of the ship. Additionally, they possess the potential to function as a helpful point of reference for subsequent inspections, as well as for the purposes of training and education.

Furthermore, photograph books can serve as a means to record and preserve safety processes and regulations, encompassing emergency drills, safety equipment inspections, and staff training sessions. Photo albums have the potential to visually document these processes, so enhancing safety culture and fostering compliance with safety protocols.

In general, the utilization of image books can be regarded as a valuable instrument in the preservation and enhancement of the security and effectiveness of tanker ships. Moreover, it aids in guaranteeing the comprehensive documentation and upkeep of all facets of the vessel throughout its lifespan.

When it is allowed by the current laws and safety standards, it is recommended to take a series of properly labeled digital photos that accurately show the overall condition of the ship. The number of photos needed should be between 12 and 24, and they should be organized in a single document with six images on each page. Inspectors should use a digital camera setting that minimizes the number of pixels in order to reduce the file size of the photo album.

5.4 THE INVOICE

An invoice is a formal document issued by a seller to a buyer, containing a detailed breakdown of the products or services rendered, together with the corresponding payment amount that is owed. To clarify, an invoice can be defined as a formal document that outlines the financial obligation incurred by the customer for the goods or services rendered. The invoice commonly encompasses various elements, including a comprehensive explanation of the products or services provided, the quantity of items or services rendered, the unit price for each item or service, the overall amount owed, and any relevant taxes or fees that may be applicable.

Typically, invoices are generated subsequent to the completion of the delivery of products or services, with payment expected within a designated period, often 30 days. In the context of business-to-business transactions, invoices hold significant importance as they serve as a crucial component of the payment process. Their primary functions encompass the tracking of payments, recording of transactions, and facilitation of accounts payable and accounts receivable management. Invoices may be provided in either paper or electronic format, contingent upon the preferences of the seller and the customer.

1. The original Invoice, excluding any copies or duplicates, is to be forwarded together with the full report.

2. The Inspector's invoice should be directed to:

The Master / Owners of M.V. "ship's name",

C/O The London Steam-Ship Owners' Mutual Insurance Association Ltd.,

50 Leman Street,

London E1 8HQ.

3. It is essential for the Invoice to contain the following details:

- Notification that the Invoice pertains to a "P&I Inspection"
- Vessel's Name
- The reference provided by the Club
- The port where the Inspection took place
- Date(s) of the inspection
- Instructions for payment along with complete bank information, if necessary.

4. The Invoice should clearly detail the following:

- The time spent on inspection, including the number of hours and the hourly rate, or an agreed fixed rate for the job.
- The time taken to prepare the report, specifying the hours and hourly rate if not included in the fixed rate for the job.
- The time spent on traveling or waiting, detailing the hours and hourly rate if not included in the fixed rate for the job.
- A breakdown of expenses for travel, subsistence, and communications.

- Any additional costs with a comprehensive explanation.
- The total amount should indicate the currency for payment.

5.5 COMPLETION AND SUBMISSION OF REPORTS:

After the inspection, the SIR needs to be filled out and a printed list of negative findings should be given to the Master. This can be handwritten.

Once the inspection is finished, the fully completed SIR, List of Findings, and Photographs must be sent to the Club as email attachments within 24 hours.

A complete submission should include 4 documents:

- Ships Inspection record (in Excel format, not pdf)
- Summary of Findings (in Word format, not pdf)
- Photographic Record (can be sent in pdf format if preferred)
- Invoice.

No additional documents are needed unless significant deviations are found, and in that case adding Objective Evidence will improve the report.

It is imperative for the corporation to consistently guarantee the presence of the most up-to-date iteration of VIQ, OSIMF, or CDI on every tanker within its fleet. It is essential that each vessel is provided with the most up-to-date version of the VIQ questionnaire in order to achieve a comprehensive comprehension of the inspection procedure.

Depending on the situation, you can view the relevant questionnaire for free in person at the office or online through the Internet. It is advised that copies of the pertinent Vessel Information Questionnaire sections pertaining to their individual roles and responsibilities be carried by the ship's upper and lower crew members. By giving all members access to this material, they will be able to have a thorough grasp of their own responsibilities from the viewpoint of an inspector.

