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## **LIST O FABREVIATIONS**

BIQ - Barges Inspection Questionnaire

BIRE – Burge Inspection Report Program

BIRP – Burge Inspection Report Program

BPQ - Barge Particulars Questionnaire

CDI – Chemical Distribution Institute

CVIQ- Compile Vessel Inspection Questionnaire

EBIS- European Barge Inspection System

ESI – Environmental Ship Index

EULA-End User License Agreement

GA – Green Award Organization

HVPQ- Harmonized Vessels Particulars Questionnaire

IACS – International Association of Classification Societies

ILO – International Labor Organization

IMO – International Maritime Organization

IMPCAS- International Marine Packed Cargo Audit Scheme

ISGOT – International Safety Guide for Oil Tankers and Terminals

ISM – International Safety Management

MOU – Memorandum of Agreement

MTIS – Marine Terminal Information System

OCIMF – Oil Companies International Marine Forum

OOW – Officer on Watch

OVID – Offshore Vessel Inspection Database

OVIQ – Offshore Inspection Database

PCS – Port State Control

PnI – Protect and Indemnity Club

SIRE – Ship Inspection Report Program

SOLAS – International Convention of Safety of Life at Sea

SOPEP – Shipboard Marine Pollution Emergency Plan

STCW – International Convention on Standards of Training Certification and Watch keeping for Seafarers

TMSA – Tanker Management Self Assessment

UN – United Nations

USCG – US Coast Guard

VIQ – Vessel Inspection Questionnaire



## **ABSTRACT**

Maritime transport holds the largest and the most important share of world transport with a percentage of up to 90%. The main purpose of this dissertation is to analyze the external inspections which carried out in ships and ensure the safety of the vessel, the crew, the ports and the environmental protection and sustainability. The main categories of inspections are: the TMSA, the Vetting Inspections, the Flag Inspections, the Green Award Inspections, the Port State Control and the Classification Society. Their combination or even each one individually has significant effects on the economy and the company's overall appearance. An important reference is the historical development of inspections and how they began to be implemented. Additionally, every kind of external inspection displays the required procedure to be followed and several elements. It is important to highlight that the TMSA and Vetting inspections correlate with the tanker ships and oil companies. On the other hand, the Port State Control and the Classification Society concerns all kind of merchant ships. It is known that the international literature lacks studies of the external inspections, but the researchers acknowledge is rich of studies that examine this kind of issue and explain the implementation in the shipping industry.

**Key Words:** Safety Management Systems, Performance Measurement, Continual Improvement, Port State Control, Memorandum of Understanding, Inspection, Clear Grounds, Detention, Classification societies, Certificates, Survey, Vetting, OCIMF, SIRE

## ΠΕΡΙΛΗΨΗ

Οι θαλάσσιες μεταφορές κατέχουν το μεγαλύτερο και το σημαντικότερο μερίδιο των παγκόσμιων μεταφορών με ποσοστό έως και 90%. Κύριος σκοπός της παρούσας εργασίας είναι η ανάλυση των εξωτερικών επιθεωρήσεων που πραγματοποιούνται στα πλοία και η διασφάλιση του σκάφους, του πληρώματος, των λιμανιών και της περιβαλλοντικής προστασίας και βιωσιμότητας. Οι βασικές κατηγορίες επιθεωρήσεων είναι το TMSA, το Vetting, οι Επιθεωρήσεις του Κράτους Σημείας, τα Green Awards, ο Κρατικός Έλεγχος του Λιμένα (PSC) και ο Νηογνώμονας. Ο συνδυασμός τους ή και το καθένα ξεχωριστά έχει σημαντικές επιπτώσεις στην οικονομία και τη συνολική εμφάνιση της εταιρείας. Σημαντική αναφορά αποτελεί η ιστορική εξέλιξη των επιθεωρήσεων και το πώς ξεκίνησαν να υλοποιούνται. Επιπλέον, κάθε είδους εξωτερική επιθεώρηση παρουσιάζει την απαιτούμενη διαδικασία που πρέπει να ακολουθηθεί και διάφορα άλλα στοιχεία. Είναι σημαντικό να τονιστεί ότι οι επιθεωρήσεις TMSA και Vetting συσχετίζονται με τα δεξαμενόπλοια και τις εταιρείες πετρελαίου. Από την άλλη, ο κρατικός έλεγχος λιμένα και ο Νηογνώμονας αφορούν κάθε είδους εμπορικά πλοία. Είναι γνωστό ότι η διεθνής βιβλιογραφία στερείται μελετών για τις εξωτερικές επιθεωρήσεις, αλλά υπάρχουν αρκετές μελέτες που εξετάζουν αυτού του είδους τα ζητήματα και εξηγούν την εφαρμογή στη ναυτιλιακή βιομηχανία.

**Λέξεις-Κλειδιά:** Συστήματα Διαχείρισης Ασφαλείας, Μέτρηση Απόδοσης, Συνεχής Βελτίωση, Έλεγχος Λιμένα, Μνημόνιο Κατανόησης, Επιθεώρηση, Κράτηση, Νηογνώμονες, Πιστοποιητικά, Αξιολόγηση

## **INTRODUCTION**

The main aim of this Master's dissertation is to examine, analyze in depth and provide information about vetting inspections. In the past humans used petroleum for hundred years to produce medicine and weapons of war. Nevertheless, the use of petroleum increased rapidly after the Industrial Revolution. Oil was used for fuel, electricity and lubricant replacing other energy sources such as coal or wood. The use of oil was very convenient as it was more concentrated and thus could be easily transported from one place to another. With the boom of oil use, the refined products (gasoline, diesel) became very popular in automotive and ship industry. As the demand for oil and its refined products was rising, it is observed around 70s that more and more independent ship owners were chartering tanker vessels to profit from this global demand. It is noted that traditional tanker fleetowners were big oil companies. The independent ship owners were usually people with no experience in tanker fleet management or oil extraction and used old equipment and did wrong calculation. As a result of the above factors from 1970 onwards tons of oil and refineries were released in the ocean polluting the marine environment and killing wildlife. It is estimated that between 1970-2016 nearly 6 million tons of oil were lost as a result of incidents in tanker ships.

Fortunately, during these 43 years the quantity of oil spills decreased dramatically. In maritime shipping industry a growing number of independent organizations, international governmental organizations and companies are taking initiatives to eliminate oil spills incidents. Today international legislation has become stricter for the tanker industry. IMO of UN enforced the MARPOL which entered into force in 1983 and includes regulations regarding the construction and operation. Besides this, international community trying to support the elimination of oil spill pollution and the enforcement of huge fines by the government courts introduced several inspection initiatives such as TMSA inspection, Vetting Inspection, Port state Controls and PnI clubs inspections.

In this document, an analysis in Vetting Inspections follows. Firstly, follows an introduction about the rise of the oil spill accidents and the implications to the marine environment. Secondly follows an analysis of Vetting Inspections programs of OCIMF organization. More specifically, SIRE (VIQ7), SIRE 2.0 and OVID inspection are examined in detail approach and introduce the reader to strict guidelines need to be followed by tanker companies today. The goal of SIRE and OVID inspections is to reduce the repetitive inspections in the same ship by developing an online database where submitting companies and charterers can have access to. In addition inspections programs motivate companies to develop a safety management plan and conduct all appropriate quality changes to avoid marine pollution incidents. Ships that do exceptionally well in vetting inspections and are certified will attract more potential charterers. Thirdly it is mentioned that charterers such as those from Chemical Distribution Institute (CDI) (BP, SHELL, EXXON VALDEZ) conduct inspections as well in order to assess the suitability of a ship. After that, the BP vetting inspection and vessel requirements are also mentioned in this section such as vessel's age criteria and new building requirements. Last but not least, follows a separate analysis of the Green Award Organization. Green Award is a non-profit international organization that is worth to be mentioned for his contribution in maritime safety. In this section is examined the certification procedure of GA as well as the benefits gained by a certified member of the organization.

## VETTING INSPECTION

Vetting inspection is an assessment carried out on a vessel by a trained inspector who tests whether the vessels enforces international safety standards and takes pollution prevention measures. This will enable a potential charterer to choose easier the right vessel to carry their cargo. The suitability of the vessel is assessed by multiple factors such as the equipment maintenance, the training and preparation of the crew, the available emergency plans etc.

### **1. HISTORY**

Historically the traditional owners of tankers fleet were the big oil companies and long-term time charters were becoming increasingly rare with the spot charter market becoming very active. Around 1970, the use of petroleum and its refined products were becoming very popular at a global level for fuel use and electricity power replacing coal and wood. This change in the energy sector led to an increase in sea transportation of oil products and its refines (gasoline, diesel) who became very popular in automotive and ship industry. With the global demand of oil it is observed that independent ship owners were increased rapidly in oil industry which was until then dominated by oil companies. The problem with this change is that independent ship owners who wanted to profit from this new economic reality have neither previous experience in shipping nor real interest. Even with small tanker fleet ship managers were gradually gaining influence. This change raised the issue of the quality of the growing tanker fleet as numerous of oil spills occurred from 1970 onwards. It is when the OCIMF organization was created and developed a vetting plan unique for each company. OCIMF published inspection questionnaires for tankers carrying petroleum and oil products based on IMO international conventions of SOLAS and MARPOL. Soon OCIMF realized that a change was also necessary in the shore based ship management. Sometimes oil spill accident can easily occur because of poor communication with the company's offices or because of wrong guidelines from the office. For this reason OCIMF started to assess the operators, the ship agencies and companies' management plans. The aim of the vetting inspection is to assess whether

the shipping companies implement international legislation in their operation plan and if they meet certain industrial standards.

## 2. OIL SPILL ACCIDENTS

### The Amoco Cadiz Oil Spill (1978)



*Figure 1 Amoco Caldiz oil spill (Mehnazd, 2019)*

In March 16 1978 the VLCC Amoco Cadiz was traveling from the Persian Gulf to Europe carrying large quantity of crude oil more than 220.000 tons. Due to the extreme weather conditions multiple waves hit the vessel and pushed it near the shore line toward the Breton Coast. In the end the Liberian flag VLCC hit a rock close to the Portsall Port close to north France. The vessel ended to break in 3 pieces causing the largest oil spill in history. 220.000 tons of crude oil and 4,000 tons of fuel released close to the coast of Brittany in France resulting the largest loss of marine life ever. The cause of accident was “grave negligence” according to the French Prime minister who later banned all tanker vessels to approach the French coast in a distance closer to 11 meters. (Safety 4 Sea, 2019)

## Santa Barbara Oil spil



*Figure 2 Santa Barbara oil spill changed oil and gas exploitation forever (Mai-Duc, 2015)*

On January 1969 another ecological marine disaster occurred in US waters. 3 million gallons of crude oil were released in ocean waters in the coast of Santa Barbara of California. The oil spill occurred in Platform A, 6 miles close to the coast, which was exploded after oil and gas pressure. The implications in marine life were enormous. After the explosion an enormous are of 35 miles from coast was covered by oil and as a result thousands sea animals died and is marked as one of the worst environment disasters in US.

## Exxon Valdez Oil spill



*Figure 3: Juneau Empire Opinion: thirty years since the Exxon Valdez spill and our current ship of state (Juneau Empire , 2019)*

It was the worst oil spill in US history until the Exxon Valdez happened 20 years later. The Exxon Valdez oil spill occurred in 1989. The oil tanker Exxon Valdez owned by the shipping Company Exxon Mobile spilled 1 million gallons of crude oil in Alaska Prince William Sound. Again the ecological disaster was enormous. The oil slick covered 1,300 miles of coast line and killed thousands of sea birds, otters, seals and whales



### 3. Oil Companies International Marine Forum (OCIMF)



The Oil Company International Marine Forum was founded in 1970 as a reaction to the global fear about sea pollution from oil industry. Today OCIMF has a leading role in maintaining safety of sea and consultancy status at the IMO. The mission of OCIMF is to create a human and environmental friendly marine industry. (OCIMF, 2021) Thus the aim of OCIMF is to propose guidelines in construction of the vessels and operation of tankers, barges and offshore vessels. OCIMF use the expertise of its members-Submitted Companies and external partners in order to develop several publications and programs to ameliorate safety in operations and environmental protection. Furthermore, OCIMF offers a number of inspection tools to vessel operators in order to implement safety measures.

Ship Inspection Report Program (SIRE)

Offshore Vessel Inspection Database (OVID)

Tanker Management Self Assessment (TMSA)

Marine Terminal Information System (MTIS)

Barge Inspection Report Program (BIRP)

SIRE 2.0

### **3.1 OCIMF Programmes Requirements for Submitting Company**

A Submitting Company is considered a company approved by OCIMF to commission inspections and is able to submit inspections reports with their own name into an OCIMF program database. OCIMF programs are

- Ship Inspection Report Program (SIRE)
- Barge Inspection Report Program (BIRE)
- Offshore Vessel Inspection Database (OVID)

The OCIMF set out some minimum criteria for a company to be considered as a Submitting Company in SIRE BIRE and OVID. The criteria for a Submitting Company are divided in 3 categories.

1. Eligibility Criteria
2. Agreement with the OCIMF Code of Conduct and Terms & Conditions
3. Probationary Period and requirements for retaining Submitting Company Status.

One of the requirements for becoming a Submitting Company is the candidate must be:

**SIRE:** a company that charters tankers or operated oil marine terminals such as crude oil, oil products but also chemicals and petrochemicals or gas and holds risk and title of crude oil, condensate refined petroleum products, chemicals, petrochemicals, and by products, bio fuels, gas or fuel cargoes carried on vessels chartered or commercially managed by the applicant.

**BIRE:** a company that charters barges, tugs or units or operates a oil marine terminal crude oil, oil products, petrochemicals or gas.

**OVID:** a company that charters offshore vessels and is registered as the Duty Holder of an offshore concession.

One of the aims of OCIMF inspection programs is to prevent the number of repeat vessel inspections in the industry. Thus the role of the OCIMF Quality Assurance

team is to monitor and assess the activity of each Submitting Company in the program. This is to ensure that inspections commissioned by a Submitting Company are aligned with their business or marine assurance needs.

Below are some indicative criteria for a Company to be considered as a Submitting Company.

