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PORT STATE CONTROL

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LIST OF ABBREVIATIONS

APCIS – Asia-Pacific Computerized System

BWM – Ballast Water Management

CIC – Concentrated Inspection Campaign

CMIC – Caribbean Maritime Information Center

COC – Certificate of Compliance

COLREG – the Convention on the International Regulations for Preventing Collisions at Sea

EF – Excess Factor

EU – European Union

FIC – Focused Inspection Campaign

HRS – High Risk Ship

HSSE – Health, Safety, Security & Environment

IACS – International Association of Classification Societies

IBC – International Bulk Center

ILO – International Labor Organization

ILO 147 - the Merchant Shipping Convention

IMDG - International Maritime Dangerous Goods

IMO – International Maritime Organization

ISM – International Safety Management

ISO – International Organization for Standardization

ISPS – International Ship & Port Facility Security Code

LOADLINES- International Convention on Load Lines

LRS – Low Risk Ship

LSA – Life Saving Appliances

MARPOL – International Convention for the Prevention of Pollution from Ships

MLC – Maritime Labour Convention

MoU – Memorandum of Understanding

NIR – New Inspection Regime

NKK – Nippon Kaiji Kyokai

NOV – Notice of Violation

PI – Performance Indicators

PSC - Port State Control

PSCO – Port State Control Officer

QMS – Quality Management System

R.O. – Recognized Organization

SMS – Safety Management System

SOLAS – International Convention for the Safety of Life at Sea

SRP – Ship Risk Profile

SRS – Standard Risk Ship

STCW - International Convention on Standards of Training, Certification and Watchkeeping for Seafarers

STCW - Standards of Training, Certification and Watchkeeping

TMSA – Tanker Management Self - Assessment

TONNAGE - the International Convention on Tonnage Measurement of Ships

USCG – U.S. Coast Guard

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: Port State Control, Memorandum of Understanding, Inspection, Clear Grounds, Detention.

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 Σημαίας, 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: Έλεγχος Λιμένα, Συμφωνίες , Επιθεώρηση, Κράτηση.

INTRODUCTION

In the last century, the maritime industry is plagued by a series of maritime accidents which have detrimental consequences in the social, economic and environmental fields. Port State Control comes to complete the external inspections to help with preventing and protecting the environment and human life. Through the PSC inspections, port authorities try to recognize and catch the substandard ship which are considered dangerous.

The first chapters have studied the facts during March 1978 which is one of the most important periods of shipping because the supertanker 'Amoco Cadiz' ran aground after poor handling, resulting in the release into the sea of more than 220,000 tons of crude oil. This accident is a milestone in shipping because the Port State Control regime was created, and seven very important conventions were established with it. In January 1982 the first Memorandum of Understanding between fourteen European states was signed and entered into force and called Paris MoU. Then, another nine MoU followed. Also, Australia, the United Kingdom and the USA implemented a Port State Control inspection regime with different criteria from the others. All MoUs and their effective operation are based on global databases such as EQUASIS or THETIS which provide information and identify whether a ship is a threat and needs to be inspected. Some important factors influence the performance of the Port State Control inspections such as the age of a ship, the type, the flag and many others. Furthermore, according to these factors will be determined whether an inspection will be carried out.

In the following chapter are indicated the four types of inspection. There is the initial inspection, the more detailed inspection, the expanded inspection and the Concentrated Inspection Campaign which are analyzed in detail. Well trained inspectors carry out the initial inspection and, depending on the findings, proceed to a more detailed or not. Also, there is a special category 'clear grounds' according to which it will be decided whether the inspection will remain in the first stage or a more detailed one will be conducted. Moreover, it is stated that it is important to follow the prescribed inspection procedure with all reports by the PSCO, the Master and the crew as well as the rules of good conduct. In addition, it is very significant the chapter with the deficiencies. In this part is mentioned the codification and the seriousness and the kind of each code. The next chapter analyzes what is a detention, the detentions'

characteristics, what happens in case of banning and what is the detention appeal. In any case is necessary to inform the company, the recognized organization and the flag. In the end, there are specific procedures for the inspection, the master and the company.

1.1 PORT STATE CONTROL

> "Port State Control is the inspection of foreign ships in national ports to verify that the condition of the ship and its equipment comply with the requirements of international regulations and that the ship is manned and operated in compliance with these rules." (IMO, n.d.)

The resolution A.682 which concerns the regional cooperation in ship control has, as a result, the conclusion of regional agreements. For the purpose of improving the situation of Port State Control inspections, Europeans were the pioneers who added an extent about marine safety. The first Memorandum of Understanding (MoU) on Port State Control (PSC) is the Paris MoU and was established in Europe in July 1982. The basic idea of Port State Control is that the Port Authorities, each country, has the legal right to inspect the mooring foreign ships and to ensure that they do not pose a threat. These inspections function as a "safety net" to detect substandard ships. Also, the International Maritime Organization (IMO) and the International Labor Organization (ILO) offer their valuable help and they prompt more regions to create more MoUs worldwide. Thus, based on this extension the Port State Control standards become tightened. With the proper coordination will be avoided unnecessary inspections. However, this ensures that a large number of ships are inspected and there are not any kind of delays in ports.

Figure 1 Port State Control Inspection (SAFETY4SEA, 2017)

1.2 HISTORICAL DEVELOPMENT

During 1967 a shipping accident created a lot of concerns about environmental pollution globally. On 18 March 1967, the tanker named Torrey Canyon released 110,000 tons of crude oil into the sea, at the western coast of Cornwall in England. It was the largest vessel that had ever sunk and it was causing a devastating environmental accident. After all this public shock, in a period of two years later, the governments all around the world decided, agreed, and signed the International Convention on Civil Liability for Oil Pollution Damage. The end-all was to prevent similar future accidents which will produce irreparably problems in the shipping industry. Regrettably, in March 1978, the supertanker "Amoco Cadiz", operating under the Liberian flag of convenience, ran aground on Portsall Rocks, 1 mile away from the British and French coasts. The crude oil which spilled out was more than 220,000 tons. The ship split in three and sank, creating the largest oil spill in history to that date. The environmental disaster and the effects on the sea and humans shocked public opinion. Moreover, the accident had an important impact on national economies. In 1992, Amoco agreed to pay 230 million US dollars. It is becoming obvious that this event has affected many important sectors besides the environment. First of all, the shipowner loses the ship or he needed to fix the damages for the purpose of reintroduction in the market. Secondly, the accident causes a big cost for putting the oil slick under control and restoring the environment. Last but not least, these kinds of events author various problems in human health. According to all these information and experiences, it can be proved that these tragic accidents have serious effects not only on nature but also on humanity and the national economies. We could emphasize that the national economies need inestimable time to recover but the environment needs imponderable years.

Today, the regime of Port State Control has adopted and has enforced seven of the most important conventions which are the International Convention for the Safety of Life at Sea (SOLAS), the International Convention for the Prevention of Pollution from Ships (MARPOL), the International Convention on Load Lines (LOADLINES), the International Convention on Standards of Training, the Certification and Watchkeeping for Seafarers (STCW), the Convention on the International Regulations for Preventing Collisions at Sea (COLREG), the International Convention on Tonnage Measurement of Ships (TONNAGE) and the Merchant Shipping Convention (ILO 147). All these

regulations were implemented due to the belief that many flag states are not reliable to ensure that the ships which have their flags are complying completely with the international safety standards under the auspices of the International Maritime Organization (IMO) and the International Labor Organization (ILO). The Port State Control and all these conventions are operating in addition and are here to stay for a better future.

After the "Amoco Cadiz" incident the public insists on stricter regulatory measures for all ships. The January of 1982 fourteen European countries took a significant decision to sign the Memorandum of Understanding on Port State Control in Paris. The MoU embodied main measures about the safety of life at sea. Moreover, the prevention of pollution by ships, and a code of living and working conditions on board ships have the same importance. This successful implementation motivated and other countries around the world to create several regional agreements. Presently, there are nine MoUs and the United States MoU compose the tenth Port State Control regime. First, is the Paris MoU(Europe and the North Atlantic region), the Tokyo MoU(Asia and the Pacific region), the Abuja MoU(West and Central Africa region), the Black Sea MoU(Black Sea region), the Caribbean MoU(Caribbean region), the Indian Ocean MoU(Indian Ocean region), the Mediterranean MoU(Mediterranean region), the Riyadh MoU(the Kingdom of Bahrain, State of Kuwait, Sultanate of Oman, State of Qatar, Kingdom of Saudi Arabia and United Arab Emirates), the Acuerdo de Vina del Mar MoU(Latin America region) and the last one the United States Coast Guard.

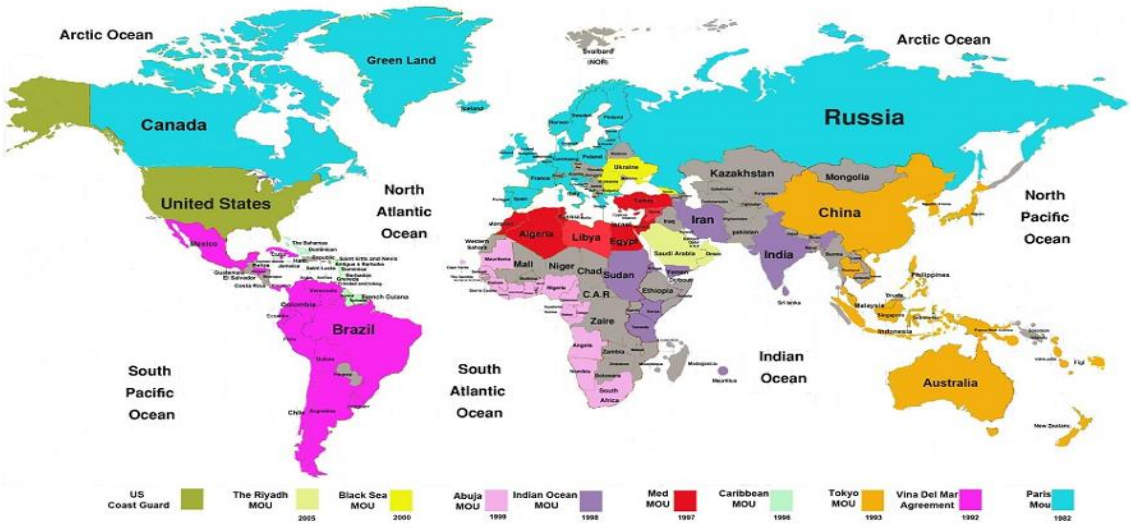

Figure 2 Map of MoU areas (T-StarMET Ltd., n.d.)

2.1 PORT STATE CONTROL AND REGIONAL MoUs

2.1.1 PARIS MoU

In 1978, many European countries encountered at Hague and they created an agreement about a memorandum that agreed to check whether the working conditions on the ships were following the rules of the International Labor Convention (ILO). After the sinking of the "Amoco Cadiz," there was a need for new measures about safety and pollution. In 1982, agreed and signed the Paris Memorandum of Understanding (Paris MoU). Its main purpose was to underline that the maritime safety and the protection of the marine environment should increase significantly and, also, should upgrade the living and working conditions on board ships. The organization is composed of 27 participating maritime Administrations. Its scope covers the waters of the European coastal States and the North Atlantic basin from North America to Europe. In essence, this was caused by the failure of flag states, in particular flags of convenience which have their work to classification societies, to comply with the tasks of their inspections. The member states of the Paris MoU are Belgium, Bulgaria, Canada, Cyprus, Croatia, Denmark, Estonia, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Latvia, Lithuania, Malta, The Netherlands, Norway, Poland, Portugal, Romania, the Russian Federation, Spain, Slovenia, Sweden, and the United Kingdom.

Each authority must apply the provisions of the Agreement and the Annexes. Secondly, it must maintain an effective port state control system for foreigners' boats moored or sailing in a state port or offshore facilities to comply with the international standards, without discrimination as to the flag. Thirdly, it must exchange information and consult, if necessary, the other authorities in order to achieve the objective of the Agreement and lastly it must establish, independently or with help, appropriate procedures to guide services and port authorities to inform the competent Port State Authority of any deficiency is identified which may threaten the safety of the vessel or can pose a threat to the marine environment. Also, a secretariat exists and is supported by the Netherlands' Ministry of Infrastructure and Water Management and its scope is to support the committee and ensure the effectiveness of the Memorandum.

The states that adopt the Paris Protocol have agreed to inspect 25% of foreign-flagged ships entering their ports each year. They set up a permanent secretariat to coordinate all the national activities and to admit each authority to a regional database. In case a

vessel is inspected in a country that complies with all Paris MoU commitments, then there is no need for that vessel to be inspected again in the next country which will be moored. The Port State Control should focus on ships that have not been inspected. The responsibility for the ship's compliance with the requirements rests with the shipowner, but the duty for checking this obedience always remains on the flag ships.