Once the determination to conduct a ship inspection has been reached, the company offers guidance to the ship's master, ensuring that all ship staff are afforded sufficient time to adequately prepare the vessel. Providing advance notice enables the master and senior crew members to effectively arrange the necessary documentation, such as certification records and manuals, which will be subject to examination by the inspector during the inspection process.

The company will provide a comprehensive list of certificates and accompanying instructions to ensure adequate preparation. The inspector will prioritize these certificates from the outset of the examination, taking into account any advice derived from the company's previous inspection experiences. Indeed, the inspection departments offer a comparable service. Upon receipt of confirmation from the inspection business, it is imperative to inform all crew members that the inspection will proceed as scheduled on the vessel, as previously communicated.

This paper aims to provide a comprehensive overview of certifications by presenting a range of examples.

Classification, international tonnage, Panama, Suez, registry, international load line, safety construction, safety radio, GMDSS shore-based maintenance, ship radio station license, safe manning, safety management certificate (SMC), and document of compliance (DOC) with declarations from the company, designated person ashore (DPA), and company security officer are the primary certificates needed for a ship.

5.6 BRIDGE INSPECTION

During the process of inspecting the bridge of a tanker ship, an inspector commonly examines a range of components to verify their operational functionality and compliance with relevant safety regulations. The following are few crucial aspects that an inspector may examine on the bridge of a tanker vessel:

The inspector will assess the navigation equipment located on the bridge, including the radar, gyrocompass, and electronic chart display system, in order to verify their operational status and appropriate calibration.

The inspector will assess the communication equipment present on the bridge, including the VHF radio and satellite communication system, in order to verify their operational status and adherence to maintenance protocols.

The bridge instruments will be inspected by the inspector in order to verify their good functioning and calibration. This includes equipment such as the speed log and wind sensor.

The inspector will assess the bridge's layout and design, encompassing factors such as visibility from the bridge and the organization of controls and instruments. This evaluation aims to verify compliance with relevant standards.

The inspector will assess the emergency equipment present on the bridge, including life jackets and emergency communication systems, in order to verify their appropriate upkeep and ease of accessibility.

The inspector will assess the credentials and training of the bridge staff, including the master and watch officers, in order to verify compliance with relevant requirements and ascertain their competence in safely operating the vessel.

In essence, the primary responsibility of the inspector is to verify that the bridge of the tanker ship is adequately equipped, maintained, and operated in accordance with relevant safety and operational regulations. The inspector plays a crucial role in maintaining the vessel's safe operation and safeguarding the well-being of the crew, cargo, and environment by detecting any faults or non-compliances during the inspection procedure.

5.7 File Protection

Safeguarding files and papers from the risk of fire is a critical component in upholding the safety and functional reliability of a tanker vessel. The preservation of essential documents, including navigation charts, crew certificates, and safety certificates, is of utmost importance for ensuring the secure and effective functioning of a vessel. The potential loss or destruction of these documents carries significant implications that can adversely impact maritime operations.

In order to safeguard these documents from the risk of fire, many precautionary measures might be implemented. For instance, it is common practice to store documents in fireproof cabinets or safes, or alternatively, to house them in specifically designated compartments that have been engineered to withstand fire. Moreover, the installation of fire suppression systems, such as fire sprinklers or fire extinguishers, is often implemented in locations where critical documents are stored.

Furthermore, it is imperative to carry out routine control patrols on the vessel following the completion of each shift, in addition to safeguarding documents against potential fire hazards. Control patrols encompass the systematic examination of various areas within the vessel, including compartments, systems, and equipment, with the objective of verifying their proper functioning and identifying any risks to safety and the environment.

During routine control patrols, crew members are responsible for inspecting the vessel for any indications of leaks or spills, verifying the presence and functionality of safety equipment such as lifeboats and fire extinguishers, and ensuring the appropriate securing of valves and other equipment. Through the implementation of routine control patrols, the crew may effectively safeguard the ship and its personnel, while concurrently mitigating the risk of ecological harm.

CHAPTER 6: FLAG STATE INSPECTIONS

6.1 FLAG STATE DEFINITION

The country where a ship is registered and falls under its legal jurisdiction, so retaining regulatory control over the vessel, is known as the flag state of the ship. The flag state bears principal responsibility for guaranteeing adherence to pertinent international and national regulations, which include safety, environmental, and operational standards.