### Part I Eligibility Criteria

Criteria 1. The applicant can't be one of the following entities or acting as a consultant to an affiliate or third party:

- P&I Club
- Insurance Company
- Third Party Vetting Company
- Independent Consultancy
- Academic or Research Institution
- Classification Society
- Media Organization
- Industry Non-Government Organization or other industry Association
- Entity only engaged in commercial chartering and commercial management of vessels

Criteria 2. The Applicant must prove that matches within the relevant criteria for SIRE, BIRE or OVID:

- SIRE

The applicant must be:

- An established SIRE Programme Recipient for at least 12 months at the time of their application.
- A company that charters tankers and/or operates an oil marine terminal crude oil, oil products, chemicals, petrochemicals or gas.

- BIRE

-An established BIRE or European Barge Inspection System (EBIS) Programme Recipient for at least 6 months.

- A company chartering Barges, Tugs or Units and / or operates an oil marine terminal.

- OVID

The applicant must be:

- An established OVID Program Recipient.

- A company chartering Offshore Vessels.

- A company that is designated or registered as the Duty Holder of an offshore concession or responsible to assume the role of Duty Holder of an offshore concession.

#### Part2. Agreement with the OCIMF Code of Conduct and Terms & Conditions

The applicant should meet all the criteria in Part 1 and must be approved by the Programmes Committee. The Applicant must agree to the OCIMF Code of Conduct, Programmes End User License Agreement (EULA), and OCIMF Submitting Company Terms and Conditions.

#### Part 3. Probationary Period and Requirements for Retaining Submitting Company Status

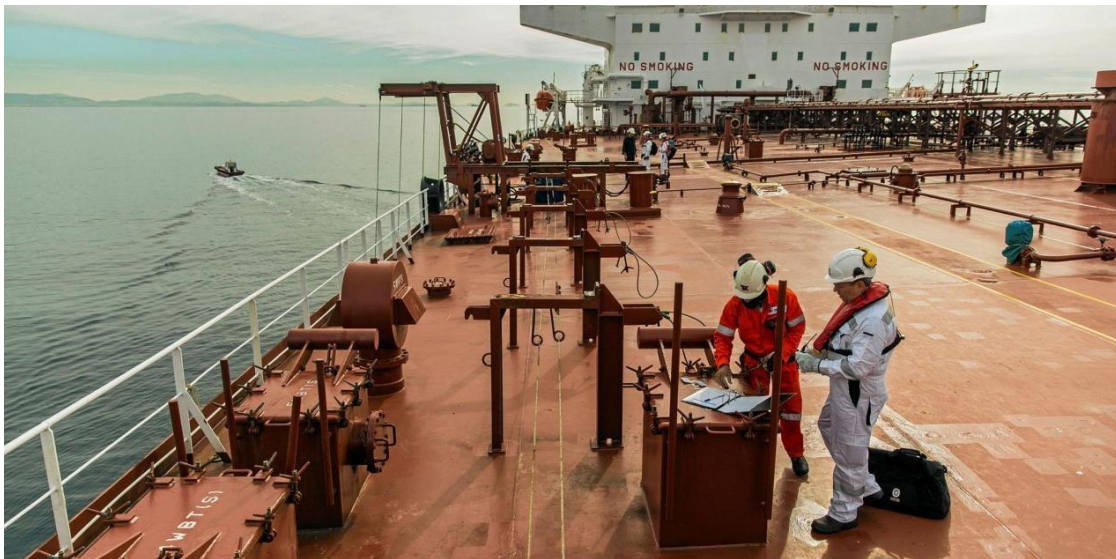
For a minimum period of 2 years the New Submitting Companies must complete a probationary period. OCIMF has the right to take one or more of the following measures if during the probationary period an non-compliance action is suspected:

- Call an immediate OCIMF Verification Meeting.
- Initiate a formal inquiry.
- Start a formal inquiry and gather a review panel
- End the probationary period and purge all the report submissions rights.

At the end of the probation period OCIMF will take on of the following actions:

- Confirm the Submitting Company Status
- Extend the Probationary Period
- Not confirm the status of Submitting Company and end all report submissions rights.

#### 4. **SIRE INSPECTION PROGRAM**



*Figure 4: TradeWinds: OCIMF give remote vetting guidelines to SIRE inspectors (Trade Winds, 2020)*

Ship inspection report program or SIRE is one of the first tanker risk assessment tool developed by OCIMF in 1993 in order to address the issue of poor safety shipping. The SIRE questionnaire is a great tool to measure the risk for vessels carrying oil, gas and chemicals and brings and is of primary importance to charterers, ship operators, terminal operators and government bodies concern with ship safety. The Questionnaire of SIRE includes a large database with updated data about tankers and barges. The program is widely welcomed by the shipping industry since nearly 180,000 inspections have been reported to SIRE. On average more than 8000 reports per month conducted from the Program Recipients. (OCIMF, 2019)

The participants of the SIRE questionnaire have to complete a uniform inspection protocol that is measured by the following:

- VIQ – Questionnaire for Vessel Inspection

- BIQ – Questionnaire for Burges Inspection
- Uniform SIRE Inspection Report
- VPQ – Questionnaire regarding Vessels Particulars
- BPQ – Questionnaire regarding Barge Particulars

SIRE program has become an important source where the charterers can have access to technical and operational information. The increasing use of SIRE aligns with the big effort of oil industry to control whether vessels are properly operated and maintained. After the Inspection, reports are saved for nearly 12 months from the date of conclusion and are maintained on the database for 2 years. The reports are available to OCIMF members and the external stake holders such as oil terminal operators and port authorities but also charterers and governmental bodies.

#### The Revisions of SIRE program

The SIRE program was firstly revised in 1997 and introduced the means whereby the users of the program could receive reports and any operator comments electronically.

The SIRE program was revised again in 2000, 2004, 2013. 7<sup>th</sup> and latest edition was published in February 22, 2019. (OCIMF, 2019)

#### How it works?

OCIMF conduct vessel inspections with a trained SIRE inspector who conducts the audit. Inspector takes access to ship's information from the online database of SIRE and from Vessel/Barge Inspection Questionnaires (VIQ/BIQ). The inspection procedure includes firstly an on-board inspection of operation procedures such as how the cargo is handling by the crew and what is the pollution prevention action plan of the ship.

SIRE program is a great tool and has offered a great evolution in tanker industry.

- It reduced the incidents at sea through the strict operation standards.
- It established high quality standards and elevates the education for ship inspectors.
- Reduced the problem or multiple inspections in the same ship.

## Uniform Vessel inspection Procedure

The OCIMF SIRE Program suggests that participating companies to undertake a Uniform Vessel Inspection Procedure. The uniform procedure contains 2 parts: the Inspection Element and a Report Element. The Inspection Element the inspector uses a number of detailed questionnaires unique for each type of the inspected ship. The questionnaire focuses in practices regarding safety and pollution prevention. The inspector who is employed by the participating company must answer all the questions. The Report Element is conducted by the inspector once the electronic questionnaire is submitted.

### **4.1 VESSEL INSPECTION QUESTIONNAIRE**

As it is already mentioned the VIQ is used to assess the safety management plan of the vessel as well as measures to prevent a marine pollution. Questions of the VIQ are unique to the type of the inspected ship. The questionnaire is divided in 12 chapters. Each chapter inspects different areas of safety management plans and pratiques for pollution prevention using different questions. The Inspector must fill the questionnaire with the following answers: Yes, No, Not Seen, Not Applicable. In Section 4 the SIRE includes the “Mandatory Inspection Requirements” that inspectors must follow during the onboard inspection. For example the inspector must introduce himself to the Master, and highlight the aim and the importance of the inspection.

In the SIRE program the crew of the vessel needs to provide answers to inspector in questions regarding safety measures taken on board and pollution prevention schemes. (OCIMF, 2019)

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*Figure 5: Ship Inspection Report (SIRE) Programme (VIQ7) (OCIMF, 2019)*



The above listed requirements are summarised below.

Box	Option	Response
Y	Yes	Tick "Yes" if, in the inspector's professional judgement assisted by the guidance (if provided), a positive response can be made to the question. If, in the inspector's judgement the Yes response requires to be amplified with further positive comments, the inspector may record such comments in the Comments box. Inspectors should keep in mind, that unless an unusual situation needs to be positively described, then a "Yes" response without comment is adequate.
N	No	Tick "No" if, in the inspector's professional judgement assisted by the guidance (if provided), a negative response should be made to the question.
NS	Not Seen	Tick "Not Seen" if the issue addressed by a question has not been seen or checked by the inspector. The reason why the topic or issue was not seen must be recorded in the Observations box.
NA	Not Applicable	Tick "Not Applicable" if the subject matter covered by the question is not applicable to the vessel being inspected. In some cases, the "Not Applicable" response is made automatically within the software and is subject to the type of vessel being inspected. In other cases, a "Not Applicable" response is not provided to the question and only the "Yes", "No" or "Not Seen" response options are available. If, in the inspector's judgement the "Not Applicable" response requires to be amplified with further comments, the inspector may record such comments in the Comments box. If, in the inspector's judgment an explanatory comment is necessary, the inspector may make such comment in the "Comments" section accompanying the question provided such comment makes amplification to assist the understanding of a report recipient as to an issue associated with a specific question.
	Observations and Comments	An Observation by the inspector is required for a "No" or "Not Seen" response. Where the question specifically calls for inspector comment irrespective of how the response box is checked, such comments are required to be recorded in the "Comments" section that accompanies the question. Inspectors are free to record comments even where a box is checked "Yes" provided such comment makes amplification to assist the understanding of a report recipient as to an issue associated with a specific question.
	Additional Comments	The <b>Additional Comments</b> section at the end of each chapter may be used to record comments in respect of the chapter that are <i>additional</i> to those which the inspector may make when responding to the specific questions.

Figure 6: Ship Inspection Report (SIRE) Program.

The SIRE VIQ is divided in 12 Chapters:

Chapter 1 General Information

Chapter 1 includes general information regarding the vessel that is inspected and indicate the ID of the vessel.

- Responsible person: the Master

In General information among others the following are included:

- Name of the vessel

- Vessel IMO number
- Date the inspection was completed
- What is the name of the inspected port
- Flag/ Nationality
- Vessel type
- Hull type
- Name of Classification Society

## Chapter 2 Certification and Documentation

In Chapter 2 of SIRE VIQ are inspected the documents a vessel should have onboard such as documents regarding safety measures, operation procedures manuals, Antipollution measures and documents regarding structural concerns.

- Responsible person: the Master

Some certificates that are inspected are the following:

- International Compliance certificate
- Certificates proving the ship has a safety management scheme
- A certificate proving the ship uses safe equipment
- Ballast Water Management Certificate
- Maritime Labor Convention(2006)
- Civil Liability Convention Certificate
- Minimum Safe Manning Document
- Safety Construction Certificate
- Certificate of Registry

## Chapter 3 Crew Management

Chapter 3 of SIRE VIQ is all about the crew of the inspected ship. The inspector will answer questions regarding the crew management, crew qualifications and measures regarding drug and alcohol policy. The crew officers should be able to communicate in the same language. Crew officers should carry as well certificated that proof they are trained for the cargo they are transferring.

- Responsible person: the Master

#### Chapter 4 Navigation and Communication

Chapter 4 of the SIRE VIQ is all about navigation procedures and activities. In order to prevent marine accidents and to ensure the safety of the cargo in this section it is essential for the inspector to measure the optimal efficiency of the navigation equipment. Navigation equipment such as radars, electronic charts and GPS should be maintained in excellence conditions. This section of VIQ also tests if the required procedures regarding navigation are followed, such as maintaining records during embarkation and disembarkation in port the times and position when passing waypoints weather and sea conditions. In addition equipment used for navigation should be in a good condition.

- Responsible person: the Master & Navigator officer

#### Chapter 5 Safety Management

In Chapter 5, inspector assess whether the officers are familiar with the process for conducting Risk Assessment and safety management plans. It is also tested if the crew officers are familiar with the equipment used for emergency situations. In this chapter it also inspected the process of recording all accidents and incidents and non-conformities that are generated on the ship and that are properly reported in shore office. Crew members should always wear protective clothes such as suits and boots during the operations. Chapter 5 includes:

- Risk assessments → Responsible person: all on board
- Drill Training and familiarization → Responsible person: Safety Officer
- Ship Security → Responsible officer: Safety Officer
- Enclosed space and Pump Room Entry Procedures → Responsible Person: Chief Officer

- Permits to work: Hot and Cold Work, Enclosed Space Entry, Working Overboard, Working at Height etc. → Responsible Person: Chief Engineer/ Chief Officer/ Safety Officer
- Monitoring of non-cargo spaces → Chief Officer
- Gas Analyzing Equipment → Chief Officer
- Hot Work Procedures → Chief Engineers
- Life Saving Equipment → Safety Officer
- Fire Fighting Equipment → Chief Engineer & Safety Officer
- Material Safety Data Sheets (MSDS) → Chief Officer
- Vessel's Access → Chief Officer

## Chapter 6 Pollution Prevention

The chapter 6 of VIQ is related with the pollution prevention plan and practices that the crew needs to be aware of. In particular chapter 6 includes instructions regarding cargo handling during charging and discharging how to prevent pollution onboard and how the ballast water should be handled. Chapter 6 includes:

- Oil Record Books → Person in charge: Chief Engineer and Chief Officer
- Cargo Record Book → Person in charge: Chief Officer
- All Shipboard Oil and Marine Pollution Emergency Plans including Vessel Response Plan (OPA 90) if required → Person in charge: Master
- Cargo Operations and Deck Area Pollution Prevention → Chief Officer
- Pump rooms and Oil Discharge Monitors → Chief officer
- Ballast Water Management → Chief and Second Engineers
- Garbage Management → Master and Chief officer
- Vessel and General Permit → Master & Chief Officer
- Energy Efficiency Management Plan → Master & Chief Officer

## Chapter 7 Maritime Security

Chapter 7 of VIQ is related the ship Security Plan and responsibilities of security officers. In this chapter inspector assess the function of security communication

equipment, the passage plan, the voyage security risk assessment plan and cyber security plans.