"Paris Memorandum of Understanding consists of 12 annexes which are:

- Annex 1 Ships of non-Parties and below convention size
- Annex 2 No longer use
- Annex 3 Information System on Inspections
- Annex 4 Publication of Information Related to Detentions and Inspections
- Annex 5 Qualitative Criteria for Adherence to the Memorandum
- Annex 6 Minimum Criteria for Port State Control Officers
- Annex 7 Ship Risk Profile
- Annex 8 Inspection and Selection Scheme
- Annex 9 Inspection Type and Clear Grounds
- Annex 10 Examination of certificates and documents
- Annex 11 Inspection Commitments of Authorities
- Annex 12 Reporting obligations for ships" (Paris MoU, n.d.)

Annex 7 of the memorandum analyzes very well the Ship Risk Profile (SRP). This SRP plays a vital role because it determines the ship's priority for inspection, the period between the inspections, and also, the inspections' spectrum. The tactic of calculation, furthermore as criteria used are similar altogether regional agreements.

Ship Risk Profile

Firstly, the information system categorizes ships into high, low, and standard risk according to their characteristics which are calculated on a daily basis. Each criterion is proportional to weighting points. Thus, ships that gather more than 5 weighting points are considered high risk. In contrast, ships that meet the low-risk criteria and have carried out at least one inspection in the previous 36 months are considered low-risk. Standard risk ships are neither HRS nor LRS. After every inspection follows a

recalculation. Moreover, it is important to note that inspection is necessary when changing the tables of classification society and flags.

					Profile			
					High Risk Ship (HRS)		Standard Risk Ship (SRS)	Low Risk Ship (LRS)
Generic Parameters					Criteria	Weighting points	Criteria	Criteria
1	Type of ship				Chemical tanker Gas Carrier Oil tanker Bulk carrier Passenger ship NLS-tanker	2	neither a high risk nor a low risk ship	All types
2	Age of ship[1]				all types> 12 y	1		All ages
3a	Flag	BGW-list[2]			Black - VHR, HR, M to HR	2		White
					Black – MR	1		
3b		IMO-Audit[3]			-	-		Yes
4a	Recognized Organization	Performance[4]		H	-	-		High
				M	-	-		-
				L	Low	1		-
				VL	Very Low			-
4b		Organizations recognized by one or more Paris MoU Member States			-	-		Yes
5	Company	Performance[5]		H	-	-		High
				M	-	-		-
				L	Low	2		-
				VL	Very Low			-
Historic Parameters								
6	Number of def. recorded in each insp. within previous 36 months		Deficiencies		Not eligible	-		≤ 5 (and at least one inspection carried out in previous 36 months)
7	Number of Detention within previous 36 months		Detentions		≥ 2 detentions	1		No Detention

[1] according to point 9 of this Annex
[2] according to formula in the Annual Report
[3] according to point 11 of this Annex
[4] according to formula in the Annual Report
[5] according to point 15 of this Annex
Including 43rd Amendment, adopted 2 October 2020 (effective date: 1 January 2021)

Figure 3 Ship Risk Profile of Paris MoU (Paris MoU, n.d.)

There are plenty of parameters for Ship Risk Profile which are namely: the type of ship, the age of the ship, the Black, Grey, and White list which is an annual procedure that pays attention to the ship's detention history over the previous three calendar years, the IMO audit, the recognized organization performance, the company performance, the deficiency index, the detention index, and the company performance matrix.

Specifically, the company performance examines in detail a company's detention and deficiency history. Companies are categorized as "very low", "low", "medium" or "high" depending on their performance. The calculation is presented on a daily basis of

a running 36-month period. There is no limit for the number of inspections required to qualify. The exception is the company that hasn't got any inspection in the last 36 months. Thus, it will have a "medium performance. Also, the deficiency index concerns the fleet of the whole company and is the ratio of the total points of all deficiencies of all ships. Deficiency about the ISM count 5 points whereas other deficiencies are valued 1 point. Depending on the number of detentions of the ship, the criterion can be taken from 0 to 1 point, with the number 1 making the criterion more dangerous. Finally, the degree of danger of the ship and its characterization in HRS, SRS, or LRS is determined by the sum of the points. If it is from 5 and above, the ship enters in the category of high risk and they are called High-Risk Ships (HRS). The detention index works accordingly.

deficiency index	deficiency points per inspection
above average	> 2 above PMoU average
average	PMoU average ± 2
below average	> 2 below PMoU average

detention index	detention rate
above average	> 2 above PMoU average
average	PMoU average ± 2%
below average	> 2 below PMoU average

Figure 4 Deficiency and detention index of Paris MoU (Paris MoU, n.d.)

The Low-Risk Ships (LRS) have some characteristics. First, they do not belong to the types of ships that are considered dangerous. Second, the flag, the certifying organization, and the shipping company have excellent classification. Third, the ship has less than 5 observations in the last 36 months inspection and the ship has not had any detention for the last 36 months. Ships that do not fall into the above two categories are considered ships Standard Risk Ships (SRS).

Moreover, the company performance index is a combination of deficiency and detention indices.

Detention Index	Deficiency Index	Company Performance
above average	above average	very low
above average	Average	low
above average	below average	
average	above average	
below average	above average	
average	Average	medium
average	below average	
below average	Average	
below average	below average	high

Figure 5 Company Performance Index of Paris MoU (Paris MoU, n.d.)

Inspection and Selection Scheme

Annex eight is detailed the Ship's Risk Profile and periodic inspections have an important role in it. Moreover, an additional inspection may be the result of overriding or unexpected factors and it is important to mention that these factors are contained and applied in the nine memoranda, respectively.

"Overriding Factors

- Ships reported by another Member State or the secretariat excluding unexpected factors,
- Ships involved in a collision, grounding, or stranding on their way to the port,
- Ships accused of an alleged violation of the provisions on the discharge of harmful substances or effluents,
- Ships that have been maneuvered in an erratic or unsafe manner whereby routing measures, adopted by the IMO, or safe navigational practices and procedures have not been followed,
- Ships that have been suspended or withdrawn from their Class for safety reasons after the last PSC inspection,
- Ships which cannot be identified in the database."

Unexpected Factors

They could pose a serious threat to the ship, the crew, and the environment. The additional inspection is about the assessment of the Authority.

- "Ships reported by pilots or relevant authorities which may include information from Vessel Traffic Services about ships' navigation,
- Ships which did not comply with the reporting obligations,
- Ships reported with an outstanding ISM deficiency,
- Previously detained ships,
- Ships which have been the subject of a report or complaint by the master, a seafarer, or any person or organization with a legitimate interest in the safe operation of the ship, ship on board living and working conditions or the prevention of pollution, unless the Member State concerned deems the report or complaint to be manifestly unfounded,
- Ships operated in a manner to pose a danger,
- Ships reported with problems concerning their cargo, in particular noxious or dangerous cargo,
- Ships where information from a reliable source became known, that their risk parameters differ from the recorded ones and the risk level is thereby increased,
- Ships carrying certificates issued by a formerly Paris MoU recognized organization whose recognition has been withdrawn since the last inspection in the Paris MoU region." (Paris MoU, n.d.)

It should be noted that these overriding and unexpected factors are also implemented by other MoUs as Tokyo, Abuja, and Black Sea MoUs and are not repeated in the rest of the dissertation.

Additionally, periodic inspections take place for HRS between 5-6 months, for SRS between 10-12 months, and for LRS between 24-36 months. After the last additional inspection, the next inspection will be periodic. The selection scheme is divided into two priorities: Priority I and Priority II. If the ship has not been inspected by a PSCO in the provided time or this comes to an end, this ship is immediately put in the first priority category for inspection, otherwise, it is in the second priority (Priority I / Priority II). Sometimes Priority II doesn't take place but, in this case, the ship remains Priority II until this time expires.

Priority	Level	Category of inspection
I **Ship must be inspected**	Overriding factor	Additional
	HRS not inspected in last 6 months	Periodic
	SRS not inspected in last 12 months	Periodic
	Ship not inspected in last 36 months	Periodic
II **Ship may be inspected**	HRS not inspected in last 5 months	Periodic
	Ship with unexpected factors	Additional
	SRS not inspected in last 10 months	Periodic
	LRS not inspected in last 24 months	Periodic

Figure 6 Table of Priority of Paris MoU (Paris MoU, n.d.)

Paris MoU decided to adopt the new regime called NIR. The committee meeting took place in Reykjavik, Iceland (May 2009). NIR was developed by a working group led by the EU. The real leadership of this special team was assigned to EMSA. NIR doesn't base on the 25% individual quota. The current fair system of participation is the ratio of individual arrivals in a Member State to the arrivals of that ship in all Member States. A key element in implementing NIR is the recording of arrival information at the port. This arrival information at the port is also important for scheduling inspections and resources from the Member States. Arrival information at the port was initially recorded from the Member State to a SafeSeaNet and then transferred to the new Port State Control (PSC) database. This database called THETIS replaced the previous Sirenac system and was managed by EMSA. Based on this, ships are categorized into three risk profiles. Depending on their risk profile, the frequency of PSC inspections is also determined. On the web Paris MoU site, free computing software is available to help managers assess the performance of their ships and their company.

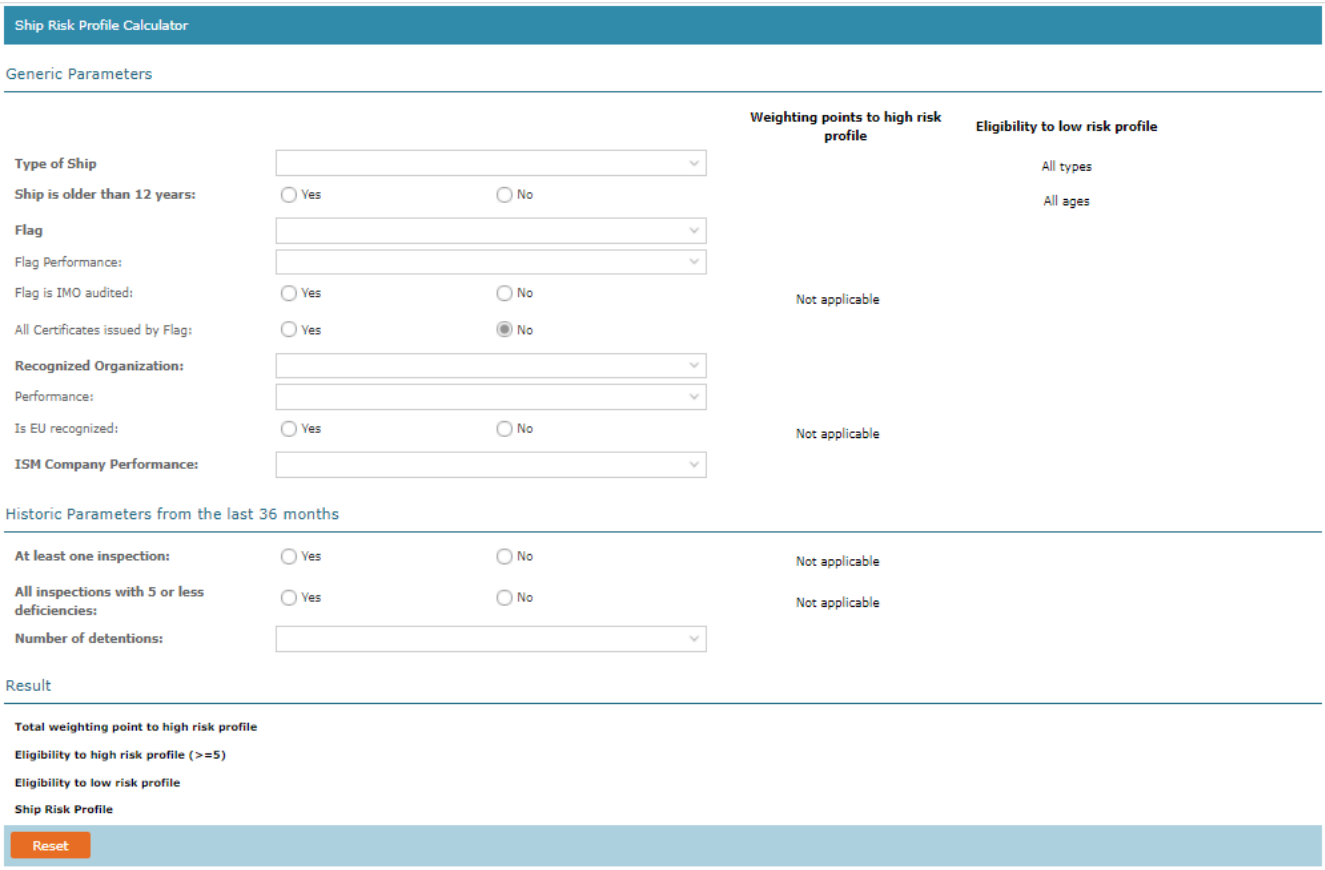

Figure 7 Ship Risk Profile Calculator (Paris MoU, n.d.)