The responsibility for issuing various certificates and documentation pertaining to a ship, such as registration paperwork, safety certificates, and crew certificates, lies with the flag state. Furthermore, it is within the purview of the flag state to perform inspections on the vessel in order to verify its adherence to relevant legislation and standards.

Typically, the primary responsibility for guaranteeing the safe operation of a ship and safeguarding the marine environment lies with the flag state. This include the implementation of regulations pertaining to the building, maintenance, and operation of the vessel, in addition to the management of incidents and accidents associated with the ship.

6.2 DEFINITION OF FLAG STATE INSPECTIONS

Flag state inspections refer to the examinations conducted by the governing bodies of the flag state with the purpose of verifying the adherence of a vessel registered under its flag to both international and domestic regulations, norms, and agreements. Inspections of ships are commonly carried out at regular intervals, contingent upon the ship's type, age, and operational record.

The primary objective of flag state inspections is to uphold the safety standards pertaining to the vessel, its personnel, and the surrounding maritime ecosystem. During the inspection process, it is customary for the flag state authorities to thoroughly examine the ship's records, documents, and certificates. Additionally, they will perform a comprehensive physical assessment of the ship's equipment and systems, encompassing its navigation, safety, and environmental protection apparatus.

In the event that deficiencies or non-compliances are detected during the inspection process, the flag state authorities have the authority to impose corrective measures or detain the vessel until the observed shortcomings have been addressed. In addition, the flag state has the authority to implement additional measures, such as levying penalties or revoking the ship's registration, in cases where significant instances of non-compliance are detected.

Flag state inspections play a crucial role in guaranteeing the secure and compliant functioning of vessels, being a fundamental element of the global regulatory structure for marine safety and environmental preservation. The

management issues directives on the minimum draft beneath the torpedo and the squat.

When used in the context of shipping, "draft" refers to the vertical measurement that denotes the distance between the waterline and the bottom of a ship's outline. The least allowable draft needed for a ship to safely navigate within a given area is referred to as the minimal draft beneath the torpedo. There are a number of possible explanations for this phenomena, such as the water's depth, the existence of navigational dangers, or the application of environmental regulations.

In contrast, the term "squat" pertains to the reduction in under-keel clearance (UKC) experienced by a vessel during its movement. When a vessel navigates through a body of water, the hydrodynamic interaction between the hull and the surrounding fluid induces a phenomenon known as water level drop. This decrease in water level can lead to a reduction in the vertical distance separating the ship's keel from the seabed, commonly referred to as clearance. The phenomenon of decreased clearance, sometimes referred to as squat, is a noteworthy aspect to take into account when maneuvering in shallow seas or regions affected by tidal currents.

To guarantee the ship's safe and efficient operation, the manager could give instructions about the minimal draft below the torpedo and the squat. Through the provision of these instructions, the management can help ensure that the vessel is operating within safe limits and poses no risk of grounding or damaging the environment.

In order to adhere to these directives, it will be necessary for the captain and crew of the vessel to diligently observe the ship's draft and squat while navigating, and maybe make necessary modifications to the ship's velocity or trajectory to guarantee that it remains below the permissible thresholds. Furthermore, it may be necessary for the crew of the ship to engage in communication with people stationed on land or with other vessels to ensure that they possess the necessary knowledge regarding the ship's minimum draft and squat requirements.

The methods employed by the inspector to exercise control

During a flag state inspection, the inspector commonly examines the ship's records, paperwork, and certificates, while also performing a physical assessment of the ship's equipment and systems. This includes an evaluation of the navigation, safety, and environmental protection equipment onboard.

In order to verify the ship's adherence to the prescribed guidelines pertaining to the minimum draft below the torpedo and the phenomenon of squat, the inspector has the option to conduct various examinations and assessments.

1. Verifying the vessel's load line markings: The load line markings affixed to the ship's hull serve as indicators of the maximum draft permissible for the ship's loading. The inspector has the authority to verify the load line markings in order to ascertain that the vessel is not exceeding its maximum permissible draft when laden.

2. Evaluation of the vessel's stability paperwork: The inspector is tasked with examining the ship's stability documentation, which encompasses the stability booklet, in order to verify the accuracy of the ship's stability calculations. This assessment involves considering many elements, including the ship's draft, weight, and ballast.