- Person in Charge Master or Chief Officer

## Chapter 8 Cargo and Ballast Management

The Chapter 8 of VIQ includes Cargo Ballast System for Petroleum products, for Chemical products, LPG and LNG. This Chapter includes questions regarding practices for safe carriage and handling of petroleum products according to international safety standards (ISGOTT). According to this chapter inspectors are responsible to monitor cargo operations and interview the responsible officers. Inspectors will examine the stability and cargo loading limitations, cargo operations procedures during loading and unloading of oil products and safety management, venting arrangements, methods of washing crude oil cargo, safety measures for static electricity and procedures to prevent pollution to offshore installation. Chapter 8 includes:

- Policies, Procedures and documentation → Person in charge Chief Officer
- Stability and Cargo Loading limitations → Chief officer
- Cargo Operations and Related Safety Management → Chief Officer
- Venting Operations → Chief Officer
- Vessel Emission Control System → Chief Officer
- Intert Gas System → Chief Engineer and Chief Officer
- Crude Oil Washing → Chief Officer
- Static Electricity Precautions → Chief Officer
- Manifold Arrangements → Chief Officer
- Pump Rooms → Chief Officer
- Pressure Testing of Cargo Hoses (if applicable) → Chief Officer
- Cargo Lifting Equipment → Chief Officer
- Ship to Ship Transfer Operations – Petroleum → Chief Officer

## Chapter 9 Mooring

Chapter 9 of VIQ concerns the Mooring equipment documentation and management. In this chapter the inspector examines if the vessel has developed a mooring system

management plan and if it is equipped properly for the mooring procedure. A common cause of accidents in port is the insufficient knowledge of mooring process. Thus poor quality equipment, unattended mooring lines or poor attention to weather condition can easily lead to a serious accident. Chapter 9 includes:

- Mooring Equipment Documentation → Person in charge: Master
- Mooring Procedures → Person in charge: Chief Officer
- Mooring Equipment → Chief Officer
- Anchoring Equipment → Chief Officer
- Single Point Mooring → Master
- Emergency Towing Arrangements → Chief Officer

#### Chapter 10 Engine and Steering Compartments

In Chapter 10 of VIQ it is examined whether the engineers are familiar for safe operation of the machinery plant. The engineer staff should be able should have full knowledge of the essential emergency equipment and a detailed plan should be written in the engine room and must be written for the specific ship. In addition this chapter examines procedures regarding the bunkering process and gives specific guidelines: the personnel responsible for fuel charging on board during bunkering operation, should have no other duties and are required to stay at their working station during the whole process. Chapter 10 includes:

- Policies Procedures and Documentation → Chief Engineer
- Planned Maintenance → Chief Engineer
- Safety Management → Chief Engineer/ Second Engineer
- Machinery Status → Chief Engineer/ Second Engineer
- Steering compartment → Chief Engineer/ Second Engineer
- Chemicals Material Safety Data Sheets → Chief Engineer/ Second Engineer

#### Chapter 11 General Appearance and Condition

In chapter 11 of the VIQ it is examined whether the vessel equipment in general is maintained in good condition externally and internally. For example in this chapter it is highlighted that the hull of the vessel should be properly cleaned and be free of stains in case of accidents or oil discharge. In addition the electrical equipment should

function sufficiently to illuminate the deck and facilitate working during night time. In the internal space the inspector will examine whether the accommodation area, public spaces, food stores, hospital, are properly cleaned and tidy. Chapter 11 includes:

- Hull, Superstructure and External Weather Decks → Responsible Person  
Master/ Chief Engineer
- Electrical Equipment → Chief Engineer
- Internal Spaces → Chief Officer
- Accommodation Areas → Chief Officer

#### Chapter 12 Ice Operations

In Chapter 12 of VIQ it is examined whether the vessel has an available manual on how to operate in ice or Polar Waters in order to avoid accidents in ice waters. Ships should be well equipped to protect the working personnel from the extreme cold temperatures such as protecting clothes. Ships that do international voyages in Polar waters are required to comply with the Polar Code (2017). In this chapter it is specified that “Severe sub-zero Conditions” are defined weather temperatures below -15C.

### **4.2 INSPECTION PROCESS**

The first impression counts, so it is important when the inspector is on board that he gains a positive impression of the vessel. The visual inspection begins exactly the time the inspector sees and approaches the vessel. Therefore it is important to do the following preparations:

- The gangway ladder should be placed safely and correctly
- Gangway warning sign for visitors should be posted and be visible from shore
- The gangway watchman is properly dressed with correct personal protective equipment.
- The inspector is greeted with respect and requested for identification.
- The gangway watchman can start security checks, safety briefing, and ensure the inspector’s mobile telephone is switched off.

- The inspector will announce the purpose, route and duration of the inspection
- Inspector will suggest what items of equipment will need to be demonstrated in their presence i.e. lifeboat engine, emergency generator, bilge separator and oil mist detector alarms etc.

The documents below should be made available at any time for the inspector's arrival. Not all these documents apply to all tanker ships. However, it is very important to have all papers available to speed up the inspection. (INTERTANKO, 2015)

- An updated Harmonized Vessel Particulars Questionnaire (HVPQ)
- The Operator's full style and contacts.
- Continuous Synopsis Record (CSR) and attached forms
- Document of Compliance
- Safety Management Certificate
- International Ship Security Certificate
- All the vessel's Class Certificates filed in the same order as displayed in the VIQ. Some Port Authorities will need to see the original class certificates in their office. Therefore, it is strongly recommended that all class certificated are photocopied and available in the absence of the originals.
- International Tonnage Certificate
- Minimum Safe Manning Certificate
- Certificate of Fitness
- Noxious Liquid Substances Certificate
- Civil Liability Convention (1992) Certificate
- P and I Club Certificate of Entry
- US Certificate of Financial Responsibility
- Lifesaving and fire-fighting servicing certificates, including lifeboats on-load release mechanism
- Port State Control inspection report file and evidence of close out of any deficiencies.
- Lifting gear register
- The Operator's ISM/SMS manuals



- Records of Operator's representative visits to the vessel including those by the Senior Management of the company.
- Latest Operator's audit report and non-conformity close out evidence.
- Reports and correspondence of the Master's review of the safety management system.
- Latest Class Survey Status report (less than 4 months old)
- Class survey reports (annual, intermediate special and occasional)
- Records of cargo and ballast tanks void spaces, trunks and cofferdams.
- Ship Energy Efficiency Management Plan.
- Enhanced Survey Reports
- Executive Hull Summary
- Condition Assessment Scheme
- Condition Assessment Program
- Thickness measurement report
- Garbage log book
- Oil record book Part 1
- Oil Record book Part 2
- Cargo record book
- Vessel's Response Plans applicable to the vessel as follows:
  - Vessel Response Plan with OPA 90
  - Shipboard Oil Pollution emergency Plan (SOPEP)
  - Shipboard Marine Pollution Emergency Plan
  - Panama Canal Shipboard Oil Pollution Emergency Plan
  - California Vessel Response Plan
  - Washington State Response Plan
- Operator's Drug and Alcohol Policy
- Intert Gas System Manual
- Trim and Stability Manual – approved by vessel's class
- Damage Stability Manual – approved by vessel's class
- Loading Computer Manual – approved by vessel's class
- Oil Discharge Monitoring Equipment Manual – approved by vessel's class
- Crude Oil Washing Manual – approved by the vessel's class

- Water Ballast Management Plant – approved by vessel’s class
- Procedures and Arrangements manual approved by vessel’s class
- Certificates of fire-fighting equipment servicing
- Certificates of lifesaving equipment servicing
- Certificate of mooring lines, shackles and tails certificates, that clearly identifies the winch drums they are each fitted to.
- Certificates of emergency towing-off wires
- Record of mooring winches Brake Holding Capacity test records
- Bow chain stopper SWL certification
- Hours of work/tests records
- Crew list
- The online officer’s matrix must be filled accurately and correctly.

### The Officer Matrix

It is of primary importance that the Officer’s Matrix must be extremely accurate. It is critical to ensure that the ship’s complements are in compliance with the different crew matrix requirements of individual oil and chemical companies. Officer’s Matrix should include the following elements:

1. Rank of the officer
2. The Nationality of the officer
3. Certificate of Competency. This should be the highest level of competency the officer holds.
4. The issuing country of the officer’s license that may not necessarily be the same nationality as the officer.
5. The officer’s license must be acceptable to the vessel’s Flag State Administration.
6. The officer must have tanker training relative to the type of tanker they are currently serving on.
7. The STCW V paragraph is referring to specialized tanker training provided to junior officers and ratings who have responsibilities during cargo operations (Chapter V paragraph 1.1). Chapter V paragraph 1.2 refers to specialized

tanker training applicable to those officers responsible for cargo transfer operations.

8. Radio Qualification

9. The number of whole calendar years the officer has been employed by the vessel's management company.

10. Years in Rank - "actual years of sea service" sailed in the current rank

11. Years on this type of tanker – "actual years of sea service" served on all tanker types oil and chemical and gas

12. The number of months on board since joining this current vessel

Is at the discretion of operators to add an additional element in their company's officers matrix to include "the actual years of service" as an officer of the watch (OOW). This is can be very helpful as some vetting departments will choose to evaluate the junior's officers' experience level in addition to the senior offices.

13. Months of experience as OOW. No matter what rank this is combined total of "actual months of sea service" served as an OOW". For example for the chief Officer's sea service as a watch keeping officer is the total as Chief 2<sup>nd</sup> and 3<sup>rd</sup> officer. Similarly for the 2<sup>nd</sup> officer a combined total as 2<sup>nd</sup> and 3<sup>rd</sup> officer. Also this applies to the Engineers, the "actual months sea service" as a watch keeping Engineer Officer. For example for the 2<sup>nd</sup> engineer is the total sea service as a 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> engineer and 3<sup>rd</sup> engineer a combined total as a 3<sup>rd</sup> and 4<sup>th</sup> engineer.

The reasoning behind adding this extra element to the Officer's Matrix is for example, the 2<sup>nd</sup> Officer may have just two months' actual sea service in rank but as a 3<sup>rd</sup> officer may have has 24 months. Therefore instead of having what initially looks like two months experience in rank the officer actually has a combined total of 26 months of sea time as a watch keeping officer. There are charterers that will assess negatively if there are too many newly promoted officers at the same period on board and they will examine the officers' experience and history as OOW. Members are advised that if the vessel is manned with two junior officers per departments (Deck or Engine), the aggregated experience as junior OOW should not be less than 18 months. If one of three juniors officers is below six months sea time as OOW then one of the two other officers should have a minimum of 12

months. Also if the vessel is manned with three junior officers per department (Deck or Engine) the aggregated experience as junior OOW should not be below 18 months. If one of three junior officers is below six months sea time as OOW then one of the two other officers should have a minimum of twelve months sea time as OOW.

Once all changes are made then the SIRE online Officer's Matrix must be updated. The online version will calculate all years entries. (INTERTANKO, 2015) The ship operator crew matrix on CDI and Sire database has been harmonized and this provides for a simplified solution to updating the crew matrix for both databases. At the time of a CDI inspection, the CDI inspector will continue to record the crew matrix information exactly in the same style and format as contained in the existing CDI ship inspection.

The following documents should also be kept ready to provide to the inspector in case they are asked.

1. All ship's officers' and ratings' licenses and flag administration endorsed certificates of competency if issuing country is different than the flag state of the vessel.
2. Records of each officer and ratings training courses attended, to include the ship's Security Officer's and Safety Officer's personal training certificates.
3. Records of the last unannounced alcohol tests taken on board
4. Record of the last unannounced drug and alcohol test taken by an external collector
5. Records of onboard inspection/maintenance for firefighting equipment.
6. Record of onboard inspection/maintenance of life saving equipment.
7. Records of when the life boats have been waterborne.
8. Records of emergency drills carried out.
9. Record of pollution clean-up drills.
10. Safety Committee Meeting minutes and company acknowledgment of same.
11. Non-conformities file with evidence of the close out.
12. Permit to work file ( hot work, enclosed space entry, working at height) including risk assessment for each.
13. Records of monitoring ballast and void spaces

14. Records of ballast, tanks and void space inspections
15. Records of cargo tank pressure sensor alarm settings
16. Records of pressure testing vessel's cargo hoses
17. Record of mooring winch Brake Holding Capacity tests.
18. SOLAS training and Fire Training manuals.
19. Fuel, lubrication and hydraulic oil analysis

### The Physical Inspection

After the completion of the Documentation and Certification process of the inspection in the Master's office, the inspector will proceed to the bridge, external accommodation, poop and main decks, pump room, cargo control room, machinery spaces, galley and food handling areas, internal accommodation, he will have an interview with the Chief Engineer with regard to scheduled maintenance and spare inventory levels, before finishing the close out meeting in the Master's office. During the inspection a crew officer should be available to walk with the inspector during the process of physical inspection. The officer should be confident and capable to answer all questions posed by the inspector. The officer should remain focused at all times and not be distracted during the physical inspection.

For the inspection of the of the navigation section, the Navigation Officer will need to be present on the bridge supported by the Master.

For the inspection of the machinery spaces the inspector will need to be accompanied by the Chief or the 2<sup>nd</sup> Engineer and the Electrician may also be called if needed. The Chief Engineer is expected to execute the Vessel's Planned Maintenance System and spare parts control system. The person who will accompany the inspector over the machinery spaces must be wearing protective uniform.

The inspector will expect to see a crew member apply knowledge on how to use the equipment listed below and sometimes to start certain items of equipment given that it does not intervene with the vessel's operations (INTERTANKO, 2015).