Reporting obligations for ships

A crucial part of Port State Control is the reporting obligation which is divided into three categories. The first category is the 72-hour message (72 ETA). If a ship has been chosen for an expanded inspection, then it is required to report 72 hours before arriving at a port or anchorage of the specific region. If the voyage duration is less than 72 hours, the master should inform the Authorities of the next port before leaving the previous port or anchorage. For this procedure is required some information which includes the ship's identification namely the IMO number and the name, the call sign, and the MMSI number. Also, it is required the port of destination, the ETA, the ETD, the extent of the call, the date of the last expanded inspection in this region, and if the vessel has any operation, survey inspections, and maintenance in the port of destination. Especially, in the tanker's case is important to mention the configuration, the condition of the cargo, the volume and the nature of the cargo, and the ballast tanks Secondly, there is a 24-hour message (24 ETA). In this case, the master or the agent has the obligation to notify the Member States to which it is destined 24 hours before the arrival of the ship. In

other cases, if the voyage lasts less than 24 hours then the master must notify the moment that the ship leaves the previous port. The required information is the ship's identification, the port of destination, the ETA, and the ETD. Third, is the actual arrival message (ETD) in which Member States report the actual time of arrival of any calling at Member States ports and the last one is the actual departure message (ATD) which is the actual time of departure, respectively.

2.1.2 TOKYO MoU

> "The Tokyo Memorandum of Understanding includes the Asia and Pacific region and consists of 21 full members which are: Australia, Canada, Chile, China, Fiji, Hong Kong, Indonesia, Japan, Republic of Korea, Malaysia, Marshall Islands, New Zealand, Panama, Papua New Guinea, Peru, Philippines, Russian Federation, Singapore, Thailand, Vanuatu, and Vietnam. The Tokyo MoU was signed on 1 December 1993 and applied on 1 April 1994 in Tokyo." (Tokyo MoU, n.d.)

The main purpose is the same as the Paris MoU and that is the inspection on substandard, unseaworthy ships so as to increase maritime safety, protect the marine environment, provide better working and living conditions for seafarers on board ships. In order not to have observations during the inspections the ship should be complied with safety and prevention requirements for pollution on board, as mentioned above. Compliance can be achieved with the successful implementation of a safety management system including preventive maintenance. A Committee of the Port Authority has been set up consisting of representatives from each of the authorities of the memorandum states. A representative from each of the cooperating authorities States and Observers will be inclined to participate without the right to vote on work of the Commission.

The Committee has some responsibilities. Firstly, it has specific duties to conduct on the basis of the memorandum as it should develop and review guidelines for carrying out inspections. Secondly, it should be occupied with the coordination of procedures, practices, and performance relating to inspection. Moreover, it should develop and analyze procedures for the exchange of information and the last is to attend to all topics relating to the operation and the effectiveness of the memorandum. Additionally, the

committee's target is to manage a regional annual inspection rate of 80% of the total number of ships that entered in the region in a specific time window.

In addition to the 21 country members mentioned above, Tokyo MoU consists of the following collaborating members. A cooperating Member State Authority in Peru, 4 Observer Authorities such as Macao (China), Democratic People's Republic of Korea, Islands Solomon and United States Coast Guard (USCG) and 6 observer organizations: the International Maritime Organization (IMO), the International Labor Organization (ILO). The Paris Memorandum (Paris MoU), the Black Memorandum Sea, the Indian Ocean Memorandum (Indian Ocean MoU), and the Vina del Mar Agreement.

For the proper implementation of Port State Control of Tokyo MoU, created the Asia-Pacific Computerized System (APCIS).

New Inspection Regime (NIR)

The new inspection regime (NIR) was implemented in Tokyo MoU from 1 January 2014. A big spectrum of certain criteria which are called overriding priority determines which ships could be selected for an inspection. Firstly, another Authority may ask for the inspection and secondly, the Master or a crew member or any person or organization can complain due to the unsafe operation of the ship, shipboard living and working conditions, or the prevention of the pollution. There is, of course, the case the competent authority considers that the report or complaint cannot be supported and proved. Thirdly, when a ship has left a port but has some deficiencies which need to be rectified at a specific time. For example, ships that have been reported by pilots or port authorities as deficient endanger their safe navigation. Moreover, ships that didn't report all information about their cargo because they carry dangerous or polluting goods and the last is the category of ships identified by the Committee occasionally as warranting priority inspections.

The Port State Control Inspections are based on the Ship Risk Profile standard, following the NIR. This will determine the priority for inspection and the period for the inspection. Tokyo MoU has many similarities with the Paris MoU.

Ship Risk Profile

According to APCIS, ships are categorized as high, low risk, and standard. High-Risk Ships (HRS) are characterized by those that accumulate more than 4 weighting points, Low-Risk Ships (LRS) are ships that have the LRS characteristics and have an inspection in the previous 36 months. Ships that are neither LRS nor HRS are characterized as Standard Risk Ships (SRS).

Parameters		Profile			
		High Risk Ship (HRS) (When sum of weighting points >=4)		Standard Risk Ship (SRS)	Low Risk Ship (LRS)
		Criteria	Weighting points	Criteria	Criteria
Type of Ship		Chemical tanker, Gas Carrier, Oil tanker, Bulk carrier, Passenger ship, Container ship	2	Neither LRS nor HRS	-
Age of Ship		All types > 12y	1		-
Flag	BGW-list[1]	Black	1		White
	IMO Audit[2]	-	-		Yes
Recognized Organization	RO of Tokyo MOU[3]	-	-		Yes
	Performance[4]	Low Very Low	1		High
Company performance[5]		Low Very Low No inspection within previous 36 months	2		High
Deficiencies	Number of deficiencies recorded in each inspection within previous 36 months	How many inspections were there which recorded over 5 deficiencies?	No. of inspections which recorded over 5 deficiencies		All inspections have 5 or less deficiencies (at least one inspection within previous 36 months)
Detentions	Number of Detention within previous 36 months	3 or more detentions	1		No detention

Figure 8 Ship Risk Profile of Tokyo MoU (Tokyo MoU, n.d.)

For Low-Risk Ships (LRS) the time window for the periodic inspection is 9 to 18 months, for Standard Risk Ships (SRS) is 5 to 8 months and for High-Risk Ships (HRS) is 2 to 4 months. The APCIS information system shows for each ship and the priority which is divided into two priorities I and II just like in Paris MoU.

2.1.3 ABUJA MoU

One of the regional MoU on Port State Control adopted on the basis of IMO Resolution A.682 (17) of 1991 is that of the Abuja's which includes the region of West and Central Africa. It was established on 22nd October 1999 and composed of the Marine Administrations of countries abutting the Atlantic coast of Africa. The organization operates under a Cooperative Agreement with the IMO. Abuja MoU consists of 13 full members which are Angola, Benin, Congo, Cote d'Ivoire, Gabon, Ghana, the Gambia, Guinea, Nigeria, Sao Tome and Principe, Sierra Leone, Senegal, and Togo. Some countries have signed the Memorandum but they have not accepted yet and these are: Cameroun, Cabo Verde, Democratic Republic of Congo, Guinea Bissau, Equatorial Guinea, Liberia, Mauritania, Namibia, and South Africa.

The Abuja's observers are Mali, Burkina-Faso, Paris MoU, Tokyo MoU, Indian Ocean MoU, Caribbean MoU, Mediterranean MoU, Black Sea MoU, Riyadh MoU, Latin America Agreement, Maritime Organization of West and Central Africa, IMO, ILO, the Food and Agricultural Organization, the Asia-Pacific Maritime Information and Advisory Services of the Russian Federation. There is, also, a secretariat who is a member of the Bureau. The Abuja MoU Bureau consists of Ministers from 5 member States in this specific region. The Bureau, also, gives the directions to the Committee.

This Memorandum contains 13 Annexes and, in this chapter, annexes 7 and 8 will be mentioned briefly because there are many similarities with the Paris MoU.

- "Annex 1 Ships of non-Parties and below convention size
- Annex 2 ILO Maritime Labor Convention 2006
- Annex 3 Information System on Inspections
- Annex 4 Publication of information related to detentions and inspections
- Annex 5 Membership of Memorandum
- Annex 6 Minimum criteria for PSCOs
- Annex 7 New inspection regime
- Annex 8 Inspection and selection scheme
- Annex 9 Inspection type and clear grounds
- Annex 10 Examination of certificates and documents
- Annex 11 Inspection commitments and authorities

- Annex 12 Reporting obligations for ships
- Annex 13 Members and dates of accession" (Abuja MoU, n.d.)

Ship risk profile

The AMIS database (Abuja database) categorizes the ships at High-Risk Ships (HRS) with a total value of 4 or more points, at Low-Risk Ships (LRS) which have a minimum of one inspection in a time window of 36 months, and at Standard Risk Ships (SRS). In this region, there is no age limitation for the ships. Only vessels over 12 years of age will have an expanded inspection. The criteria for the ship's risk profile are presented in the table below.

Parameters				Profile			
				High Risk Ship (HRS) (When sum of weighting points >=4)		Standard Risk Ship (SRS)	Low Risk Ship (LRS)
Generic Parameters Criteria				Criteria	Weighting points	Criteria	Criteria
1	Type of ship			Chemical tanker Gas Carrier Oil tankship Bulk carrier Passenger ship, Container ship	2	Neither a high risk or a no risk ship	All types
2	Age of ship			all types > 12 years	1		All ages
3	Flag	BGW-List[1]		Black – VHR, HR, MR	1		White
		IMO Audit[2]		-	-		Yes
4	Recognized Organizations	Performance[4]	H	-	-		High
			M	-	-		
			L	Low	1		-
			VL	Very Low			-
		ROs recognized by 1 or more AMoU members[4]		-	-		Yes
5	Company Performance[5]		H	-	-		High
			M	-	-		-
			L	Low	2		
			VL	Very Low No inspection within previous 36 months			
Historic Parameters							
6	Deficiencies	No of deficiencies recorded in each inspection within previous 36 months		How many inspections were there which recorded over 5 deficiencies?	No. of inspections which recorded over 5 deficiencies		All inspections have 5 or less deficiencies (and at least one inspection carried out within previous 36 months)
7	Detentions	Number of Detention within previous 36 months		3 or more detentions detentions	1		No Detention

Figure 9 Ship Risk Profile of Abuja MoU (Abuja MoU, n.d.)

Selection Scheme

Periodic inspections are carried out at intervals determined by the ship risk profile and the ships become in need of periodical inspection in the following time windows. The selection scheme is the same as the Paris MoU.

Ship Risk Profile	Time Window since previous inspection in the Abuja MoU Region
Low Risk Ships	9 to 18 months
Standard Risk Ships	5 to 8 months
High Risk Ships	2 to 4 months

Figure 10 Time window of Abuja MoU (Abuja MoU, n.d.)

2.1.4 BLACK SEA MoU

The Black Sea Memorandum of Understanding was filled and signed in Istanbul in Turkey on 7 April 2000 and there are 6 members which are the republic of Bulgaria, Romania, Georgia, the Russian Federation, the Republic of Turkey, and Ukraine.

There are also observers which are Paris MoU, Tokyo MoU, the Indian Ocean MoU Mediterranean MoU, and Vina Del Mar Agreement. It has been noticed that Bulgaria, Romania, and Russian Federation are members and, in the Paris MoU, and the Russian Federation is a member of the Tokyo MoU. The Committee consists of representatives of each of the Authorities, one of the ILO and one of the IMO. Also, the secretariat is in Istanbul.

> "The Committee will monitor the overall inspection activity and its effectiveness throughout the region, aiming for a regional annual inspection rate of 75% of the total number of individual ship visits in the region. At this Memorandum there are 8 annexes which are:

- Annex 1 Ships of non-Parties and below convention size
- Annex 2 Maritime Labour Convention
- Annex 3 Inspection Type and Clear Grounds
- Annex 4 Ship Risk Profile
- Annex 5 Inspection and Selection Scheme
- Annex 6 Minimum Criteria for PSCOs
- Annex 7 Terms of Reference of the Secretariat

❖ Annex 8 Qualitative Criteria for Adherence to the Memorandum" (Black Sea MoU, n.d.)

Ship Risk Profile

The Black Sea MoU has an information database called BSIS from which it derives all the data about the ships. Ships are categorized as high, standard, and low risk based on historic and generic parameters. High-Risk Ships (HRS) are ships with a total value of 5 or more weighting points, Low-Risk Ships (LRS) adopt the LRS parameters and have had at least one inspection in the previous 36 months and Standard Risk Ships (SRS) are neither LRS nor HRS.