3. Verification of the vessel's navigational apparatus: The inspector has the authority to verify the functionality and accuracy of the ship's navigational apparatus,

which encompasses the echo sounder. This is done to ascertain that the ship is maintaining the appropriate draft and to monitor any fluctuations in draft that may occur during the course of navigation.

4. Verification of the vessel's velocity: The inspector may conduct an assessment of the ship's speed in order to ascertain its compliance with the prescribed thresholds for the ship's draft and squat.

5. Examination of the vessel's hull and propeller: The inspector is capable of examining the ship's propeller and hull visually to find any signs of damage or excessive degradation that could affect the ship's squat or draft.

5. Inspection of the propeller and hull of the ship: The inspector can visually evaluate the ship's hull and propeller to find any signs of damage or excessive degradation that could affect the draft or squat of the vessel.

Through the implementation of these examinations and assessments, the inspector plays a vital role in guaranteeing the ship's adherence to safety protocols and compliance with the permissible thresholds for the minimum draft beneath the torpedo and the squat phenomenon. In the event that any non-compliance is detected during the inspection, it is imperative that the ship's crew or management promptly address and rectify the reported issues. This is essential to maintain the ongoing safety and proper functioning of the ship. During a flag state inspection, the inspector has the responsibility of examining the ship's logs and other relevant data in order to ascertain whether proper maneuvers were executed from the bridge over the course of the journey. The inspector has the option to conduct interviews with the ship's crew, which may include the captain and officers, in order to ascertain the adherence to proper protocols.

To check that the correct maneuvers were carried out from the bridge during the voyage, the inspector may review the following:

1. Voyage Plan: The voyage plan is a document that outlines the intended route, the timing of the voyage, and any other relevant information. The inspector may review the voyage plan to ensure that it was followed correctly.

2. Navigational Logs: The navigational logs record the ship's position, speed, and course during the voyage. The inspector may review the logs to ensure that the ship was navigating safely and correctly.

3. Communication Logs: The communication logs record any communication between the ship and other vessels or shore-based personnel. The inspector may review the logs to ensure that the ship was communicating correctly and following any instructions received.

4. Bridge Equipment: The inspector may check the ship's bridge equipment, including the navigational instruments, communication systems, and other equipment to ensure that they are functioning correctly and being used properly.

5. Crew Training: The inspector may check the crew training records to ensure that the crew has the necessary training to carry out correct maneuvers from the bridge.

Through the implementation of these inspections, the inspector can contribute to the assurance of the ship's adherence to safety protocols and proper operational procedures during the journey, as well as the accurate execution of maneuvers from the bridge. Any instances of non-compliance that are found during the inspection

must be handled by the ship's management or crew in order to ensure the ship's continued safe operation.

EPILOGUE

In conclusion, inspections play a critical role in ensuring the safety, efficiency, and sustainability of the shipping industry, particularly in the context of tanker ships. Through regular inspections, potential issues and hazards can be identified and addressed in a timely manner, reducing the risk of accidents, spills, and other incidents that could have severe consequences for both the crew and the environment.

Inspections also promote continuous improvement in the industry, as new technologies and best practices are identified and adopted. The use of standardized inspection tools and programs, such as the Vessel Inspection Questionnaire (VIQ), the Tanker Management and Self-Assessment (TMSA), and the Ship Inspection Report Program (SIRE), help to ensure that inspections are carried out consistently and effectively across different vessels and regions.

Moreover, the implementation of safety culture and procedures, such as the International Safety Management (ISM) code, is essential in promoting a culture of safety and sustainability within the shipping industry. By prioritizing safety and sustainability, the industry can improve its reputation and credibility, and ensure that it remains a key player in global trade and commerce.

While the inspection of tanker ships can be a complex and challenging process, it is crucial for ensuring the safety of both the crew and the environment. By staying up-to-date with the latest inspection standards and procedures, and by prioritizing safety and continual improvement, the shipping industry can help to ensure that tanker ships remain a safe and efficient means of transporting goods across the world's oceans.

In summary, the role of inspections in the shipping industry cannot be overstated. By prioritizing safety, efficiency, and sustainability through regular inspections, the industry can ensure its long-term viability and success, while also protecting the interests of its stakeholders and the environment.

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