- *Lifeboat engines.*
- *Emergency generator using two separate starting methods.*
- *Emergency fire trump.*

- *Fan and fire dampers*
- *Funnel flaps*
- *Fire smothering systems*
- *Anti – pollution oil spill pumps*
- *Pressure/Vacuum valve, always take into consideration H<sub>2</sub>S content of the cargo.*
- *Foam monitors*
- *Fire/foam deck main isolation valves*
- *Donning breathing apparatus*
- *Pump room entry procedures*
- *Pump room extraction fan high level suction flaps.*
- *Cargo tank high level an overflow alarms*
- *Use of a portable oxygen meter to check O<sub>2</sub> content of inter gas being delivered to the cargo tanks*
- *Visual inspection of the fore peak and up to two other water ballast tanks from the deck level only.*
- *Inter Gas System alarms and set point.*

In the accommodation area the person in charge should prove knowledge of the use of the following:

- *Navigation equipment*
- *Electronic Position Indicating Radio Beacon*
- *Switched Access Remote Test System*
- *Pyrotechnics*
- *Oil Discharge Monitoring Equipment*
- *Calibration of oxygen and combustible gas portable meters, and use of toxic gas detectors and what calibration gases to use for each meter type.*
- *Remote operation of the fuel oil tanks' quick closing valves*
- *Cold rooms locked-in alarms*

Inside the machinery space the person in charge should demonstrate knowledge and the use of:

- *Bilge alarms*

- Main and auxiliary engine oil mist detector
- Bilge separator 15ppm alarm and 3-way valve
- Bilge well alarms
- Steering gear in normal and emergency modes
- Emergency air compressor
- High and low voltage earth leakage detectors.
- Emergency fire pump
- Planned maintenance system records and class approval certificate

#### The Master's role

The Master during the inspection will have to ensure the following:

- Before arrival, all on board advised an inspection will be taking place at the port and be properly prepared
- All ship staff are correctly dressed with the appropriate Personal Protective Equipment
- The safety security and well – being of the inspector are secured throughout the whole inspection.
- The inspector is not challenged about their experience, ability and qualification
- A ship's officer is always available to accompany the inspector at all times.
- The inspector can request for any testing that is not interfere or cause disruption to the safety of vessel's operations
- All crew members shall refrain from disputing with the inspector and answer all questions in a professional and honest manner. (INTERTANKO, 2015)
- Contact the company, if the Master believes that inspector is being unreasonable and any decision for further action will be taken by the company.

### The inspection close-out meeting

The close out meeting is an extremely important part of the inspection where the Master and Chief Engineer should be present. At this part the inspector discusses the observations he made and sometimes this discussion can lead the inspector to delete the observations. The goal of the close-out meeting is to clear any doubt or misunderstandings to any observations the inspector has made during the inspection. Not all oil majors allow their inspectors to leave a list of observations. Thus, the Master should carefully write notes and report them back to the Shipping Company in detail. During the close out meeting should always ask the inspector officer to repeat and explain any questions that are not clarified or haven't been raised.

### The Response to the inspection

It is advisable for the company to wait until the full SIRE inspection report is received from the oil or chemical company who performed the inspection. The list of the observation left by the inspector sometimes differs from those in the report. If there are any negative observations that can be corrected by the ship's staff, the company should communicate with the vessel and if required provide guidance on what the corrective action should be. The company when submitting its response should refrain from using replies such as "corrected" or "fixed". The response to an observation should explain

- The root cause (What caused the "problem"?)
- The corrective action ("How the Company is going to fix it?")
- What has been done to prevent the mistake (Company should report what action took from prevent same mistake to happen in the future)
- How the lesson learnt will be spread to other vessels within the company's fleet (It is important that all crew member are aware of all the above and make sure same mistake will not happen again)

Before responding to an observation in an inspection report, the company should decide which observations are actual objective deficiencies and those that are simply observations and not require any corrective actions.

### The screening process



It is necessary to understand that vetting inspection is only a part of the screening process. The completion of SIRE report does not mean that any decision will be taken for the vessel's suitability to any particular vetting department. The outcome of the inspection as well as the owners comments are used to help with the actual screening decisions by each vetting department or charterer. Each of the oil company that uses vetting procedure as the risk management tool has their own policies and schemes that fit the individual needs of each. The SIRE or CDI inspection is part of the process of each vetting group, as many other aspects and considerations are taken into account before the final evaluation and decision is made to accept a vessel for its nominated use. The screening process begins with the company completing the online Harmonized Vessel Particulars Questionnaire and Officer's Matrix. Both of these online facilities must be kept up to date by the company. After this there are three stages:

1. First, an oil or chemical company carries out an inspection of the vessel.
2. Second, the inspector's report (including any comments or observations) is provided to the operator for their response. The response from the company, known as "Owners comments" will be uploaded onto the SIRE and CDI database, from which members of the SIRE or CDI system can download it for evaluation.
3. Finally, individual SIRE or CDI members (chemical companies, terminals etc) can use the report to assist with making the eventual vetting decisions to satisfy their individual company policies.

Both SIRE and CDI systems involve the use of a standardized Vessel Inspection Questionnaire used by all the accredited inspectors.

### Approvals

There are organizations that have a system of "approvals" which means a vessel is accepted by the organization for a specific time period. The term of approval is not used anymore by any vetting department, in most cases the vetting department of an organization will only screen a vessel when it is proposed for a particular business by the organization's chartering department. A screening decision will be based on the final report of the inspection but also, the individual vetting department assessment of

the company, the previous history of the vessel, Port State Control archives and terminal reports Also, different organizations may be willing to accept different levels of risk. Some factors may be used to evaluate a vessel's suitability are the following:

- Class society that must be an IACS member
- Class survey status
- History of any recent changes of class
- Most recent dry dock and special survey
- Condition Assessment Program – CAP
- The age of the vessel
- The type of hull
- Flag state
- History of any recent changes of flag state
- Casualty history data
- Classed for the cargo to be carried
- Current owners
- History of any previous owners
- Company responsible for the day to day operation
- History of previous technical managers or operators
- Reputation of the technical managers or operators
- Reputation of the technical managers or operators
- Tanker Management and Self Assessment latest edition Submission
- Officers Matrix
- Port State Control Inspections deficiencies
- Port State Control detentions
- USCG detentions
- USCG inspection deficiencies
- Latest SIRE inspection reports and company responses
- Terminal feedback
- Commercial feedback

## **5. OFFSHORE VESSEL INSPECTION DATABASE (OVID) PROGRAM**



OCIMF and Oil & Gas organization introduced the initiative called Offshore Vessel Inspection Database Program (2009). Participation in this program is voluntary and the recipient of the program will determine independently all the information included in the questionnaire received from OCIMF. In July 1<sup>st</sup> 2017 OCIMF launched the 3<sup>rd</sup> edition of the Offshore Vessel Inspection Questionnaire. (OCIMF, 2018)

### How it works?

Member companies of OCIMF arrange offshore vessel inspections and appoint a well trained inspector officer to complete an assessment. The inspector has access to the ship's characteristics from the OVID and does an on-board inspection of activities and examines the safety operations and pollution prevention plans. The final report of the inspector will contribute to the overall company's risk assessment in advance of charter.

### Benefits of OVID Program

OVID Program is opening the path and is leading the offshore vessel industry in a long term picture of more safe and pollution free operations in high seas. Using the experience of SIRE program the goal of the OVID program is to use the extensive database of the inspection reports to eliminate the number of repeat inspection of the offshore vessels and reduce the work of the crew of the offshore vessel. By the end of the inspection and report procedure the vessel operators will be able to show the vessel's capabilities to potential charterers and promote a positive image to clients.

Just like the SIRE program the OVID requires that submitting company undertakes a uniform Vessel Inspection Procedure includes the *Inspection Element* and the *Report Element*.

- ✓ The **Inspection Element** includes very detailed inspection questionnaires that are related with safety management issues and pollution prevention and are unique for the type of inspected vessel.
- ✓ The **Report Element** is developed once the inspection questionnaire is completed and submitted by the inspector. (OCIMF, 2018)

The OVID Vessel Inspection Questionnaire is divided in two main parts:

1. The questionnaire of the offshore inspection includes assess the operation and procedures that are followed on board. The OVID Software uses specialized tools that develop different questions for different types of vessels.
2. The questionnaire that examines the features of the vessel named OVPQ it is answered by the operating company and it is related to the permanent features of the vessel (capacity of the tank, height of the vessel, LOA etc.) (OCIMF, 2018)



*Figure 7: Offshore Vessel Inspection Database (OVID) (OCIMF, 2018)*

The 3rd edition of Offshore Vessel Inspection Database (OVID) Program is divided in 15 big chapters- areas of inspection. (OCIMF, 2018)

Chapter 1 – General Information

Chapter 1 of OVIQ contains the general characteristics of the inspected vessel: what is the name that is given to the ship, what is the IMO number, country of registration, Gross tonnage etc. and information of operator and the inspector.

#### Chapter 2 – Certification and Documentation

Chapter 2 of OVIQ examines several certificates such as: the name of Classification Society of the Vessel, name of PnI Club, a formal safety management system and dry dock documents.

#### Chapter 3 – Crew and contractor management

Chapter 3 examines what policies are implemented by the vessel operator for the crew. Do both crew and contractor comply with the safety management system (SMS), do they comply with the drug and alcohol policy, are they qualified for the operation and with the equipment on board?

#### Chapter 4 – Navigation

Chapter 4 of OVIQ examines if the required navigation procedures are followed on board. For example does the 500 meters safety zone entry procedure applied? Are there enough experienced crew member on bridge? Does the ship has an Electronic Chart Display and Information System? Is navigation equipment in good order?

#### Chapter 5 – Safety and Security Management

In Chapter 5 of OVIQ it is examined whether the general safety and security measures are maintained onboard. For example the vessel should be properly equipped with protective equipment and have enough spares such as safety footwear, boiler suit, protective gloves etc. The officers of the vessel should be familiar with fire fighting live saving and other emergency equipment, have a clean and tidy hospital ready for use and have a Ship Security Plan certification.

#### Chapter 6 – Pollution Prevention and Environmental Management

Chapter 6 of OVIQ is giving guidelines regarding the pollution prevention plan, the emergency marine pollution plan, the ballast water management and waste management.

The rest of the chapters including in the OVIQ are the following:

Chapter 7 – Structural Conditions

Chapter – 8 Operations

Chapter – 9 Mooring

Chapter – 10 Communications

Chapter – 11 Propulsion, power generation and machinery

Chapter – 12 General appearance and condition

Chapter – 13 Ice operations

Chapter – 14 Helicopter Operations

Chapter – 15 DP operations

## **6. THE SIRE 2.0. PROGRAM**

OCIMF is developing a new inspection program SIRE 2.0 that is going to start in the Q2 of 2022. The SIRE 2.0 program validates the transition in digitalization of vessel inspections with use of modern tools that will save time and energy for both sides, the shipping company and the inspectors. More specifically, the inspection will be conducted by accredited inspectors who will use a Compiled Vessel Inspection Questionnaire (CVIQ) in real time using a tablet device. (Hine, 2021).

For 4 years since 2017, OCIMF has been working on a new tanker rating system, SIRE 2.0. It is not about a new upgrade of the system but about a new way of evaluation. The number of maritime accidents is decreasing and this was due to the improvement of the equipment on the ships, and the class that came to improve the standards and to optimize the correct standards on the ships also helped. Later follows the Safety Management System, which also improved the procedures and this

contributed to the reduction of accidents, and at the same time we have the continuous training and individual training of the sailors on the ships.

### What is new?

The inspection will be conducted with the use of a complex algorithm that will choose questions derived from a question library and are adapted according to the vessel type, its outfitting and the operation history. OCIMF wants to create a one time CVIQ for the SIRE inspector to avoid the issue of two same vessel inspections. SIRE 2.0 inspection program can be characterized as a more comprehensive version of SIRE but more accurate regarding the information collected from every vessel. The recipients of the SIRE program can verify more clearly and comment the quality of a vessel and its future performance. SIRE 2.0 will include the same sections-chapters as VIQ 7 with 5 new reference levels under each question and will number 1241 pages.

The 5 reference levels include (INTERTANKO , 2021):

1. **Top level Questions:** overview of the scope of the question
2. **Guidance section:** objective, Best Practice Guidance, TMSA reference ISM reference, Regulation, Inspection Guidance (expectations of a vessel's SMS) Individual clarifications based on regulations and international standards
3. **Inspectors Actions (non-exhaustive):** actions suggested by the inspector in order to confirm compliance with the question. These will be suggested as a sample to the inspector and he may also use other questions.
4. **Expected evidence (non exhaustive):** list the documentary evidence that should be made available to inspector during the inspection progress. We will also have some suggested evidence that the ship should have to confirm compliance with the question and of course will be checked by the inspector
5. **Potential Grounds for a Negative Observation (non-exhaustive):** List circumstances in which the inspector may consider entering a negative observation in one or more of the response tools. The possible reasons for an observation or non-compliance with the question which will again be recorded. Each question will be treated as an observation and can be a positive, neutral or negative observation.

Another new element is the type of questions. The questions will be common to all ships and will be repeated at each inspection. The new SIRE program that will be implemented includes a questionnaire with 4 different types of questions (INTERTANKO , 2021):

- **Core questions** (will be asked every time): basic questions that will be examined in each inspection
- **Campaign questions** (questions based on the history of the vessels). Concerned Questions that include the history of the shipping management company thus the new element here is the Specific Vessel Inspection System: Specific questions for a specific ship of a specific company.
- **Rotation questionnaire:** (questions generated from a known pool based on an algorithm in order to ensure that all will be asked within a certain period. Repetitive questions in 3 and 6 month time frames.

In new OCIMF program that will be launched soon there is also a different structure compared to the present questionnaire VIQ7.

#### **Structure of VIO7:**

##### Questions

- Inspector's observations
- Operator's comments

#### **(Expected) SIRE 2.0 REPORT** (INTERTANKO , 2021)

##### Questions

- PIQ Data
- Photographs
- Inspector comments on **Hardware**
- Inspector comments on **Process**
- Inspector comments on **Human Factor**
- Inspector Observations



### Operator's comments (to include minimum the following)

- Immediate cause
- Root cause
- Corrective actions
- Preventative action

The biggest change is that:

- Photos will now be included.
- It is mandatory to include photos in any negative comments.
- Each question will be evaluated on the basis of three sub-categories
  - Hardware
  - Procedure
  - Human Factor

### Overview of the inspection process

Inspection request will be conducted online through the OCIMF webpage as previously.

*What will change?*

For the first time it will be necessary to register new data before the inspection, that means the introduction of the so-called pre-inspection section. These data will be photos from all parts of the ship starting from the hull going up to the deck and going to the individual compartments, they will be all the basic certificates that until now we did not have to give to the inspector now we have to give them. There will also be a specific questionnaire which will have questions and information about the ship and depending on the answers officer gives to this questionnaire some questions will be updated in the inspector's questionnaire:

#### Pre-inspection data

- HVPQ
- Officer's Matrix

- Certificates
- PSC
- Incidents
- Pre-inspection Questionnaire
- Photographs

*On board inspection*

The on-board inspection will be conducted using a tablet on board in real time. The point where the inspector is located will be recorded, finished, uploaded to the database and then the inspector continues to the next. The inspector will take photos for each negative observation and finally will evaluate each question based on the three parameters: Equipment, Procedure and Human factor.