Parameter			**Profile**			
			High Risk Ship (HRS) When sum of the weighting points ≥**5**		**Standard Risk Ship (SRS)**	**Low Risk ship (LRS)**
			Criteria	Weighting Points	Criteria	Criteria
Type of Ship			Chemical tanker Gas Carrier Oil tanker Bulk carrier Passenger ship Ro-Ro cargo ship	1	Neither LRS nor HRS	-
Age of Ship			All types **>12 ≤ 24 y**	1		-
			All types **≥25 y**	2		-
Flag		**Detention Index**[1]	High	1		-
			Very High	2		-
		Deficiency Index[2]	-	-		Low
		IMO-Audit[3]	-	-		Yes
Recognized Organization		**RO of BS MOU**[4]	-	-		Yes
		RO related Detention Index[5]	High	1		-
		RO related Detainable deficiency Index[6]	-	-		Low
Company		**Detention Index**[7]	High	2		-
		Deficiency Index[8]	-	-		Low
Ship Historic Parameters	Detentions	Number of detentions within previous 36 months	2 detentions	1		No detention
			3 or more detentions	2		
	Deficiencies	**Deficiency Index** [9]	Very High	1		Low

Figure 11 Ship Risk Profile of Black Sea MoU (Black Sea MoU, n.d.)

Selection Scheme

There are overriding and unexpected factors that may cause an additional inspection. This kind of inspection is taken place between the periodic inspections. In the Black Sea MoU region, the time windows for the periodic inspection for High-Risk Ships are between 2-4 months, for Standard Risk Ships are between 5-8 months and for Low-Risk Ships are between 9-18 months, after the last inspection. In this memorandum ships, also, will be selected based on priorities.

Priority	Level	Category of inspection
I **Ship must be inspected**	Overriding factor	Additional
	HRS not inspected in last 4 months	Periodic
	SRS not inspected in last 8 months	Periodic
	Ship not inspected in last 18 months	Periodic
II **Ship may be inspected**	HRS not inspected in last 2 months	Periodic
	Ship with unexpected factors	Additional
	Overriding factor Ship becomes priority I	Additional
	SRS not inspected in last 5 months	Periodic
	LRS not inspected in last 9 months	Periodic
Ship with no priority (ships with neither Priority I nor Priority II)	Overriding factor Ships become Priority I Unexpected factor Ships become Priority II	Additional

Figure 12 Table of Priority of BS MoU (Black Sea MoU, n.d.)

In the case of Unexpected Factors, the necessity of additional inspection will be taken by the competent authority. In a case of a Priority II inspection being conducted, the ship remains in that category for when it arrives at another port from the same MoU.

2.1.5 CARIBBEAN MoU

> "The Memorandum of Understanding on Port State Control in the Caribbean Region was signed in Christ Church, Barbados on February 9, 1996, by nine States. The membership has since increased to twenty States, namely Anguilla, Antigua & Barbuda, Aruba, The Bahamas, Barbados, Belize, Bermuda, British Virgin Islands, The Cayman Islands, Cuba, Curacao (formerly the Netherlands Antilles), Dominica, France, Grenada, Guyana, Jamaica, Montserrat, The Netherlands, Saint Kitts and Nevis, Saint Lucia, Saint Vincent & the Grenadines, Sint Maarten, Suriname, Trinidad and Tobago and Turks and Caicos Islands." (Caribbean MoU, n.d.)

The observers are Anguilla, Bermuda, Dominica, The British Virgin Islands, Haiti, St. Lucia, Sint Maarten, St. Vincent, and the Grenadines, Turks, and Caicos Islands. There is, also, a committee and a secretariat.

Each administration aims to be able to carry out an annual set of inspections equivalent to 15% of foreign merchant ships. In order to select which of the ships are necessary to be inspected, the Administrations use the Caribbean Maritime Information Center (CMIC) which is a computerized system with information on ships inspected in the national ports.

The Caribbean MoU consists of two annexes which are:

- Annex 1 Information System on Inspections
- Annex 2 Membership of the Memorandum

It is understood that this memorandum is not like the rest and there is a different structure because there is not a mention of Ship Risk Profile.

2.1.6 INDIAN OCEAN MoU

> "The Indian Ocean Memorandum of Understanding (IOMoU) on Port State Control (PSC) in the Indian Ocean region was finalized on the basis of the first preparatory meeting held in India in October 1997 and the second meeting in June 1998 in South Africa. The first Committee meeting of MoU took place in Goa. During this meeting in Goa from 20th to 22nd January 1999 the countries that signed acceptance of the Memorandum of Understanding, they are Australia, Eritrea, India, Sudan, South Africa, and Tanzania. Subsequently, Mauritius, Sri Lanka, Iran, Kenya, Maldives, Oman, Yemen, France, Bangladesh, Comoros, Mozambique, Seychelles, Myanmar, and Madagascar acceded to the MoU." (Indian Ocean MoU, n.d.)

The Secretariat of IOMOUs is based in Goa, India. The only Observer State of the IOMOU is Ethiopia and the Observer organizations are, the Paris Memorandum of Understanding, the Tokyo Memorandum of Understanding, , the Riyadh Memorandum of Understanding, the Black Sea Memorandum of Understanding, the Caribbean Memorandum of Understanding, the West & Central Africa Memorandum of Understanding, the International Maritime Organization, the International Labor Organization, United States Coast Guard and Equasis.

The aim of the Port State Control system is to find foreign-flagged ships that have anchored in a state port but do not comply with applicable International maritime conventions and each authority guarantee that every ship will bright into compliance. There are targeting criteria that are applied in order to select the appropriate ship for inspection. An important role has the Indian Ocean MoU database which is called IOCIS. The New Inspection Regime (NIR) of the IOMOU is implemented from the 1st of January 2018.

Ship Risk Profile

According to IOCIS, in the case of the Indian Ocean MoU, the ships are categorized as High-Risk Ships (HRS) which meet criteria to a total of 5 or more weighting points based on calculations of HRS parameters in the previous 36 months, as Standard Risk Ships (SRS) which is neither risked as HRS nor LRS and as Low-Risk Ships (LRS) which meet all the criteria of the LRS parameters and has at least one inspection in the

previous 36 months. This categorization is based on generic and historical performance parameters.

Parameter		High Risk Ship (HRS) (When sum of weighting points >=5)		Standard Risk Ship (SRS)	Low Risk Ship (LRS)
		Criteria	Wt. Pts.	Criteria	Criteria
Type of Ship		Oil tanker (313) Gas Carrier (320) Chemical tanker (330) Bulk carrier (340) Passenger ship (371)	2	Neither HRS nor LRS	---
Age of Ship	All Types	> 12 years	1		---
Flag	Performance	Very Low / Low	1		High
	Audit	---	---		Yes
RO	RO of IOMOU	---	---		Yes
	Performance	Very Low / Low	1		High
Company	Performance	Very Low / Low	2		High
Ship	Deficiency Ratio	High	1		Low
	Detentions	= 2 detentions	1		
		>= 3 detentions	2		No detention

Figure 13 Ship Risk Profile of Indian Ocean MoU (Indian Ocean MoU, n.d.)

Inspection and Selection Scheme

There are two categories of inspections. First, the periodic inspections exist which are carried out at an interval determined as per SRP, and second, there are some Overriding or Unexpected factors that might create an additional inspection in between periodic inspection. The time window for HRS is between 5-6 months, for SRS is between 10-12 months and for LRS is between 18-24 months after the last periodical or additional inspection. Furthermore, in the Priority I have included ships that have overcome the time window or there is an overriding factor. In Priority II ship can be inspected in the time window which is still open or there is an unexpected factor. There is a case that there aren't any overriding or unexpected factors and the time window does not exist. This is called no priority.

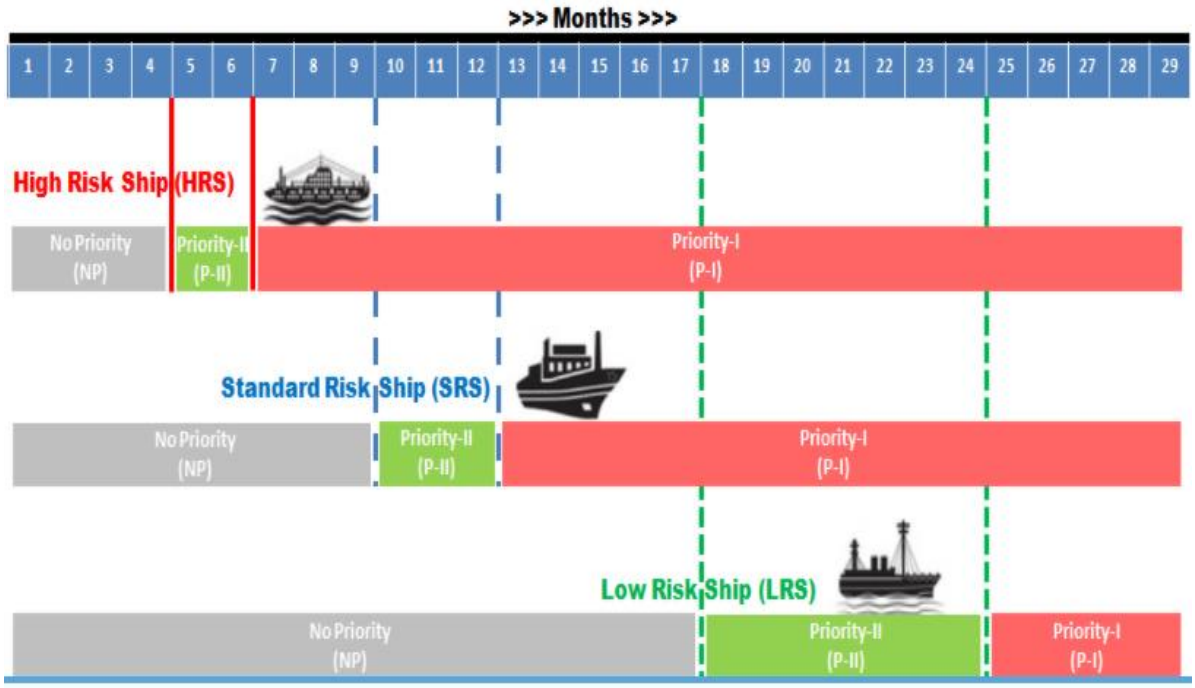

Figure 14 Selection Scheme of Indian Ocean MoU (Indian Ocean MoU, n.d.)

2.1.7 MEDITERRANEAN MoU

> "Within the International effort to increase the Maritime Safety and the prevention of pollution and within the activities of the Euro-Med conference that was held in Barcelona 28th of November 1995, it was declared the birth of cooperation project financed by the E.C. under the umbrella of the IMO and ILO. This declaration was developed according to STCW 95 and the international community interest in activating the role of Port State Control to a proposed agreement for southern and eastern Mediterranean countries for a Port State Control System." (Mediterranean MoU, n.d.)

The first meeting was in Tunisia on 25-29 March 1996 and the second was in Casablanca, Morocco from 10-14 December 1996. The third meeting which was the final meeting completed in Valletta, Malta from 8-11 July 1997. From that time onwards the Mediterranean region included eight countries which were Algeria, Cyprus, Egypt, Israel, Morocco, Malta, Tunisia, and Turkey. Later in 1997 Lebanon was included and in July 1999 was signed by Jordan. The observers of Mediterranean MoU are the International Maritime Organization (IMO), European Union (EU), International Labour Organization (ILO), Black Sea MoU, Paris MoU, and U.S. Coast Guard. There is, also, a committee that has 21 meetings and the last one was in

Casablanca, Morocco on 31st October 2019. The Secretariat is in Alexandria and the Information Center (CIMED) in Casablanca.

"Each Authority has the obligation to implement an annual total of inspections corresponding to 15% of the estimated number of individual foreign merchant ships which entered the port of its State in a period of 12 months.

- Annex 1 Port State Control procedures
- Annex 2 Procedures for investigation under MARPOL 73/78
- Annex 3 Facts regarded as "Clear Grounds"
- Annex 4 Information system on inspections
- Annex 5 Publication of information for PSC
- Annex 6 Qualitative criteria for adherence to the Med MoU
- Annex 7 Port State Control Officer criteria and requirements
- Annex 8 Appeal and review procedures
- Annex 9 Selection criteria (target factor)
- Annex 10 Refusal of Access
- Annex 11 List of Certificates to be verified" (Mediterranean MoU, n.d.)

This Memorandum doesn't have an annex with Ship Risk Profile like the others, but it has a target factor. In this section, the Authorities will choose the ships with the higher Target Factor. This information comes from the MedSIS system. The Target Factor of the ship will be the sum of all applicable criteria points. Some elements for the targeting factors consist of the ships of a state which is signing the memorandum for the first time, ships which have not been inspected within the previous 6 months, ships whose certificates have been issued by a non-IACS organization, ships with a blacklisted flag, ships which have left the previous port with deficiencies or ships which have a previous detention, ships flying the flag of a non-party to a relevant instrument and the last one there is no a vessel age limitation but only ships above 13 years old. The figure below presents the targeting matrix with more details.

CRITERIA	TARGET FACTOR
Ship Age	0 - 5 years: 0 point 6 - 10 years: 5 points 11-15 years: 10 points 16 - 20 years: 10 + 1 point for each year exceeding 15 years >20 years: 15 + 2 points for each year exceeding 20 years
Ship type	4 points for ships with type codes 13, 30, 40, 55, 60, 61, 70, 71 and of 15 years of age and over 0 points for all others
Ship flag - Excess of average detention, based upon 3 year rolling average figure	+1 point for each percentage point in excess (decimal number rounded up)
Deficiencies	0.6 points for each deficiency found in last 4 initial inspections or follow up with new deficiency (decimal number rounded up)
Detentions	Depending on number of detentions in last 4 inspections: 1 detention - 15 points 2 detentions - 30 points 3 detentions - 60 points 4 detentions - 100 points
Classification Society - non IACS	10 points
Outstanding deficiencies (A deficiency recorded in the MedSIS in the last inspection and not marked as rectified (Code10))	2 points for each outstanding deficiency
Time since last inspection: 6 - 12 months 12 - 24 months Over 24 months or never inspected in Med MoU region (including new ships)	 3 points 6 points 50 points
Calculation method	The target factor is the sum of the TFV Values Calculated daily
Priority level Target Factor 101 - 41 – 100 11 – 40 0 – 10	 Priority 1 (very high) Priority 2 (high) Priority 3 (medium) Priority 4 (low)

Figure 15 Targeting Matrix od Med MoU (Mediterranean MoU, n.d.)

2.1.8 RIYADH MoU

The Riyadh Memorandum of Understanding was signed in June 2004 and includes 6 countries which are Bahrain, Oman, Qatar, Kuwait, Saudi Arabia, and the United Arab Emirates.

The main goal of the agreement is the safety, efficiency, and the proper implementation of the system of Port State Control in the Gulf region. The Riyadh MoU has established a Secretariat and an Information Center in Oman which allows Authorities to associate and exchange information between them. The executive body is the Committee which consists of representatives of the six States.

> "Each Authority, has the obligation to conduct within a period of 3 years from the coming into effect of the Memorandum an annual total of inspections corresponding to 10% of the estimated number of individual foreign merchant ships which entered the ports of its State during a recent period of 12 months." (Riyadh MoU, n.d.)

This memorandum also follows the same procedure for inspecting ships as the others memorandums. It includes the initial inspection of the documents and certificates and the general condition of the ship and then depending on the findings and the judgment of the PSCO will either follow a more detailed inspection or not.

There are certain criteria as to the priority given to the ships to be inspected. These include:

- "Ships visiting a port of a State the Authority of which is a signatory to the memorandum, for the first time or after an absence of 12 months or more.
- Ships which have been permitted to leave the port of a State, the Authority of which is a signatory to the Memorandum, on condition that the deficiencies noted must be rectified within a specified period, upon expiry of such period.
- Ships that have been reported by pilots or port authorities as having deficiencies that may prejudice their safe navigation.
- Ships whose statutory certificates in the ship's construction and equipment, have not been issued in accordance with the relevant instruments.

- Ships carrying dangerous or polluting goods, which have failed to report all relevant information concerning the ship's particulars, the ship's movements, and concerning the dangerous or polluting goods being carried to the competent authority of the port and coastal State.
- Ships which have been suspended from their class for safety reasons in the course of the preceding six months." (Riyadh MoU, n.d.)

The Authorities will not inspect ships that had undergone the same procedure within the previous 61 months by other Authorities. This, of course, does not apply if there are suspicions of clear grounds.

The inspections will be taken place by a qualified and authorized person who carries a personal document, a kind of identity card. The PSCO mustn't have a personal or commercial interest in the port or the inspected ship. He/ she mustn't work on behalf of non-governmental organizations which issued certificates about the ship. At the end of the inspection, the PSCO will give the results of the inspection in the Master. If there are deficiencies the PSCO will inform the Master about the corrective action. But if the deficiencies are threatening the environment or human health, the Authorities will detain the ship until these deficiencies are restored. In this case, the Authorities should immediately notify the Flag State and the recognized organization.

The Riyadh Memorandum of Understanding is different from the others because there isn't a targeting matrix and there are no policies about the age limitation of vessels. However, there are limited information and data about this MoU.

2.1.9 VINA DEL MAR MoU

The Acuerdo de Vina del Mar (Vina del Mar or Latin-America Agreement), was signed in Vina del Mar (Chile) on 5 November 1992. It was adopted by Resolution No.5 of the 6th Meeting of the Operative Network for Regional Cooperative among Maritime Authorities of Cuba, South America, Mexico, and Panama.

This Agreement has fifteen member States. The first members were Argentina, Brazil, Chile, Colombia, Ecuador, Mexico, Panama, Peru, Uruguay, Venezuela, and later were added Cuba (1995), Bolivia (2000), Honduras (2001), Guatemala (2012), and Dominican Republic (2012).

Additionally, the observers of the Latin-America Agreement are the International Labor Organization (ILO), the International Maritime Organization (IMO), the U.S. Coast Guard, the Black Sea MoU, the Paris MoU, the Tokyo MoU, and the ROCRAM.

The Agreement is divided and based on two essential bodies which are the Committee of the Agreement and the Secretariat. The Secretariat includes the Information Center (CIALA). The main aim is safety in this specific region. Also, it promotes collaboration between countries and guarantees that the foreign-flagged vessels mooring in their ports complies with the regulations established by International Conventions.

The targeting matrix is simple because it provides a sufficient and efficient system of Port State Control. The Authorities are obliged to conduct at least 20% inspections of the total foreign vessels that visit their ports every year. The next inspection will carry out after six months unless the ship transfers dangerous goods or it is a passenger or a bulk carrier. And there is a priority factor displayed by the Vina del Mar Agreement Information Centre (CIALA) and in this database has access each inspector. Last but not least there are no limitations of ship age.

2.2 PORT STATE CONTROL INSPECTIONS IN THE UNITED KINGDOM

The United Kingdom has established the Maritime and Coastguard Agency (MCA) whose main role is to carry out inspections on foreign-flagged ships visiting their ports for implementing the international safety rules. It is important to note that the United Kingdom is part of the Paris MoU and is obliged to implement the regulations and laws adopted by the Paris MoU. However, the United Kingdom has enacted its own legislation about the Port State Control inspections which operates and complements the regulations of the Paris MoU. The MCA's Regulation 2011 S.I. No 2601, the Merchant Shipping Notice MSN 1832, and the Merchant Shipping (Port State Control) Regulations 2011 are included in the UK law.

Ship Risk Profile

As in the Paris MoU, ships are categorized into high, standard, low ship risk profile, which is calculated daily and published in the database. The result of this calculation is the division of ships into priorities and the type of inspection that will follow. The targeting matrix embodies the criteria on which the ship risk profile is based such as age, flag, type, R.O., company performance, and detention history, and the frequency of inspections.

> "Ships with a high, standard, or low-risk profile will be inspected after 6, 12, or 36 months respectively. Ships with overriding factors will be inspected regardless of the period since the last inspection and at the professional judgment of the inspector. Inspections at the discretion of inspectors may take place before they are due – from 5, 10, or 24 months after the previous inspection in the Paris MoU region for a ship with a high, standard, or low-risk profile, respectively. The interval to the next inspection restarts after each inspection." (Maritime and Coastguard agency Port State Control, 2022)

Furthermore, ships planning to approach UK ports must inform 72 hours before the expected arrival time or before departing from the previous port in case the voyage is less than 72 hours. It is important to mention that the ship risk profile influence the types of inspections which will be held in the ports of United Kingdom. Expanded inspections are conducted on high-risk ships. Ships characterized as high, standard and

low risk if they have not inspected the previous 5, 10 and 24 months, respectively, in the Paris MoU region.

2.3 PORT STATE CONTROL INSPECTIONS IN AUSTRALIA

The Port State Control regime in Australia is characterized as the strictest and tightest of all. Australia is one of the largest economies in the world based on its maritime trade and the countless imports and exports it carries out annually. In order to ensure this prosperity of the maritime industry it is important to remain safe and efficient by following the international regulations. This is secured through the Port State Control activities of the Australian Maritime Safety Authority (AMSA).

AMSA has a specific way to calculate the risk profile and choose the proper ships. These factors are the environmental risk, the ship complaints and the targeting scheme. Under normal circumstances the ships are inspected every six months but if deemed necessary this period is reduced and there are no age limitations. Ships are divided into priority groups and each group is obliged to inspect a specific rate. All data comes from the Shipsys database which includes information about the general condition of the ship, the age and the PSC inspection history. Through this database, the probability of a ship being detained, is calculated in the form of a percentage. The higher this percentage the ships are considered high risk.

Priority group	Probability of detention (risk factor)	Target inspection rate
Priority 1	More than 5%	80%
Priority 2	4% to 5%	60%
Priority 3	2% to 3%	40%
Priority 4	1% or less	20%

Figure 16 Target rate (AMSA, n.d.)

During the inspection, the PSCO has a Ship Inspection Record (SIR) book or a notebook computer and it provides information and all the forms. Also, inspectors follow a set of instructions and a ship manual which are based on the IMO and ILO. The inspector starts with the initial inspection as provided in all the MoUs and checks the documents and certificates if they are legal and valid. In order to facilitate and make the inspection more effective, PSCO follows some guidelines to better identify unsuitable ships. In addition, it must ensure the safe operation of the ship, equipment

and crew. If clear grounds are confirmed then a more detailed inspection or an expanded inspection is carried out. It is obvious that inspectors use their professional judgement in the whole procedure.

2.4 PORT STATE CONTROL INSPECTIONS IN THE USA

"The U.S. Coast Guard (USCG) administers a comprehensive Port State Control (PSC) examination program in order to ensure safe, secure, and environmentally responsible shipping that supports the global objective of eliminating substandard ships. The USCG screens vessels before arrival in U.S. ports and assesses a multitude of regulatory and risk-based factors in order to determine foreign vessel examination requirements." (United States Coast Guard, n.d.)

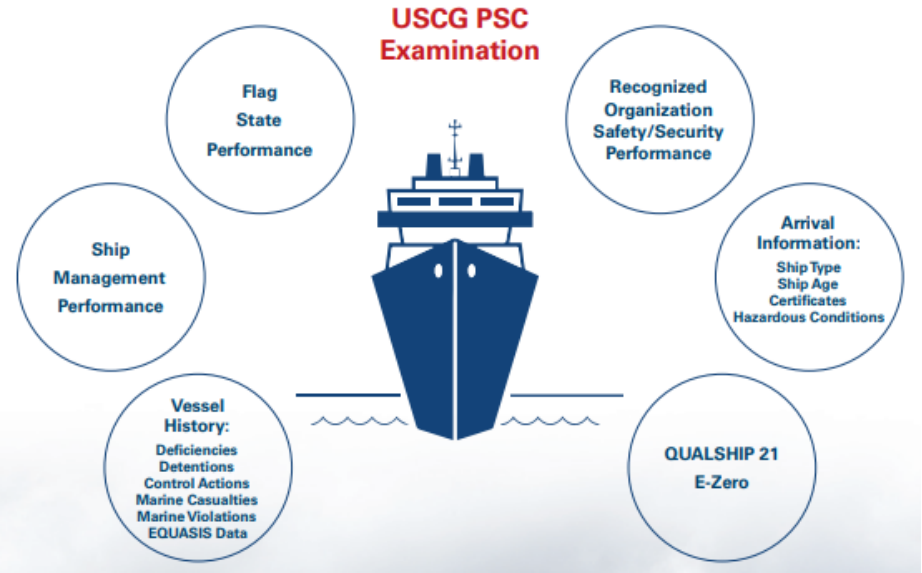

Figure 17 USCG PSC Examination (United States Coast Guard, n.d.)

Coast Guard's Port State Control (PSC) program targets the substandard vessels. Through the Port State Control examination aims at the proper application of international conventions, US laws, and US regulations for the foreign-flagged vessels which berth in US ports. It is important to ensure that the crew, the property(vessel), the marine environment, and the disruptions to marine commerce will not be put in danger.

The most important factor is the vessel age limitation. Vessels under ten years of age have their targeting factor reduced in their scoring system. On the other hand, vessels up to twenty-five years old will have sure a bigger score. The U.S. Coast Guard has a

different system in which assesses the vessels during the Port State Control inspection. This system is called International Ship & Port Facility Security Code (ISPS) and was implemented on 1st July 2004.