*What it means for the shipping companies?*

- The role of departments and especially vetting is increased because it needs to manage a large amount of data that must be registered before the inspection.
- Emphasis is placed on the assessment of human resources and that the management of time on board (although the time on board was not reduced as expected) is different. The inspector does not spend as much time checking documents but spends his time doing a dynamic inspection.

In conclusion, the new evaluation standard SIRE 2.0 brings changes to the data management before the inspection. The questionnaire has changed; it has been made completely from the beginning with detailed reports for the inspectors and the management companies. All questions are directly related to the TMSA. All questions are graded with risk analysis models. There will be no possibility for remote inspection as it used to be the case due to Corona pandemic. The tablet that the inspector will use will be exclusively for recording photos which means he will not be able to record the interviews, the audio or video on board.

## 7. CDI – Chemical Distribution Institute



The Chemical Distribution Institute was founded 25 years ago by a group of chemical companies: Agility Company, BP Chemicals, Shell Chemicals, The Dow Chemical Company and ExxonMobil. The goal of CDI was to create an inspection system that could provide data on chemical gas carriers. Then the participating chemical companies can use the information to assess the suitability of a vessel. To make sure the information is provided in a standardize form that chemical companies could use globally CDI used it own trained inspector. Today CDI is developed into an international recognized institute that has 72 member-chemical companies and developed additional system for risk elimination such as the CDI Terminal Inspection Scheme and the CDI International Marine Packed Cargo Audit Scheme (IMPCAS).The CDI has now a leading role in providing information on safety management and maintaining high quality standards in sea transportation and operations in chemical industry. In addition CDI contributes to industry safety through its many publication and best practice guidelines for seafarers, vessels and terminal operators.

CDI is a Dutch non-profit organization founded by chemical companies that operates from offices in UK. Over the last years CDI developed a significant number of technical and scientific publications using the expertise of chemical industry and marine transport industry (Chemical Companies, Terminal Operators, Ship Operators and Logistic Service Providers).Some o the publications include:

- “Bulk liquid chemical handling guide”
- “Chemical Tankers.-A pocket safety guide”
- “CDI guidelines for liquid chemical hose management.”

CDI is also responsible for the training of inspector and auditors to provide inspections and audit reports for use in the risk assessment process. There are about 250 inspectors and auditors globally appointed by CDI to conduct CDI inspections around the world.

## **CDI objectives**

- Improvement of safety, security and quality performance of marine transportation and storage for the chemical industry.
- Be the number one organization of industry best practice in marine transportation and storage of chemical products by work with industry and education channels
- To monitor current and future international legislation and provide experience, knowledge from chemical industry to legislators.
- To provide chemical companies with cost effective systems for risk assessment.
- Offer to chemical companies reliable information and data and use them in the future.
- To provide the chemical industry with an independent organization for training, qualification and accreditation of inspectors but also for development and maintenance of databases on which inspection and risk assessment information can be published. (INTERTANKO, 2015)

## **The three schemes of CDI**

### **1994 CDI Marine**

CDI-M was created by chemical industry to enhance the safety and quality standards of bulk liquid shipping on chemical tankers. CDI Marine offers annual inspection reports on the world fleet of chemical and liquid petroleum gas tankers. (INTERTANKO, 2015) The inspections are conducted by one hundred well trained inspectors located globally in several ports around the world. CDI Marine provides information to EQUASIS.

### **1997 CDI Terminals**

The CDI-T scheme was created in 1997 similar to CDI-M scheme. CDI Terminal was created to enhance the safety and quality performance of bulk liquid storage terminals. More than 50 CDI Terminal well trained inspectors carry out technical inspections of liquid storage terminals all over the world. Over two hundred terminals are already inspected in a global scale and big chemical storage terminal companies are members of CDI-T. (INTERTANKO, 2015)

### **2002 International Marine Packed Cargo Audit Scheme (IMPCAS)**

The IMPCAS is one of the largest scheme globally that includes over 100 auditors around the world based in major container handling ports. The goal of the IMPCAS is to provide audit reports on every category of service provider related in the marine distribution supply chain. The scheme extends to include: Shipping Companies, Ships, Tank Container Operators, Container Freight Stations, Freight Forwarders, Agents and Container Terminals.

## 8. VETTING COMPANY REQUIREMENTS – BP SHIPPING Ltd



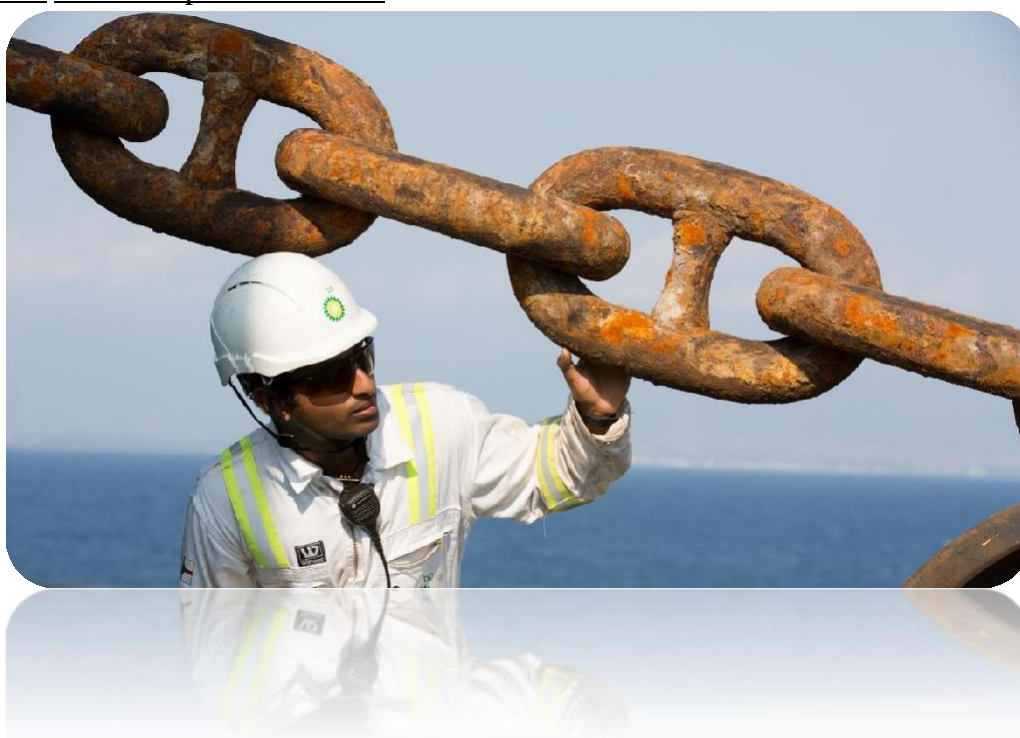
### 8.1 Vessel Screening

Vessels are screened on each occasion they are proposed for BP Group business by a BP entity. This includes carrying a BP cargo or visiting terminals or facilities operated by BP Group. Evaluation of the suitability of vessels for a BP operation is carried out by BP Shipping's Vetting and Clearance teams based in Melbourne, Shanghai, Amsterdam, London and Chicago. Screening of vessels will not be carried out at the request of any third parties including ship owners. (INTERTANKO, 2015)

If a vessel is approved for a BP operation, this approval would be valid only for that operation. If the vessel is proposed for a subsequent BP operation, it will be screened again by the Vetting and Clearance team. An approval in the past doesn't mean the vessel will be approved for another BP operation in the future. Approval to use a vessel for BP operation will be based on review of all available information concerning the performance of the vessel, its manager and the fleet. The vessel screening process may also be affected by future international or national legislative changes in BP group policy. BP Shipping respects the international conventions and standards including guidance provided by OCIMF, SIGTTO and those contained in documents like ISGOTT. BP Shipping considers as best practice that all chemical and oil vessels should be outfitted with SOLAS compliant Inert Gas System. Any cargo tanks loaded with chemical cargoes having a Flash Point of less than 60 degrees should be inerted with Nitrogen in accordance with the CDI Best Practice Recommendation Regarding the use of Nitrogen. (INTERTANKO, 2015)

Casualty and port state inspection reports are received daily into the BP Shipping's database. Where a vessel has a Port State Control inspection with deficiencies, owners should send a PSC deficiency close out report to [vettingbp.com](http://vettingbp.com) so that this can be reviewed as part of the vessel screening process when that vessel is proposed for BP operation. Owners are encouraged to send their incident reports to the OCIMF incident report repository set up by OCIMF at the request of INTERTANKO. These reports feed directly into BP's database and removes the need to send the reports to BP separately.

## 8.2. Vessel Inspection Process

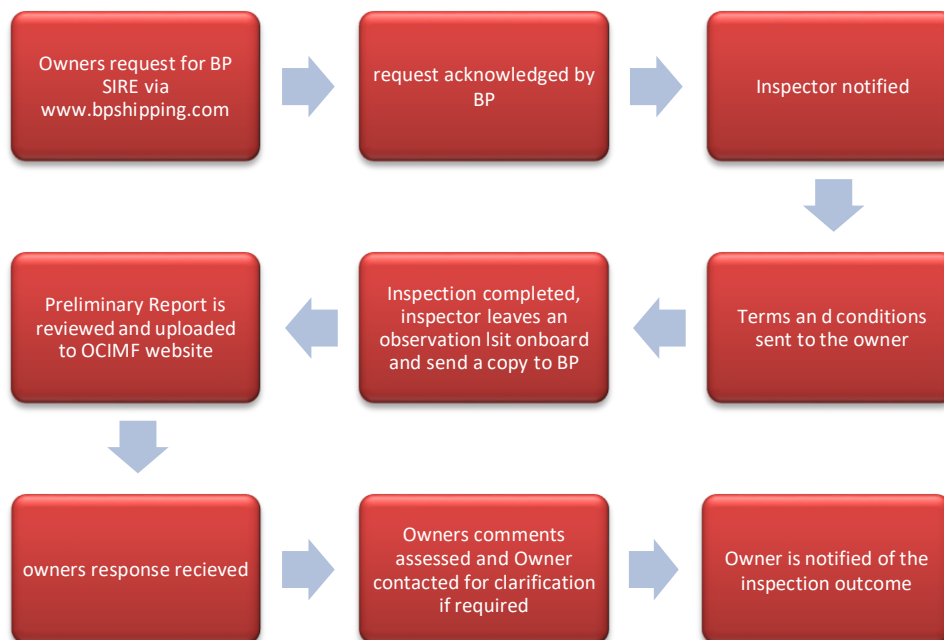


BP Shipping employs the OCIMF SIRE inspection format (VIQ) as the vessel inspection tool for all third party hydrocarbon carrying vessels. All inspections carried out by BP Shipping under the SIRE system are submitted to the OCIMF SIRE database. Every SIRE report issued by a BP inspector is reviewed by a Vetting and Clearance Superintendent prior to its release to the vessel manager via the OCIMF SIRE program. (INTERTANKO, 2015) The CDI inspection protocol is not utilized for screening of vessels for BP operations. BP Shipping requires all Documents of Compliance holders to have submitted valid TMSA to OCIMF that is

not more than 12 months old that is not more than 12 months old at the time of their vessel's nomination for BP business.

A SIRE inspection request must be received at least three days in advance of the proposed inspection date. Upon receipt of such request and where applicable the Assessment and Inspection team confirms the inspection date and forwards terms and conditions, a general overview of the inspection process and related documentation.

The SIRE inspector will accept the electronic copies of ISM audits, reports and the vessel's trading certificates, provided that the inspector has no reason to doubt the authenticity of the document. The ship owner and the crew on board must ensure safe vessel access to the inspector. Vessel inspection is undertaken when the vessel is within port limits during daylight hours under a safe environment while conducting cargo loading and discharging operations.





## Vessel Age

BP Marine Policy requires all vessel's proposed for BP Operations to meet the following criteria (INTERTANKO, 2015):

<b>Vessels <math>\geq</math> 5,000 DWT carrying Oil or Chemical cargo in bulk</b>	<b>Max 20 years</b>
<b>Vessels <math>\leq</math> 5,000 DWT carrying oil or chemical cargo in bulk</b>	Max 25 years
<b>Vessel's carrying LPG in bulk</b>	Max 25 years
<b>Vessel's carrying LNG in bulk</b>	Max 40 years
<b>Inland waterway vessels (inland voyages)</b>	No age limit
<b>Combination Carriers</b>	Max 15 years
<b>Ocean tugs</b>	No age limit

### 8.3. SIRE Report Requirements

#### **Vessel Inspection**

When a vessel is proposed for BP business the vessel must have a current operational SIRE inspection report that is less than 6 months old, BP shipping will continue to carry out SIRE inspections of vessels and to that effect, will continue to manage a pool of SIRE inspectors. BP SIRE inspections will be carried out on vessels where there is added value and increased assurance to BP.

#### **TMSA**

BP promotes the use of the Tanker Manager's Self – Assessment (TMSA) and makes it mandatory for all vessels screened for BP operations to have satisfactory TMSA submission at an interval of not more than 12 months. The screening process takes into account the current status of TMSA submission and uses the TMSA elements and stages as the basis of conducting an assessment of vessel manager's safe operations.

For time charter or potential time charter, BP will visit DOC holder's office to conduct an on-site assessment of its TMSA submission to verify compliance with OCIMF established Key Performance Indicators and Best Practice Guidance. (INTERTANKO, 2015)

### **Structural Assurance**

Vessel classed as Oil, Chemical or LPG carriers over 15 years of age and over 20,000 DWT will be required to hold a valid Condition Assessment Program rating of Level 2 for Hull structure only.

LNG carriers over 20 years age are required to hold a valid CAP 2 rating or higher for Hull structure only.

### **New building requirements**

Usually no inspection is undertaken at dry-dock although a request for a SIRE inspection will be accepted on delivery from the shipyard in accordance with Vessel's Inspection Process. A vessel that is proposed for a BP Shipping time charter that will commence immediately on delivery from the builders shipyards, the Vetting and Clearance team will carry out a detailed assessment that may lead to an action plan by the ship owner to mitigate any highlighted risks. A New Build Questionnaire should be submitted by the DOC holder of the vessel via [www.bpshipping.com](http://www.bpshipping.com). Vessels may be considered for acceptance under the New Built Questionnaire up to three months from delivery, during which period an operational SIRE inspection must be completed.