TARGETING OF FOREIGN VESSELS

COLUMN I SHIP MANAGEMENT	**COLUMN II** FLAG STATE	**COLUMN III** RECOGNIZED SECURITY ORGANIZATION	**COLUMN IV** SECURITY COMPLIANCE HISTORY
ISPS II Owner or operator, if new owner or operator since last ISPS exam.	**ISPS II** If new flag since last ISPS exam.	**ISPS I** 3 or more RSO-related major control actions in the past 12 months.	**ISPS I** Vessel with an ISPS-related denial of entry/expulsion from port in the past 12 months.
5 Points Owner, operator, or charterer associated with one ISPS-related denial of entry or ISPS-related expulsion from port in past 12 months or 2 or more ISPS/MTSA Control Actions in a 12 months period.	**7 Points** SOLAS Vessels Flag State has a CAR 2 or more times the overall CAR average for all flags States.	**5 Points** 2 RSO-related major control actions in the past 12 months.	**ISPS III** If matrix score does not result in ISPS I priority & no ISPS compliance exam within the past 12 months or a stowaway incident.
	2 Points SOLAS Vessels Flag State has a CAR between the overall CAR average and up to 2 times the overall CAR average for all flag States.	**2 Points** 1 RSO-related major control action in the past 12 months.	**5 Points** Vessel with an ISPS/MTSA-related detention in the past 12 months.
	7 Points Non-SOLAS Vessels Flag State has a CAR 2 or more times the overall CAR average for all flag States.		**2 Points** The vessel has had 1 or more other ISPS/MTSA control actions in the past 12 months.
Total:	**Total:**	**Total:**	**Total:**
Total Targeting Score:		Vessel Priority:	

Table 1 Targeting of Foreign Vessels (United States Coast Guard, n.d.)

Firstly, in ISPS I category corresponds to vessels that have collected 17 points and above and must be inspected before entering the port. Secondly, in ISPS II category

includes vessels that have gathered between 7-16 points and will be inspected when they arrive at the port. Thirdly, vessels with less than 7 points belong to the ISPS III category and inspection is not necessary unless they are chosen at random. The purpose is to identify ships that sail in US waters and do not comply with the provisions and the applicable laws or regulations.

2.4.1 QUALSHIP 21

The QUALSHIP 21 programme is aiming at recognizing foreign vessels that have adopted and implemented strict compliance with the international regulations of safety and environment. The Coast Guard tries to improve the methods for identifying the substandard ships. Furthermore, except for the score that a vessel receives in the targeting matrix, all foreign vessels are obliged to be examined at least once a year whether they belong to the high-risk category or not. High-quality vessels should be recognized and rewarded for their commitment to safety and quality. From 1 January 2001, this program began about the identification of high-quality ships and it aspires to better and sustainable shipping. For the period of July 1, 2021, through June 30, 2022, there are 23 eligible Flag Administrations for the QUALSHIP 21 Program which are: Bahamas, Bermuda, Canada Cayman Islands, Denmark, France, Germany, Gibraltar, Greece, Hong Kong, Isle of Man, Italy, Jamaica, Japan, Marshall Islands, Netherlands, Norway, Republic of Korea, Saudi Arabia, Singapore, Spain, Taiwan, and United Kingdom.

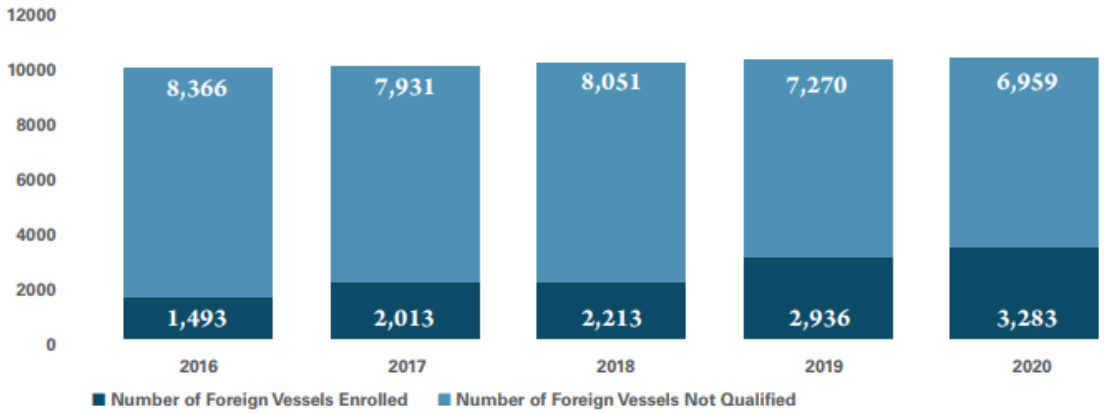

Figure 18 Yearly QUALSHIP 21 Enrollment 2016-2020 (United States Coast Guard, n.d.)

2.4.2 E-ZERO

> "Beginning July 1st, 2017, vessels enrolled in the QUALSHIP 21 program may also seek the E-Zero designation if they meet the requirements set forth below. The E-Zero program is a new addition to the existing QUALSHIP 21 program,

and this program intends to recognize those exemplary vessels that have consistently adhered to environmental compliance, while also demonstrating an immense commitment to environmental stewardship. These vessels will receive the E-Zero designation on their QUALSHIP 21 certificate." (United States Coast Guard, n.d.)

2.4.3 QUALSHIP 21 & E-ZERO PROGRAM CRITERIA

The vessels who desire to enroll in the Qualship 21 program must observe some eligibility criteria. First of all, must be a non-U.S. flagged vessel. The vessel should be associated with a company with a good reputation, must be registered with a qualified flag administration, and should have an excellent history in U.S. waters. It is so important that the vessel may not have been detained and not have been characterized as substandard within the previous 36 months. Furthermore, the vessel must not have marine violations, no more than one Notice of Violation (NOV), or serious marine casualties (46CFR4.03-2) and (46CFR4,40) during three years. The vessel must have completed a successful U.S. Port State Control Safety and Environmental Protection Compliance examination within 24 months. The vessel may not be owned, operated, managed, or chartered by any company which is related to another detentionable vessel in U.S. waters in a period of 24 months. Finally, the vessel cannot have its statutory convention certificates issued by a targeted recognized organization.

The flag administration cannot have a detention ratio greater than or equal to 1.0% during a period of 3-year rolling average and have at least 10 PSC examinations in the U.S. in the previous three years. The vessel's flag administration must submit a Self-Assessment performance to the IMO and provide a cory to the U.S. Coast Guard and it should submit an Executive Summary from their Member State Audit Scheme to the U.S. Coast Guard.

For the E-Zero program designation, a vessel should fulfill some criteria. Firstly, the vessel must be enrolled in Qualship 21 and maintain certification for the past three years. Moreover, it is significant to have zero worldwide MARPOL detentions, zero environmental deficiencies over the past three years, and zero Letters of Warning, Notice of Violation, or Civil Penalties related to Right Whale Mandatory Ship Reporting or speed restriction violations over the past 5 years. The last one is that the vessel should have installed CG type-approved Ballast Water Management (BWM)

system or operate without a BWM compliance date extension letter granted in accordance with 33 CFR 151.2036.

There is a huge difference in the US legislation on Port State Control inspections compared to the other memorandum. A Qualship 21 Certificate is provided in ships which adopt quality vessel operations and this certification is valid for 3 years after the last Port State Control exam. This practice targets to motivate more ships. The US law obliges the tankers to be inspected annually and the Coast Guard issues a Certificate of Compliance (COC) which has two years of validation. If vessels don't have this certificate or it is expired, then they won't have access in this country and they won't conduct cargo operations. For this reason, the tanker owners have the right to renew this certification 2 months before it expires. Also, they need some extra documents like the voyage contract to lighter in the US, the proof of user fee payment, the vessel particulars, the International Oil Pollution Prevention Certificate (IOPP) and its Form B Supplement, the Document of Compliance (DOC) and the Safety Management Certificate (SMC), the Vapour Collection System (VCS) certificate and an approved vessel response plan. Furthermore, non-US tankships have the ability to be inspected out of the USA borders, when resources permit and if the examination is considered to be mutually beneficial to the Coast Guard. Additionally, chemical tankers must have a Certificate of Fitness (COF) and/or the International Pollution Prevention Certificate for the Carriage of Noxious Liquid Substances in Bulk Noxious Liquid Substances (NLS) certificate. And the gas carriers should have the International Pollution Prevention Certificate for the Carriage of Noxious Liquid Substances (NLS).

3.1 DATABASES

The port authorities cooperate with each other and use databases in order to know which vessels need an inspection, which had previous deficiencies, which were recently inspected, and many other such elements which help to identify substandard vessels and make the work of PSCO more productive. The databases used are THETIS and APCIS. These are the information system of Paris and Tokyo respectively. They provide information such as previous inspectors' reports, port arrival lists, shipping schedules, and other useful information. Extra international databases exist which advise and provide information for inspections that are carried out all over the world. This database is called EQUASIS and was established in 2000.

3.1.1 EQUASIS

One of the biggest obstacles to shipping is the lack of transparency associated with the ship. This information may be collected but not everyone has access to it. Thus, in June 1998, a very important decision was taken at the Shipping Quality Conference in Lisbon. All shipping professionals, including shipowners, brokers, cargo owners, classification societies, ports, and terminals, have called for this to be changed and for there to be an organized system in which they can be informed about ship-related issues and to make existing information easier for them. After this fact, the European Commission and the French Maritime Administration created the system called EQUASIS which includes information and data about the ship's safety and it is available for free on the internet.

> "The main principles associated with the set-up of the EQUASIS information system were as follows:
>
> - Equasis should be a tool aimed at reducing substandard shipping, and it should be limited to safety-related information on ships
> - Equasis has no commercial purpose, it addresses public concern and should act accordingly
> - Equasis should be an international database covering the whole world fleet
> - Active co-operation with all players involved in the maritime industry is needed

- Equasis will be a tool used for better selection of ships, but it will be used voluntarily and there will be no legal pressure for industry to use it.

The EQUASIS website went live on 17th May 2000." (EQUASIS, n.d.)

3.1.2 THETIS

EMSA in collaboration with the European Commission and the Member States has created a most recent information database that will be related to the New Inspection Regime for Port State Control. This new system of inspections is very important because it will help the Member States with the PSC procedures through centralized storage and distribution of reports. The database Thetis is applied on Paris MoU and entered into force in January 2011 and replaced the previous system called Sirenac. This new regime is a continuation of the Sirenac but it focuses more on the inspections and is based on the latest developments in IMO.

The main targets are to assist the Member States with targeting and selecting the right vessel for inspection. It is important to distinguish the HRS, SRS, and LRS and the priority. Secondly, it assists the Commission and EC, and the Member States by providing statistics on inspection results and performance and it has the obligation to ensure that the Member States apply the rules.

Thetis database has the ability to handle 25.000 inspections annually. It audits the risk ship profile of each ship in a system with a daily performance and sends in a piece of port information about a ship in real-time. Moreover, it has easy access, a simple structure and it provides consultancy.

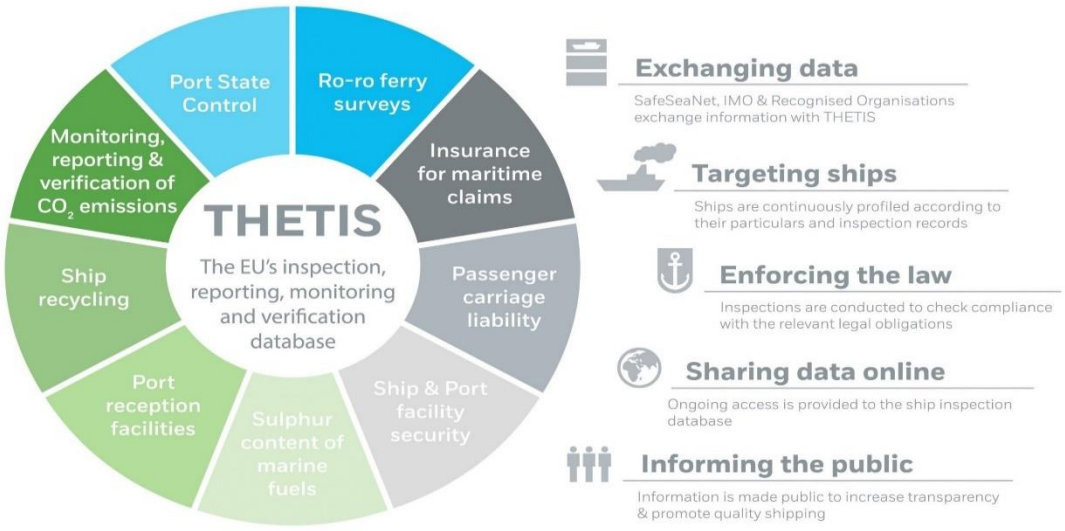

Figure 19 Thetis Data System (smartmaritimework, n.d.)

3.1.3 APCIS

The Asia Pacific Computerized Information System (APCIS) is the data system about the Memorandum of Understanding on Port State Control in the Asia Pacific Region (Tokyo MoU). The main role is to gather information about the inspections from the PSC officers on a daily basis and secondly, PSC officers have the ability to be informed about specific or substandard ships. Furthermore, Authorities can have access to information through the databases for ships in other regional ports. This assists them to select foreign flags ships which should be inspected and their exercise of port State control in selected ships. Also, it compiles statistical reports, calculates Ship Risk Profile and Inspection Priority, collects CIC reports and the CIC results. The central offices of the APCIS are established in Moscow, under the auspices of the Ministry of Transport of the Russian Federation.

3.1.4 SAFESEANET

SafeSeaNet is a European shipping exchange system information, which was created with the main objectives of improving safety navigation, ship, and port security. Also, it aims to protect the marine environment and to improve the effectiveness of maritime traffic and shipping. SafeSeaNet is a platform that connects authorities of the participating countries (EU, Norway, Iceland) and it allows them to exchange maritime data. These data include estimated and actual arrival and departure times of ships at ports, details of transported dangerous and polluting loads, information on marine incidents and accidents, information on the exact number of passengers, and positions of the ships based on the reports of the Automatic Identification System (AIS). It was created by EMSA and the target is a common database and the location of ships through telecommunications systems.

4.1 FACTORS INFLUENCING THE PERFORMANCE OF THE PORT STATE CONTROL (PSC) INSPECTIONS

Port authorities are aware that inspecting all foreign vessels entering in their ports may become financially unprofitable and sometimes unnecessary on ships that have a satisfactory level of security. The method used by the port authorities is to comply with some general inspection rates in order to inspect even a small number of ships. Therefore, to identify which ships need inspection draws information from the databases like Thetis of the Paris MoU and international databases like EQUASIS.

The main criteria, which are used by the port authorities in order to identify the vessels which are under the standards and need an inspection, are called “targeting factors”. The targeting factors are the generic factors due to their nature because these characteristics are predictors of deficiencies. First of all, these characteristics embody the type of ship which is very important because every ship category has different necessities due to the nature of the cargo. Statistics researches have shown that the bulk carriers and general cargo vessels have the most inspections and the most detentions. Secondly, a crucial characteristic is the age of the ship. A lot of States prefer to inspect older ships because they believe that an old vessel entails more environmental risks than a newer one. Great importance has the flag of the ship and the classification society. Many times, the deficiencies and detentions related to the flag and the class of a ship. It has been observed that the flags of convenience accumulate more deficiencies and detentions. Furthermore, a special characteristic is the previous history of the ship. If a vessel had caused problems in the past or had suffered from another detention or deficiency, it will be more likely to be inspected. The last one is the shipowner. It is important the history and the performance of all ships in a company’s fleet. All these criteria affect directly the ship’s operation. For this reason, every MoU has developed a specific scoring system that helps in identifying these targeting factors.

Except for the targeting factors, there is another equally important category and called “overriding factors”. These factors permit the inspector to proceed directly to conduct a more detailed inspection or an expanded inspection. These factors involve the ships which reported by another Member State, the ships which caused an accident or grounding or a collision or something else on the way to the harbor. Thirdly, the ships which blamed for an alleged offense of the provisions on the discharge of harmful

substances or effluents. Also, an overriding factor is considered when a ship does not adopt safe navigational practices and procedures. Finally, some ships have problems with the Classification Society and there are some else that they do not exist in the database. The international standards of ships' inspections are influenced by all these factors.

5.1 TYPES OF INSPECTION

This chapter will be analyzed the types of inspections of Port State Control (PSC). It is important to highlight that each Port State Control (PSC) inspection is conducted for the purpose of confirming that the equipment, the condition, and the crew comply with the standards of International Conventions. The most suitable person to carry out the inspections is the Port State Control Officer (PSCO) because he is properly trained and experienced. The types of inspections are presented as four. Thus, the first type is the initial inspection, the second type is the more detailed inspection, the third type is the expanded inspection and the final type is the Concentrated Inspection Campaign (CIC). Also, during the inspections, it is necessary to be on board the Resolution A.1052(27) by IMO which helps to ensure that inspection procedures are properly implemented.

5.1.1 INITIAL INSPECTION

The PSCO arrives on board without notice. Before boarding the ship and meeting the master, PSCO gets the first impression of the ship's condition. In initial inspection, the PSCO checks the certificates and documents which must be in the ship and be in force. Special attention will be given to the certificates which they have issued by an unrecognized organization as well as those without flags ratifying a contract. Additionally, careful examination will be done in the oil books, waste, and ship logs. However, if a certificate is missing or it has expired, it does not mean that the ship must be detained because it depends on the weight of the certificate and it will be checked by the inspector. Then, he carries out a general inspection about the general condition of the vessel and if there are serious clear grounds indications, he will enter into a more detailed inspection. If the PSCO notes any irregularity, he will notice it. The deficiencies of the ship can be recognized at any stage of inspection and even one observation is enough to hold the ship until restored. Furthermore, after the validation of certificates, he will check that the condition and hygiene of the whole ship which includes the navigation bridge, the engine room, the cargo holds, the accommodation, and gallery, and the decks including the forecastle. PSCO examines whether they meet the requirements of international standards and regulations and checks if observations of the previous audit have been restored within the time specified.

If the certificates are valid and the general impression and PSCO visual observations on board confirm good maintenance standards, then the PSCO may limit the inspection.

It is likely that PSCO will want to get a more general picture of the vessel by visiting some rooms. Nevertheless, If PSCO has notified clear grounds, he is obliged to carry out a more detailed inspection and the resolution A.787(19) provides the general instructions. If he proceeds to a more detailed inspection then the master must be informed. This resolution reminds PSCO that the main purpose of the Port State Control is to deter a vessel if it poses an unwarranted threat to the marine environment. If deficiencies cannot be resolved at the port of inspection the PSCO should allow the vessel to go to another port, with the proper infrastructure, under certain conditions, and the authorities and the flag must be notified.

5.1.2 CLEAR GROUNDS

The category of "clear grounds" is very important for the whole inspection because it can lead to a more detailed inspection and finally the ship to detention. Clear grounds exist when the PSCO has evidence that the ships' general condition and the equipment or the crew or the working and living conditions of seafarers are inappropriate or inadequate.

"Especially, the "clear grounds" includes:

1. the absence of principal equipment or arrangements required by the applicable conventions;
2. evidence from a review of the ship's certificates that a certificate or certificates are clearly invalid;
3. evidence that the required documentation is not on board, incomplete, not maintained, or falsely maintained;
4. evidence from the PSCO's general impressions or observations that serious hull or structural deterioration or deficiencies exist that may place at risk the structural, watertight, or weathertight integrity of the ship;
5. Evidence from PSCO's general impressions or observations that serious deficiencies exist in the safety, pollution prevention, or navigational equipment;
6. information or evidence that the Master or crew is not familiar with essential shipboard operations relating to the safety of ships or the prevention of pollution, or that such operations have not been carried out;

7. indications that key crew members may not be able to communicate with each other or with another person on board;
8. the emission of false distress alerts not followed by proper cancelation procedures;
9. receipt of a report or complaint containing information that a ship appears to be substandard; and
10. the last one, the ships which have overriding or unexpected factors." (Paris MoU, n.d.)

It is not only these criteria because PSCO has the ability to find others during the procedure of inspection.

5.1.3 MORE DETAILED INSPECTION

A more detailed inspection is performed when there are evidence and clues that a vessel does not comply with international shipping standards. Also, it is important for the condition of the ship, the crew or the equipment, or the working and living conditions of seafarers to meet the relevant requirements in order to avoid a more detailed inspection. Otherwise, PSCOs are assumed that the ship is substandard. Specifically, a more detailed inspection includes the areas where clear grounds are established and the areas relevant to any overriding or unexpected factors. Furthermore, includes the documentation, the propulsion, and auxiliary machinery, the structural condition, the navigation equipment, the emergency systems, the water/weathertight condition, the radio communication, the fire safety, the alarms, the cargo operations, the living and working conditions, the lifesaving appliances, the dangerous goods, and the pollution prevention. It is important to mention that in the more detailed inspection vital role has the human elements which covered by ILO, ISM, and STCW. The extent of this inspection depends on time, the number of deficiencies which found at the initial inspection, how many PSCOs are available, and a lot of other factors. However, an expanded inspection was carried out to confirm that the crew have the ability to cooperate and to coordinate for the shipboard operations.

5.1.4 EXPANDED INSPECTION

Additionally, in some types of ships is carried out an extensive inspection. These types are ships with a high ship risk profile, the cruise ships, the passenger ships over 12 years

old, the bulk cargo ships over 12 years old, the oil tankers with a capacity of more than 20000gt, the oil product tankers with a capacity of more than 30000gt and over 20 years, and ships carrying gas or chemicals over 10 years. This inspection is additional to these types of vessels and does not replace the other inspections. The PSCO sometimes may not proceed with this inspection because it could delay the vessel. For example, an expanded inspection includes the check of structural condition, the operation of the emergency fire pump, a test of a lifeboat or lifesaving appliances, an inspection of fire extinguishing systems in the engine room, a fire exercise, in living and working conditions and many more.

5.1.5 CONCENTRATED INSPECTION CAMPAIGN (CIC)

After some serious deficiencies which repeated, it was decided to create the last category of inspections which ensure compliance and the implementation with new convention requirements. All MoUs agreed to create the Concentrated Inspection Campaigns (CIC) which was added to the Port State Control inspection. This type of inspection has a duration of about two to three months and covers a wide variety of topics. These campaigns are run concurrently with a PSC inspection and use an additional checklist for every specific topic. For the year 2021 the Paris MoU, Tokyo, the Black Sea, Indian Ocean, Riyadh, and Vina del Mar MoUs will perform the CIC on stability in general. The questionnaire was published on 23 July 2021 and it contains eight aspects. Its main purpose is to verify that the ship's crew is properly trained and has the ability to recognize the actual stability condition before departure and to confirm that the ship follows the stability requirements (a sample of the ship's stability is displayed below). The application period is from September to November 2021 and if deficiencies occur during the CIC, will report in the PSC inspection with the related PSC Code. Also, the Caribbean MoU plans to carry out a CIC on Ballast Water Management and the USCG is currently running a CIC limited to US-flagged vessels. Additionally, in combination with the CIC on Stability in General, AMSA runs a Focused Inspection Campaign (FIC) on Safety of Navigation which targets the level of compliance with convention requirements on board.

Questionnaire for the 2020 CIC on Ship's Stability in general

CIC on Ship's Stability in general			
Inspection Authority			
Ship name		**IMO Number**	
Date of Inspection		**Inspection Port**	

QUESTIONS 1 - 6 ANSWERED WITH A "NO" MUST BE ACCOMPANIED BY A RELEVANT DEFICIENCY ON THE REPORT OF INSPECTION

No.	Questions	Yes	No	N/A	Detention
1*	Has the ship been provided with approved stability information which can be understood and easily used by the Master and loading officer?				
2*	Is the data used in the stability check for departure complete and correct?				
3*	Does the ship comply with the stability criteria as applicable to the ship type?				
4*	Is there evidence to show that the Master or responsible officer can determine the stability of the ship under varying conditions of service using the approved stability information provided on board?				
5*	If the ship is provided with a Stability Instrument, is it approved by the Administration?				
6	If the ship is provided with a Stability Instrument, does the type of stability software in use meet the requirements for the relevant ship type?				

No.	Questions	Yes	No	N/A
7 Note 1	[Is there evidence on board to show that the master/loading officer confirms that the "calculated" displacement and trim corresponds with the "observed" draughts?]			
8 Note 1	[If the ship is provided with a Stability Instrument, has the accuracy of the stability instrument been verified periodically by applying at least one approved test condition?]			

If "No" is ticked for questions marked with an asterisk "*", the ship may be considered for detention

Note 1: Questions 7 and 8 are for information purposes only.

Figure 20 Questionnaire for the 2020 CIC on Ship's Stability in general (Paris MoU, n.d.)

6.1 THE PORT STATE CONTROL INSPECTIONS PROCESS

Port State Control inspections conduct on foreign ships and the enterprise is either from Port State or from relevant information or information coming from a crew member, from an organization, from a trade association, or anyone interested in the ship's safety, the crew, and the prevention of an accident in order to protect the marine environment. When an inspection is to be carried out, there is no prior notice to the ship in order for the master, and the crew is not prepared. They must always be prepared.

The PSCO has experience in inspections, has a piece of good knowledge of English, and is qualified as a Flag State surveyor. He/she always carries an identity card that identifies the Port State Control authority. When the PSCO arrives on the ship, the gangway watchman will ask politely to show this identity card and the PSCO will be informed about the company's policy, he/she will wear the protective equipment and will declare the carrying items. Then, the PSCO will meet the Master. A conversation will start between the Master, the PSCO, and the members of the crew. During this meeting, the Master has the obligation to mention if the equipment is in good working and if the ship is seaworthy because during the inspection if PSCO finds any deficiency, he/she will report it with its appropriate code. Furthermore, from the opening meeting will be a deal that some tests may not be possible due to the nature and the Master will have the right to stop the inspection if he will deem that the inspection poses in danger the safety of the crew and the safe operation of the ship.