## Officer's experience matrix

The Vetting and Clearance team uses this Matrix as guidance when reviewing any OCIMF SIRE inspection report:

<b>Senior Officers</b>	<b>Master</b>	<b>Chief Officer</b>	<b>Chief Engineer</b>	<b>2<sup>nd</sup> Engineer</b>
<b>Calendar time with Company</b>	Aggregate not less than 2 years		Aggregate not less than 2 years	
<b>Sea time in rank</b>	Aggregate not less than 3 years		Aggregate not less than 3 years	
<b>Sea time on all types of tankers</b>	Aggregate not less than 6 years		Aggregate not less than 6 years	
<b>Certificate in training for oil and chemical or gas operations</b>	Advanced Level		Advanced Level	
<b>Date of joining</b>	Minimum 2 weeks between joining dates		Minimum 2 weeks between joining dates	
<b>Junior Officers</b>	2/0	3/0	3/E	4/E
<b>Sea time as an offer</b>	Aggregate not less than 1 year		Aggregate not less than 1 year	
<b>Certificate in training for oil and chemical or gas operations</b>	As required by STCW		As required by STCW	
<b>Date of joining</b>	Minimum 2 weeks between joining dates		Minimum 2 weeks between joining dates	

## **9. FLAG STATE INSPECTIONS**

### **9.1 DEFINITION OF FLAG STATE**

The Flag under which the vessel is registered is highly significant, as it determines the legislation, the regulation and the jurisdiction under which the vessel operates. In addition, Flag state establishes rules and new regulations regarding environmental and safety issues, as well as the relative requested documents by the authorities. A very known term regarding Flag states is the “Flag of convenience”, which is a category of flag states that many ship owners use and incorporate the operations of their vessels to their legislation, so as to register their vessels to a country which is different from the ship owner’s nationality. The main aim to register a vessel to a Flag of convenience is the tax avoidance, the avoidance of national regulations that are probably inconvenient for the operation of the shipping company and the option that is provided for the employment of foreign onshore personnel. Furthermore, it should be noticed that the maintenance and registration costs are lower for this flag category, than other categories. A ship owner has the ability to change the flag state of the fleet, according to a predetermined procedure which analyses the steps that are required for the flag state change. Firstly, the ship owner should provide with a list of requested documents, that are related with the equipment, the machinery and the characteristics of the personnel. A vessel may be registered to a new flag state, only after it is deleted from the previous flag state. Once the process of changing the flag is completed, certificates of the current state are issued. On the meanwhile, interim certificates are issued for vessels during the period the flag is under change process.

### **DEFINITION OF FLAG STATE INSPECTIONS**

Flag Inspections are used by the Flag states to confirm and ensure that the criteria and standards set from the authorities, are met and satisfied. They are undertaken by approved Flag Inspectors, who examine the corresponding documents, and also the vessel’s equipment, the safety practices, the structure and the compliance with all the safety rules, ILO conventions and regulations. According to Flag State inspections’

procedures, MLC, ISM/ISPS audits and statutory certificates endorsements are performed. Some of the most significant responsibilities of Flag inspections are the below:

- The State should appoint the appropriate inspectors so as to implement the tasks assigned by the authorities.
- Monitoring, inspection and other control measures
- Responding to seafarer complaints
- Responding to requests for information providing, from Port State Control authorities
- Corrective actions to be taken, in case that the vessels of the fleet do not operate in compliance with the requirements of the regulations.

Flag State should establish the appropriate systems, regarding inspections and maritime personnel conditions, which may ensure that there is a sufficient number of experienced and qualified inspectors, the development of new rules, regulations, guidelines and the assignment of new tasks and responsibilities.

## **9.2 CLASSIFICATION OF FLAG STATES**

According to Lloyd's list and the most recent data published for 2020, we may conclude that Panama flag was in the top position among the top 10 flag states. The classification of state flags was conducted according to the Deadweight Tonnage and Net Tonnage of each state for year 2020. Panama flag recorded a growth of 4.4% for this year, with the Gross Tonnage to be amounted to 235 million gross tonnes approximately. This amount corresponds to the 16% of the global fleet tonnage. The greatest decrease in the classification was occurred for Greece, which was led in the 9<sup>th</sup> position, followed only by Japan. The classification of the flag states is analyzed more in the below figure:










Flag	Country	Gross tonnage	Deadweight tonnage	No of vessels
	PAN Panama	234,735,311	350,511,465	9,596
	LBR Liberia	187,801,367	299,328,061	4,295
	MHL Marshall Islands	170,971,422	276,364,868	4,313
	HKG Hong Kong	130,306,076	206,273,017	2,739
	SGP Singapore	96,100,980	142,956,323	4,914
	MLT Malta	82,442,533	116,278,717	2,588
	CHN China	61,065,326	91,718,247	5,130
	BHS Bahamas	64,126,903	77,340,553	1,474
	GRC Greece	38,041,961	65,754,639	1,527
	JPN Japan	28,688,956	42,932,996	3,852

Figure 8: Top 10 flag states - gross tonnage (Lloyds List, 2020)

In the top positions, below the Panama flag, were also held Liberia flag (in the second position) and Marshall Islands flag (in the third position). At the bottom of this classification are held Greece (the position has been dropped in a high level) and Japan with 29 million of gross tonnage approximately.

### BLACK, GREY AND WHITE FLAGS

In order to assist the PSC inspections in the selection of the ships for inspection, the MoUs publish the annual Black, Grey, White lists, in which the detentions imposed on their ships by foreign PSC are presented. Based on these data, the performance of each flag state is calculated, and they characterize the flags as high or low or standard risk. Poorly performed flags are classified as high risk. These lists are considered about the next inspection. However, the White list shows the quality flags that have a low number of detained ships, and the Grey list shows the flags with average performance. Appearing a flag on the grey list can operate as an incentive to improve to return to the white list. Respectively, a flag that is low on grey list must try not to jump blacklisted. The flags that appear in the white list are considered more stringent than adoption of regulations but also in terms of their implementation. The performance of the company contributes important in the ranking of ships. A ship that wants to rise in ranking must select a flag from the white list.

The tables below show the lists from Paris MoU which concerns a three-year period for flags according to which the total number of inspections and detentions is examined. The time period they cover is from 2018 to 2020.

RANK	FLAG	INSPECTIONS 2018-2020	DETENTIONS 2018-2020	BLACK TO GREY LIMIT	RISK	EXCESS FACTOR
<b>BLACK LIST</b>						
62	Tuvalu	39	6	6	Medium	1.09
63	Sierra Leone	312	33	30		1.30
64	Tanzania, United Republic of	276	30	27		1.34
65	Belize	283	31	27		1.37
66	Moldova, Republic of	350	41	33	Medium to High	1.69
67	Comoros	336	45	32		2.17
68	Togo	430	60	39	High Risk	2.44
69	Cameroon	45	10	6		2.97
70	Albania	74	17	9		3.80

Figure 9: Black List (Paris MoU, 2022)

RANK	FLAG	INSPECTIONS 2018-2020	DETENTIONS 2018-2020	BLACK TO GREY LIMIT	GREY TO WHITE LIMIT	EXCESS FACTOR
<b>GREY LIST</b>						
40	Estonia	71	1	9	1	0.01
41	Saudi Arabia	54	1	7	0	0.11
42	Korea, Republic of	68	2	9	1	0.15
43	India	44	1	6	0	0.18
44	Philippines	133	6	15	4	0.19
45	Kazakhstan	34	1	5	0	0.27
46	Poland	68	3	9	1	0.28
47	Curacao	46	2	7	0	0.32
48	Saint Vincent and the Grenadines	392	25	36	19	0.36
49	Azerbaijan	57	3	8	0	0.37
50	Iran, Islamic Republic of	87	5	11	2	0.38
51	Vanuatu	236	15	23	10	0.39
52	Saint Kitts and Nevis	121	8	14	3	0.45
53	Algeria	74	6	9	1	0.60
54	Lebanon	58	5	8	0	0.63
55	Mongolia	44	4	6	0	0.64
56	Egypt	41	4	6	0	0.68
57	Switzerland	57	6	8	0	0.77
58	Cook Islands	297	26	29	13	0.84
59	Tunisia	30	4	5	0	0.84
60	Palau	187	18	19	7	0.89
61	Ukraine	83	10	10	1	0.98

Figure 10: Grey List (Paris MoU, 2022)

RANK	FLAG	INSPECTIONS 2018-2020	DETENTIONS 2018-2020	BLACK TO GREY LIMIT	GREY TO WHITE LIMIT	EXCESS FACTOR
<b>WHITE LIST</b>						
1	Denmark	1,199	12	99	69	-1.80
2	Norway	1,559	18	126	92	-1.77
3	Marshall Islands	4,280	65	328	272	-1.72
4	Bermuda (UK)	169	0	18	6	-1.69
5	Netherlands	2,729	42	213	169	-1.68
6	Bahamas	1,851	27	148	111	-1.67
7	Greece	736	9	63	40	-1.63
8	Singapore	1,808	30	145	108	-1.59
9	Cayman Islands (UK)	410	4	38	20	-1.59
10	Japan	138	0	15	4	-1.54
11	Hong Kong (China)	1,741	31	140	104	-1.54
12	Liberia	4,017	89	308	254	-1.46
13	United Kingdom	922	17	78	51	-1.42
14	Malta	4,117	98	316	261	-1.40
15	Germany	570	10	50	29	-1.35
16	Turkey	732	14	63	39	-1.34
17	Italy	927	19	78	52	-1.34
18	Isle of Man (UK)	516	9	46	26	-1.32
19	Belgium	208	2	21	8	-1.30
20	Sweden	288	4	28	13	-1.26
21	Cyprus	2,018	53	161	122	-1.24
22	Barbados	399	7	37	19	-1.23
23	France	266	4	26	11	-1.16
24	Portugal	1,152	30	95	66	-1.16
25	Russian Federation	1,159	31	96	66	-1.13
26	Croatia	92	0	11	2	-1.07
27	Latvia	90	0	11	2	-1.04
28	Antigua and Barbuda	2,084	67	166	126	-1.02
29	Luxembourg	201	3	21	8	-0.99
30	Gibraltar (UK)	599	16	53	31	-0.97
31	Faroe Islands	245	5	24	10	-0.87
32	Ireland	144	2	16	5	-0.81
33	United States	194	4	20	7	-0.72
34	Lithuania	101	1	12	2	-0.66
35	Finland	404	13	37	19	-0.62
36	Spain	153	3	16	5	-0.60
37	Panama	5,754	275	435	370	-0.58
38	China	128	3	14	4	-0.26
39	Morocco	54	0	7	0	-0.22

Figure 11: White List (Paris MoU, 2022)

### THE LIST CONFIGURATION

“The performance of each flag is calculated using a standard formula for statistical calculations in which certain values have been fixed in accordance with agreed Paris MoU policy. Two limits have been included in the system, the ‘black to grey’ and the grey to white; limit, each with its own specific formula:

$$u_{black\_to\_grey} = N \cdot p + 0.5 + z \sqrt{N \cdot p \cdot (1 - p)}$$

$$u_{white\_to\_grey} = N \cdot p - 0.5 - z \sqrt{N \cdot p \cdot (1 - p)}$$



*Figure 35: The list configuration (Paris MoU, n.d.)*

N = Number of inspections,

p = The allowable detention limit, set to 7% by the Paris MoU PSCC

z = The significant requested (z=1.645 for statistically acceptance certainly level of 95%),

u = The allowed number of detentions for either the Black or White List.

To make the flags' performance comparable, the excess factor (EF) is introduced. Each incremental or decremental step corresponds with one whole EF-point of difference. The EF is an indication for the number of times the yardstick has to be altered and recalculated. Once the excess factor is determined for all flags, the flags can be ordered by EF. The excess factor can be found in the last column of the White, Grey or Black List. The target (yardstick) has been set on 7% and the size of the increment and decrement on 3%." (Paris MoU, 2022)

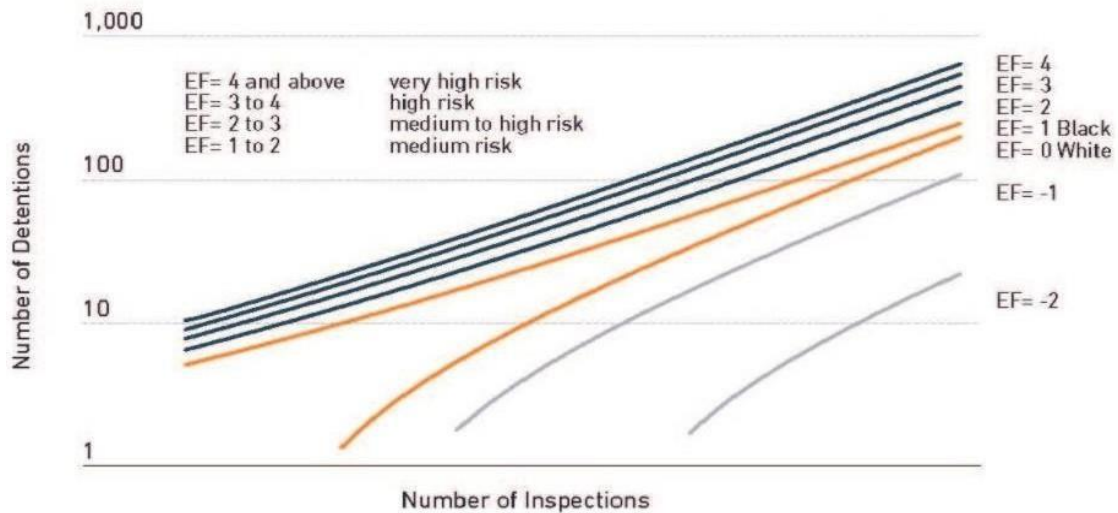


Figure 12: The relations between the number of inspected ships and the number of detentions (ParisMoU,2022)

### **9.3 ANNUAL AND OCCASIONAL INSPECTIONS**

#### **DEFINITION OF ANNUAL INSPECTIONS**

Annual inspections are taken by classification societies annually and are of high importance for the vessels operations, in order to meet the requirements and be complied with the international regulations. Annual Inspections are conducted 3 months after or before the anniversary date. The aim of Annual Inspection is:

- To make sure the ship comply with the International Legislation and Codes
- To ascertain if the ship applies all the necessary safety management systems and if it maintains all standards at the ship and the equipment
- To check if flag regulations are maintained

Many certificates require annual endorsement, after the completion of this process and after the surveyor ensuring that the desired level of safety is satisfied, the vessel is equipped with the appropriate machinery and tools, and then the certificates are endorsed for annual inspection. There are many kinds of annual inspections to be

referred: International oil pollution prevention certificate inspection, Safety Radio Inspection, Safety equipment inspection etc. Many shipping professionals also consider the dry dock inspections as a kind of an annual inspection, in a more extensive form, during which the equipment and other operational aspects of the vessel are examined and verified. During an annual inspection the following items should be examined and verified, in order to determine if the ship is in the appropriate condition to meet the regulation requirements:

- Deck area structure
- Deck equipment and deck fittings
- Hatch covers access of the hatches
- Piping and supports
- Cargo holds and cargo tanks
- Voids and cofferdams
- Other accessible spaces

An annual inspection may long from several hours to some days to be completed. In case that the annual inspection is not completed in the inspection time window (it is the estimated time during which the inspection should be completed), then the class of the vessel is suspended. There is also a predetermined range of time when the annual inspection should be conducted. According to the current guidelines, the inspection should be completed at a time range from 3 months before the anniversary date to 3 months after the anniversary date. Upon completion of annual inspection, the vessel is ready to be subject to periodical inspections. Flag States that conduct annual inspections are the below:

- Bahamas
- Cyprus
- Liberia
- Malta
- Marshall Islands
- MPA Singapore
- Palau

- Panama
- St. Kitts & Nevis

#### BAHAMAS FLAG ANNUAL INSPECTION

Annual Inspections should be conducted after a 6-month period from the registry date, or 3-month prior or after the anniversary date. Its aim is to ensure that the safety, operation and maintenance standards are met, to monitor the audits and the statutory survey works. In case that the last 3 annual inspections are conducted by the same inspector, then a new inspector should be appointed to conduct the next inspection. Furthermore, if the annual inspection is not conducted within the time framework, then there will be a deficiency.

#### LIBERIA FLAG ANNUAL INSPECTION

All vessels that are registered to Liberian flag must conduct an annual inspection, except for vessels that have a cargo of less than 500 tons, or unmanned barges etc.

#### MARSHALL ISLANDS FLAG ANNUAL INSPECTION

Annual Inspections should be conducted in a period that does not exceed the one year, except for vessels that have a cargo of less than 400 tons, unmanned barges, yachts, vessels during a lay-up period, and vessels under construction.

#### MPA SINGAPORE FLAG ANNUAL INSPECTION

According to the authorities' guidelines, some of the minimum tasks that should be completed during the annual inspection held by Singapore Flag State are: protected space should be inspected to confirm that there are not any modifications, which would change the effectiveness of the system, all the containers should be inspected in order

to be ensured that no damage has been provoked, and finally the manifold should also be inspected to confirm that all the corresponding equipment is in place. Furthermore, these inspections focus on more specific equipment, like fire mains, hoses and fire pumps.

#### PALAU FLAG ANNUAL INSPECTION

All the vessels that are registered to this flag, should be subject to an annual inspection so as to be verified that the vessel operates according to the flag's requirements and regulations. All the annual inspections should be conducted at a time window of 3 months of prior or after the anniversary date, as previously it has been referred to the definition of annual inspection. Especially, for ships that have been recently registered to the flag, the annual inspection should be conducted not later than a period of 3 months after the vessel's registration,

#### PANAMA FLAG ANNUAL INSPECTION

Annual Inspections for vessels that are registered to Panama flag, must be undertaken only by specialized and experienced inspectors, authorized by Panama Administration and coordinated also by the respective Maritime Safety Department. However, these vessels are subject to occasional inspections, in case that some of the requirements of the flag are not satisfied. All the relevant personnel, like the Master, the charterer's representatives, the agents and company's representatives, should allow the flag inspectors to complete the process without disrupting it, and are obligated to cooperate with them in order the process to be completed. Consequently, if the Master or the shipowner refuses or does not let the inspection to completed, then there is a cash penalty of ten thousand dollars approximately. On some occasions, that the disruption of inspection process is reoccurred, then further to the cash penalty, there is a cancellation from the flag's registry, or the vessel may be subject to a detention by the local authorities. Panama authorities have also established special requirements for vessels that transit to Panamanian ports or terminals from specific countries. An example of these countries is United States of America. When a vessel transits from

Panama to USA, and is registered to the Panamanian flag, is obligated to conduct an annual safety inspection, prior to its arrival to USA. This new requirement has been imposed to the regulations, as an increase to the deficiencies has been recently identified and this issue has contributed to an increase to the detention by the American authorities. The deficiencies, of these cases, are related mainly with the lack of expertise, knowledge and experience of the crew, provided during the inspection, to handle the vessel's equipment.

#### ST. KITTS & NEVIS FLAG ANNUAL INSPECTION

According to the flag's requirements, the established regulations have determined and described a specific category of vessels that should conduct annual inspections. These types include vessels with an age of over 30 years, which are trading with Paris MOU, vessels which have been detained within the last 12 months or have been detained twice within a period of the last 24 months and are irrespective of the PSC MOU and previous Flag state accordingly. In addition, in this category the vessels which intend to trade with Paris MOU and have not registered for a period of the last 12 months, are also included. If the vessel fails to conduct the annual inspection, then the flag administration may impose a penalty, for non compliance with the regulations. In more extreme occasions, the vessels may also be subject to detention by the authorities. Adjustment of the scheduled inspection dates are permitted, while the postponement of an annual inspection is not permitted. It must also be referred that if a vessel's performance during an inspection is evaluated as "good" or is classified with a higher grade, then a wider time frame is provided which is extended to 16 months. However, if a new deficiency is identified or the vessel is detained during this extended period, then the time frame is adjusted and is equal to the inspection time frame, that was set before the upgrade of the vessel's performance.

#### NONCOMPLIANCE

In case a ship does not comply with the international regulations and requirements of the Maritime Labor Convention, the inspector may impose penalties and other corrective measures on the ship owner. Before a certificate can be issued or endorsed

or a ship allowed to set sail, the flag State inspector must have confirmation that all deficiencies identified during the inspection have been fixed or that a corrective action plan has been provided by the ship owner and has been agreed by the inspector.

### PREREGISTRATION INSPECTION

There are Flags such as the Bahamas Flag State that require for ships more than 12 years old to undertake a pre-registration inspection before the ship starts the flag registration process. The aim of the pre-registration inspection for old ships is to assess the suitability of the ship and whether it meets all the requirements of the flag.

### INITIAL INSPECTION

Initial Inspection is the first annual inspection which takes place in a period of 6 months from the provisional registry. In order for the ship to enter permanent registry status, the initial inspection must be satisfactory and must be technically approved

### DEFINITION OF OCCASIONAL INSPECTIONS

Occasional Inspections are conducted when an unexpected failure, problem or event that create imbalances in the operations of the vessels. Examples of unexpected failures may be: damage provoked to the machinery, to the equipment or the hull, due to the bad weather, or disruptions of loading – unloading operations. Occasional inspections should also be conducted in special cases. Examples of these cases are detentions by the corresponding port authorities, increase in the number of personnel on board or when the shipping company is not able to meet the requirements and the regulations of the flag state. In addition, an occasional inspection is undertaken, when new requirements are introduced into the current regulations, when significant changes are made to the equipment, the machinery, or the design of the hull, without the approval of the relevant Registry authorities and when there is a change in the ownership, the name of the shipping company or the vessel's registered flag. Finally, the flag states should inspect periodically the registered vessels, in order to ensure that the requested certificates are in place and keep up with the current situation of the vessel. Occupational inspections are also undertaken before the vessel is accepted by the corresponding Registry. Some of the flag states that conduct occasional inspections are:

Cyprus, Cayman Islands, Bahamas, St. Kitts & Navis, Panama. Below is analyzed an example of Cypriot flag occasional inspection.

#### CYPRUS FLAG OCCASIONAL INSPECTIONS

Cypriot flag inspections are divided into two categories: the entry inspections and the occasional inspections. Occasional inspections are undertaken when there is an official approval by the Shipping Deputy Ministry of Cyprus. When only the written and detailed authorization of the authorities is provided to the inspectors, then the process of the inspection may commence. Many factors determine when an occasional inspection should commence and must be taken into consideration, like the safety record of the vessel, how many detentions have been occurred for this vessel by other port state authorities, and which are the deficiencies (their nature, the number, if they have been reoccurred etc.) that are identified during a port state control inspection



## **10. THE GREEN AWARD ORGANISATION-MISSION & GOVERNING BOARD**

Green Award is an international organization that provides quality assessments certifications to ships through inspection process. Green award offers certification that goes beyond the industry standards in terms of safety, quality and environmental performance. It is a non-profit, independent, international organization that focuses mainly in environmental performance and safety in shipping. The mission of the company is to lead environmentally responsible shipping. Green award organization was established in 1994 and it is operating as a quality mark for high performing vessels. During the last decades the shipping industry faced some serious crisis from oil spill accidents that happened during voyages due to low international safety standards. The goal/essence of the quality assessment certification is to motivate shipping companies to operate in a more responsible and environmental friendly manner. To assess the safety management and pollution prevention measures of a company GA Organization developed a certification plan that examines several factors such as equipment suitability, management of the company, the workforce and possible initiatives for improvements.

## 10.1 CERTIFICATION/INSPECTION PROCEDURE



During the office audits GA Organization aim is to assess the management scheme of the company, operation policies that are implemented and the interaction with the office employees.

Once the office audit is completed a survey to the ship follows: the initial review includes a desktop documentation review and then follows a survey onboard. The company will receive in the end two Green Award certifications for the office and ship inspection accordingly. Certificates for ship and office audits last for 3 years.



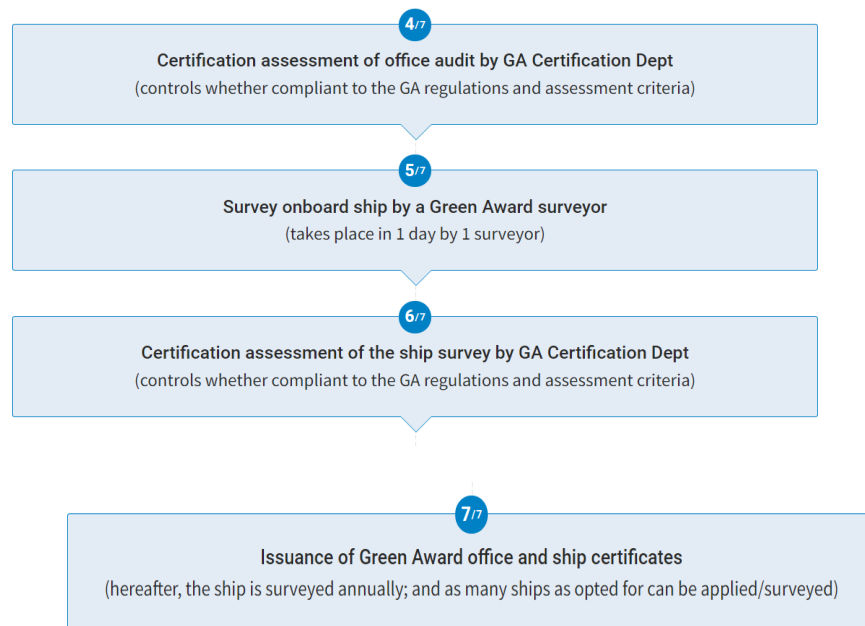


Figure 13: application procedure (Green Award, n.d.)

The ship types that are eligible for Green Award certification are

- oil tankers smaller than 2000DWT
- dry bulk carriers smaller than 20.000DWT
- LNG Carriers –all sizes
- Chemical tankers less than 2000DWT
- Container carriers less than 5000 DWT
- LPG carriers (all sizes)
- RoRo Cargo ships (all sizes)
- Off shore supply ships (all sizes)

Green Award office audits and onboard ship surveys are additional to other audits or inspections that take place in the industry such as Vetting, Port State Control and Classification societies with the aim to assist in continuous improvement in safe operations and environmental protection with a strong focus on the human element. First the office audits to take place and then follows the survey on board.

### Certified Companies

A potential company wishes to be certified by Green Award should have minimum one vessel and is able to meet Green Award standards. Certified Companies enjoy plenty of incentives

- Independent audit performed by well trained auditors that work only for Green Award.
- All the surveys' results are confidential and only the inspected company will be informed about remarks for improvement.
- The certified company will enjoy the privilege of potential prevention of PDC detention or serious incidents
- Several tools to maintain and improve safety, quality and environmental standards
- discounts on the port dues
- discount on services
- discount on product
- special extra service
- Promotion and publicity: certified companies can use the logo of Green Award website and other promotional materials, invitations to annual events etc.

## 10.2 LIST OF CERTIFIED COMPANIES



**MAERSK**



Name		Ships
"K" Line Energy Ship Management Co. Ltd.	LNG Carrier	AL RAYYAN
	LNG Carrier	ZEKREET
"K" Line LNG Shipping (UK) Limited	LNG Carrier	AL ORAIQ
	LNG Carrier	AL THAKHIRA
	LNG Carrier	ARCTIC DISCOVERER
	LNG Carrier	ARCTIC VOYAGER
	LNG Carrier	SYMPHONIC BREEZE
	LNG Carrier	TRINITY ARROW
	LNG Carrier	UMM AL AMAD
Aegean Bulk Co Inc	dry bulk carrier	ANNA MARIA
	dry bulk carrier	INCEPTION
Altera Infrastructure Norway AS	oil tanker	AMUNDSEN SPIRIT
	oil tanker	AURORA SPIRIT
	oil tanker	CURRENT SPIRIT
	oil tanker	NANSEN SPIRIT
	oil tanker	PEARY SPIRIT
	oil tanker	RAINBOW SPIRIT
	oil tanker	SCOTT SPIRIT
Anglo-Eastern Shipmanagement (Singapore) Pte Ltd	LPG carrier	CRYSTAL ANGEL
	LPG carrier	CRYSTAL LAVENDER
	LPG carrier	CRYSTAL SUNRISE
	LPG carrier	CRYSTAL VALERIAN
Arab Maritime Petroleum Transport Company	oil tanker	ALBURAQ
	oil tanker	ALDANA
	oil tanker	BREEZE
	oil tanker	SEA BEAUTY
	oil tanker	SEA ICON
	oil tanker	SEA JEWEL
	oil tanker	SEA LEGEND
	oil tanker	SEA SHELL
	oil tanker	SEA STAR
Arcadia Shipmanagement Co. Ltd.	oil tanker	AEGEAN ANGEL
	oil tanker	AEGEAN DIGNITY
	oil tanker	AEGEAN DREAM

	oil tanker	AEGEAN HARMONY
	oil tanker	AEGEAN HORIZON
	oil tanker	AEGEAN MARATHON
	oil tanker	AEGEAN MYTH
	oil tanker	AEGEAN NOBILITY
	oil tanker	AEGEAN POWER
	oil tanker	AEGEAN UNITY
	oil tanker	AEGEAN VISION
Chandris (Hellas) Inc.	oil tanker	ELLINIS
	oil tanker	SERENEA
Delta Tankers Ltd.	oil tanker	DELTA CAPTAIN
	oil tanker	DELTA PIONEER
	oil tanker	DELTA SAILOR
	oil tanker	DELTA STAR
	oil tanker	DELTA VICTORY
Eaglestar Shipmanagement (S) Pte Ltd	oil tanker	EAGLE BINTULU
	oil tanker	EAGLE BRASILIA
Eastern Pacific Shipping Pte Ltd.	oil tanker	CASPIAN SEA
	oil tanker	IBERIAN SEA
	oil tanker	LEVANTINE SEA
	oil tanker	LEVANTINE SEA
	oil tanker	TYRRHENIAN SEA
Empire Bulkers Ltd	dry bulk carrier	PANAGIOTIS
Empire Navigation Inc	oil/chemical tanker	GUNMETAL JACK
Exmar Shipmanagement NV	LPG carrier	BASTOGNE
	LPG carrier	ELISABETH
	LPG carrier	JOAN
	LPG carrier	KNOKKE
	LPG carrier	KOKSIJDE
	LPG carrier	BASTOGNE
Fleet Management Limited	oil/chemical tanker	CHEMICAL LUNA
	oil/chemical tanker	CHEMICAL MASTER
	oil/chemical tanker	CHEMICAL VOYAGER
GEFO Gesellschaft für Oeltransporte mbH	oil/chemical tanker	BARTOK
	oil/chemical tanker	BEETHOVEN
	oil/chemical tanker	BERNSTEIN
	oil/chemical tanker	BRAHMS
	chemical tanker	CAVALLI
	oil/chemical tanker	CORELLI

	oil/chemical tanker	MOZART
	oil/chemical tanker	NABUCCO
	oil/chemical tanker	NORMA
	oil/chemical tanker	OTELLO
Goodwood Ship Management Pte Ltd		
Iino Marine Service Co. Ltd		
International Tanker Management Limited	oil tanker	SONANGOL HUILA
	oil tanker	SONANGOL KALANDULA
	oil tanker	SONANGOL MAIOMBE
	oil tanker	SONANGOL NAMIBE
	oil tanker	SONANGOL PORTO AMBOIM
KNOT Management AS	oil tanker	ANNELEEN KNUTSEN
	oil tanker	BODIL KNUTSEN
	oil tanker	GIJON KNUTSEN
	oil tanker	GRENA KNUTSEN
	oil tanker	HILDA KNUTSEN
	oil tanker	INGRID KNUTSEN
	oil tanker	SIRI KNUTSEN
	oil tanker	TORILL KNUTSEN
Kuwait Oil Tanker Co. S.A.K.	oil tanker	AL FUNTAS
	oil tanker	AL JABRIYAH II
	oil tanker	AL RIQQA
	oil tanker	AL SALMI
	oil tanker	AL YARMOUK
	oil tanker	DAR SALWA
	oil tanker	KAZIMAH III
	oil tanker	UMM AL AISH
Latsco Marine Management Inc.	LPG carrier	HELLAS HERCULES
	oil tanker	KING PHILIPPOS
	oil tanker	LADY HENRIETTA
Maersk Tankers A/S	oil/chemical tanker	BRO NAKSKOV
	oil/chemical tanker	BRO NIBE
	oil/chemical tanker	BRO NISSUM
	oil/chemical tanker	BRO NORDBY
	oil/chemical tanker	BRO NUUK
	oil/chemical tanker	BRO NYBORG

	oil/chemical tanker	MAERSK BRISTOL
Maran Gas Maritime Inc.	LNG Carrier	AL JASSASIYA LNG Carrier MARAN GAS ASCLEPIUS LNG Carrier SIMAISMA LNG Carrier UMM BAB
Maran Tankers Management Inc.	oil tanker	MARAN APHRODITE oil tanker MARAN ARES oil tanker MARAN ARIADNE oil tanker MARAN ARTEMIS oil tanker MARAN ATHENA oil tanker MARAN CANOPUS oil tanker MARAN HELIOS oil tanker MARAN HERMES oil tanker MARAN HERMIONE oil tanker MARAN HOMER oil tanker MARAN PLATO oil tanker MARAN POSEIDON oil tanker MARAN PYTHIA oil tanker SOPHIA
Minerva Marine Inc	oil tanker	MINERVA ALICE oil tanker MINERVA BALTICA oil tanker MINERVA CORALIA oil tanker MINERVA ELPIDA oil tanker MINERVA GLORIA oil tanker MINERVA OLYMPIA oil tanker MINERVA PISCES oil tanker MINERVA VERA oil tanker MINERVA ZENOBIA
MOL LNG Transport (Europe) Ltd.	LNG Carrier	AL AAMRIYA LNG Carrier AL DEEBEL LNG Carrier FRAIHA LNG Carrier FUWAIRIT LNG Carrier MURWAB LNG Carrier POINT FORTIN
MOL LNG Transport Co. Ltd.	LNG Carrier	AL BIDDA LNG Carrier AL WAJBAH LNG Carrier AL WAKRAH



	LNG Carrier	AL ZUBARAH
Nakilat Shipping (Qatar) Limited	LNG Carrier	AL DAFNA
	LNG Carrier	AL GATTARA
	LNG Carrier	AL GHARRAFA
	LNG Carrier	AL GHASHAMIYA
	LNG Carrier	AL GHUWAIIRIYA
	LNG Carrier	AL HAMLA
	LNG Carrier	AL KHARAITIYAT
	LNG Carrier	AL MAFYAR
	LNG Carrier	AL MAYEDA
	LNG Carrier	AL REKAYYAT
	LNG Carrier	AL SADD
National Iranian Tanker Company	oil tanker	SALINA
NYK LNG Shipmanagement (UK) Ltd.	LNG Carrier	AL SAHLA
	LNG Carrier	AL THUMAMA
	LNG Carrier	AL UTOURIYA
	LNG Carrier	EJNAN
	LNG Carrier	LUSAIL
NYK LNG Shipmanagement Ltd.	LNG Carrier	AL JASRA
	LNG Carrier	AL KHOR
	LNG Carrier	AL SAHLA
	LNG Carrier	AL THUMAMA
	LNG Carrier	AL UTOURIYA
	LNG Carrier	BROOG
	LNG Carrier	DOHA
	LNG Carrier	EJNAN
OSM Ship Management AS	oil tanker	EAGLE BALDER
	oil tanker	EAGLE BARENTS
	oil tanker	EAGLE BERGEN
	oil tanker	EAGLE BLANE
OSM Ship Management Finland Oy	oil tanker	STENA ARCTICA
Pronav Ship Management GmbH & Co KG	LNG Carrier	AL GHARIYA
	LNG Carrier	AL RUWAIS
	LNG Carrier	AL SAFLIYA
	LNG Carrier	DUHAIL
	LNG Carrier	MILAHA QATAR
	LNG Carrier	MILAHA RAS LAFFAN
SCF Management Services (Dubai) Ltd	oil tanker	GAGARIN
		PROSPECT
	oil tanker	KOROLEV
		PROSPECT

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	oil tanker LIGOVSKY PROSPECT
	oil tanker LITEYNY PROSPECT
	oil tanker LOMONOSOV PROSPECT
	oil tanker MENDELEEV PROSPECT
	oil tanker MOSKOVSKY PROSPECT
	oil tanker NEVSKIY PROSPECT
	oil tanker OLYMPIYSKY PROSPECT
Seaven Tanker Management Inc	oil/chemical tankerEVIAPETROL V
Shell International Trading & Shipping Co Ltd	LNG CarrierAAMIRA LNG CarrierAL BAHIIYA LNG CarrierAL KARAANA LNG CarrierAL KHATTIYA LNG CarrierAL NUAMAN LNG CarrierRASHEEDA LNG CarrierSHAGRA LNG CarrierZARGA
SIA TB Marine Shipmanagement (Riga) Christiania Shipping A/S	oil/chemical tankerANNELISE THERESA oil/chemical tankerCAROLINE THERESA oil/chemical tankerCHARLOTTE THERESA oil/chemical tankerJETTE THERESA oil/chemical tankerKARINA THERESA oil/chemical tankerSOFIE THERESA oil/chemical tankerSUSANNE THERESA
Synergy Maritime Pvt. Ltd.	oil/chemical tankerBLUE BUTTERFLY container carrier CAP SAN MALEAS dry bulk carrier NORD

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	BISCAY
	LPG carrier TRAMMO PARIS
Teekay Shipping (Glasgow) Ltd	LNG CarrierAL AREESH LNG CarrierAL DAAYEN LNG CarrierAL HUWAILA LNG CarrierAL KHARSAAH LNG CarrierAL KHUWAIR LNG CarrierAL MARROUNA LNG CarrierAL SHAMAL
Thenamaris Ships Management Inc.	oil tanker BERGEN TS oil tanker ELIAS TSAKOS oil tanker EURO oil tanker LEONTIOS H oil tanker MARATHON TS oil tanker OSLO TS oil tanker PARTHENON TS oil tanker PROMITHEAS oil tanker PROPONTIS oil tanker PROTEAS oil tanker SOLA TS oil tanker STAVANGER TS oil tanker THOMAS ZAFIRAS
Tsakos Columbia Shipmanagement (TCM) S.A.	oil tanker BERGEN TS oil tanker ELIAS TSAKOS oil tanker EURO oil tanker LEONTIOS H oil tanker MARATHON TS oil tanker OSLO TS oil tanker PARTHENON TS oil tanker PROMITHEAS oil tanker PROPONTIS oil tanker PROTEAS oil tanker SOLA TS oil tanker STAVANGER TS oil tanker THOMAS ZAFIRAS
Van Wijngaarden Marine Services B.V.	offshore supply ship LINGESTROOM
Wallem GmbH & Co. KG	oil tanker BREIVIKEN oil tanker DOLVIKEN oil tanker EIKEVIKEN oil tanker ERVIKEN oil/chemical tankerINVIKEN oil tanker JO PINARI

	oil tanker	KRONVIKEN
	oil tanker	MORVIKEN
	oil/chemical tanker	NORVIKEN
	oil tanker	SOLVIKEN
	oil/chemical tanker	STAVANGER
		PIONEER
	oil/chemical tanker	UTVIKEN
Wallem Shipmanagement Ltd	oil tanker	SONANGOL
		CABINDA
	oil tanker	SONANGOL
		CAZENGA
	oil tanker	SONANGOL
		KASSANJE
	oil tanker	SONANGOL
		RANGEL
	oil tanker	STORVIKEN

Figure 3: List of certified ships (Green Award, n.d.)

### **10.3 COLLABORATIONS**



Green Award Organization collaborates with ESI, Environmental Ship Index. ESI started by several ports through the World Ports Sustainability Program under the International Association of Ports and Harbors (IAPH) to improve air quality. The objective of ESI is to reduce emissions of NO<sub>x</sub> and Sox and particulates, as well as emission of CO<sub>2</sub> in long term by bringing changes in behavior among ship owners/operators and ports. Green Award Organization ESI into the Green Award checklist requirements. In Addition Green Award established a bonus point system to encourage the submitted companies to undertake an inspection. For example a company wins 50 points when enrolls the operated ships into ESI database. A company wins 20 points when the ship scores more than 30 ESI points after the inspection, 40 points if the ship scores more than 40 ESI points, and 60 points if the ship scores more than 50 ESI points. (Green Award, n.d.)

### **10.4 INCENTIVE PROVIDERS**

Green Award is an organization that applauds and encourages safety, quality and environmental performance of ships. Thus GA built a wide international network of 160 incentive providers that provide a variety of benefits to the ships that have Green Award Certificate. For example Port of Kobe was one of the latest members that joined GA. Port of Kobe is providing 10% discount in port entrance dues to ship that

have GA certification. The development of the incentive network opens the path for more companies to join the initiative for “greener” sea transportation. The above listed certified ships are committed to improve their safety and environmental performance and beyond the international standards. (Green Award, n.d.) The incentive providers are:

- Ports
- Maritime products and service suppliers
- Organisations

The incentives are:

- Port discounts
- Service discount
- Product discount
- Special extra service or product
- Promotion

Examples of incentive providers

- Danaos Management Consultant
- DNV – Maritime
- Deree – The American College of Greece
- Alpha Marine Consulting
- Port of Barcelona
- Port of Elefsina
- Hamburg port Authority
- Port of Amsterdam
- ERMA FIRST ESK ENGINEERING SOLUTIONS S.A.
- GAC Netherlands
- GAC Shipping S.A. (Greece)
- Marine Traffic
- Liberian Registry
- Lubrication Engineers NZ Ltd
- Airbus Defense and Space SAS

## **11. CONCLUSIONS**

From 1970 to 2016 the international shipping community is moved and has achieved a significant progress to eliminate marine pollution. Although, more steps need to be made in order for more oil companies and tanker owners to be part of a coordinative initiative. US government, Asian governments, EU and International Governmental Organisations should enforce stricter environmental measures and laws to ensure the safety in oil transfer operation and in oil extraction. It is a fact that inspections and audits cause headache to many operators as it's a long but also a very costly process as it prevents the vessel to depart on the schedule time. It is also an exhausting process for the crew officers of the inspected vessel who sometimes face more than one inspection. For this reason, financial benefits, such as reduction in port dues, canals or promotion to charterers and clients are essential and will motivate more companies to contribute in this global initiative. Therefore shipping industry needs more initiatives such as the Green Award Organization. There is also a need to optimize the vetting inspection process and avoid the long hours in ports and at the same time maintain the high level of inspection requirements. The introduction of high technology tools could be a key to this process. OCIMF SIRE 2.0 program that will be launched in Q2 of 2022 is very promising and is heading to this direction.

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