The procedure begins with the initial inspection which includes the verification of the ship's certificates and documentation. In case there are pending issues from the previous inspection then they will also be examined the rectifications. Then, a visual inspection follows in order for the PSCO to form an opinion about the conditions of the ship and the crew. The PSCO should be escorted by a responsible officer all the time. The officer needs to know the ship and its spaces very well and have access to them with the necessary keys. If the PSCO has doubts about the escorting officer then he/she will mention them to the Master.

If PSCO detects an invalid certification or notes "clear grounds" at that time follows a more detailed inspection. If deficiencies are not found, the PSCO will fill Form A but if there are deficiencies, he/she will fill the Form A and the Form B. Then, follows the

end of the process. At the closing meeting, which takes place on the bridge, the Master discusses with PSCO the findings and the deficiencies, and all the ambiguities. After the discussion, PSCO has the time to write and culminate the report. This report, which consists of Form A and Form B, will be discussed in order to be fully understood by the Master. Sometimes some of the deficiencies are rectified before the inspection is completed. In this case, they should be checked by the PSCO and removed from the report. The Master has the right to recall the PSCO on board to verify the rectifications. When PSCO departs from the vessel must be accompanied by a crew member. Through the inspection, the Master must be calm, polite, and patient even if it will arise an intent disagreement.

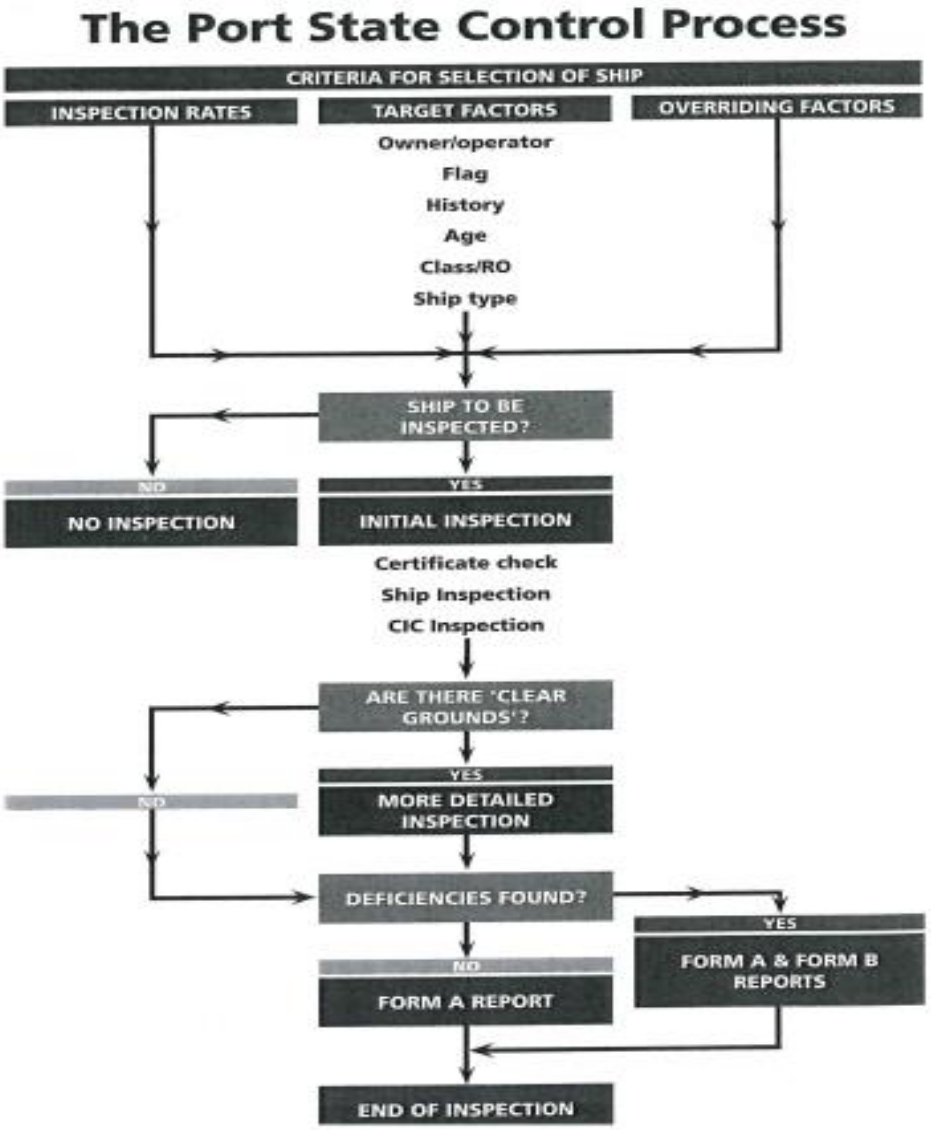

Figure 21 The Port State Control Process (IMO, n.d.)

7.1 CODE OF GOOD PRACTICE

> "Code of Good Practice is a document which provides the guidelines regarding the standards of integrity, professionalism, and transparency that all MoU, expects of all Port State Control Officers (PSCOs) who are involved in or associated with port state control inspections." (Paris MoU, n.d.)

The code of good practice lists the actions and behavior expected of PSCOs during the inspections and encourages the Officers to use their professional judgment in carrying out their duties. The PSCOs have the obligation to respect the ship, the Master's Authority, and the crew and do not disturb their rest or privacy. They should be polite and comply with the ship's housekeeping rules. It is important the PSCO never be racist, threatening, or dictatorial.

7.1.1 CONDUCT OF INSPECTIONS

At the beginning of the inspection, the PSCO must present the identity card to the Master and also explain for what reason takes places this inspection without exposing the person who makes the complaint. In order to conduct a safe procedure, the PSCO is necessary to wear personal protective clothing and not to walk around the ship unaccompanied by a responsible person. The PSCO should follow the specific procedure of PSC and the convention requirements and he/she hasn't the right to ask from the crew to do chores which are contrary to the conventions. The appropriate procedure is for the crew to present the proper operation of equipment. If the PSCO is not sure about something, he/she seek advice from the flag Administration, the Recognized Organization, the consulting colleagues. At the end of the inspection, the PSCO should exhibit the findings to the Master and indicate the corrective action. The report should be legible, comprehensive, and fully understood. The PSCO should also advise the Master about the procedures in the case of detention.

Furthermore, the PSCO must be independent. Any commercial interest in the ports and in ships they inspect is considered illegal. The same goes for companies which provide services in their ports. He/ she must make decisions only based on the findings, must always obey the rules of their administrations about the gifts and favors, and firmly refuse any attempts of bribery.

8.1 PORT STATE CONTROL INSPECTION REPORTS

When the inspection is completed, the Master receives a document to which the findings refer and which must be rectified either by the master or by the company. If there is no deficiency the PSCO gives the “Form A” but if there are deficiencies gives two forms, the “Form A” and the “Form B”. So, these documents must be retained on the ship for at least 2 years and these forms are uploaded to the database. Samples of reports are presented in the appendix.

9.1 DEFICIENCIES

During an inspection, irrespective of the type of Port State Control inspection carried out on board, either it will result in deficiencies or not. Deficiencies are noted when the PSCO verify findings that do not comply with the requirements of a convention and these can compromise the ship in danger, always at the discretion of the inspector. Depending on the seriousness of deficiency, the ship can lead to detention.

The PSCO may have a checklist with it during the inspection which helps him move on the ship without skipping any important point. Especially, when a ship has a longer inspection and the process needs to be organized. Depending on the characteristics of the ship, there is a corresponding list control. At the end of the inspection, the PSCO should report the findings of the Master. There are two forms which fill the PSCO. The first includes the details of the ship like the date, the place, and the result of the inspection (Form A), while the second will be completed only if the ship has deficiencies or detention (Form B). These reports should be maintained on board for three years because there is a case to be requested by the next inspector. At the end of the inspection, a copy must be given to the master, one sent to the shore company and one will keep the PSCO. In case of detention, two more copies will be sent, one to the Flag of the ship and the other to the Classification Society.

If there are no deficiencies, the Master will file the PSC inspection and will inform the company about that. If there are deficiencies, the Master must inform the company and Classification Society. Also, he must understand the nature of deficiencies and rectify these in the given timeframe.

There are three options available for rectifying deficiencies. The first option is the best for the Master and it suggests all deficiencies be repaired before the ship sails because the PSCO will have the opportunity to inspect the ship again. The second option indicates that the deficiencies should be rectified in the next port and the PSCO has the obligation to inform the next port. In case the rectifications are routed for the next port, then the ship is characterized and categorized for the port as a high priority (priority I). The flag of the ship and the classification society should be notified. This directive is given in cases where there is no ports infrastructure for repairs and restorations of deficiencies or in cases requested by the ship-owning company and accepted by the PSCO. This direction should take into account the condition of the ship, the crew, and the route voyage. The last option mentions that deficiencies will be rectified within 14 days, or if it is ISM-related, within 3 months. This option is used for a deficiency that is not an emergency to need rectification or confirmation by a PSCO before departure. Nevertheless, this ship is a target for future inspections.

9.1.1 CODIFICATION

Categories of deficiencies have been formed and each deficiency has its own code. Specifically, there is a list of comments, which PSCO has, which records a large number of deficiencies with their counterparts' codes. There is also a corresponding list for the severity of the deficiency and the margin of its recovery, which is identified by a number.

"There will be one or more of these codes for each of the deficiencies.

- Code 0: No action taken
- Code 10: Deficiency rectified
- Code 15: To be rectified at next port
- Code 16: To be rectified within 14 days
- Code 17: To be rectified before departure
- Code 21: Corrective action taken on the ISM system by the Company is required within 3 months
- Code 26: Competent Security Authority informed
- Code 30: Detainable deficiency
- Code 40: Next port informed

- Code 45: rectify detainable deficiency at next port 50 flag state/consul informed
- Code 46: To be rectified at agreed repair port
- Code 47: As in agreed class condition
- Code 48: As in agreed flag State condition
- Code 49: As in agreed rectification action plan
- Code 55: Flag State Administration consulted
- Code 65: Operation stopped
- Code 80: Temporary substitution
- Code 81: Temporary repair carried out
- Code 85: Investigation of the contravention of discharge provision (MARPOL)
- Code 95: Letter of warning issued
- Code 96: Letter of warning withdraw
- Code 99: Other/Master instructed to…" (Paris MoU, n.d.)

However, there is a question as to whether the PSCO revisits the vessel to confirm the rectification. This procedure depends upon the PSC MoUs and the type and area of deficiency. In some areas this obligation has the classification society, in others only the confirmation of the master is sufficient and, in some others, the PSCO should revisit the vessel to verify the closing of the deficiency.

Code 17 is the most common deficiency which appeared in PSC inspections and it is necessary to be rectified before the departure. In this case, at some ports, the PSCO is required to revisit the vessel and at others not. In the first case, the master will inform the PSCO after the rectification in order to revisit the vessel. After the reverification master must check that code 10 has been entered next to all code 17. This means that the deficiency has been rectified. If a vessel departs without taking into account the code 17 in that case the vessel is characterized as unseaworthy. For the other codes, the time period for the rectification may be different but the procedure that follows is the same. An example states below:

Sr. No.	Nature of deficiency[1]	Convention[2]/Flag requirements	Action Taken[3]
1	Aux. Boiler safety v/v defective		17/10

Figure 22 Example of rectification of code 17 (myseatime, 2018)

10.1 DETENTIONS

The PSCO has the responsibility to write down the deficiencies that a vessel may have. But the serious deficiencies can lead a vessel to detention. When a PSCO determines that a deficiency will be a threat to the environment or could seriously affect the safety of the ship or its crew then it will lead to the detention of the ship. However, if deficiencies are ascertained the PSCO had to decide about the suitable measures to be taken and the PSCO should be sure that these measures will be implemented and if it is a ground for detention.

The Port Authorities inspecting the ship have the obligation to notify, in case of detention, the flag State of the ship. The representative of the flag or by the ship register will get on board and will help to solve the problems. The PSCO examines the rectification measures which proposed by the representative. The approval and the cost of construction are borne by the shipowner. In case that the ship needs to be inspected again, the cost is paid by the ship and it can depart after the repayment of the Authorities.

According to the Paris MoU, if a PSCO compels detention, he/she will take into account two criteria: Timing and Criterion. In timing, the unseaworthy ships will be detained in the first inspection and they will remain in port for as long as it takes. Secondly, the criterion mentions that the ship will be detained if the PSCO finds serious deficiencies and it is necessary for the PSCO to return in order to verify that these deficiencies have been rectified before the ship leaves the port.

When the inspector finds deficiencies in the following and takes into account the other deficiencies, is seriously considering the case of a detention ship. First of all, the ship is required to have the valid certificates and documents. Secondly, the ship is obliged to have the crew which required under the safe manning certificate.

The check if the ship and crew are able to make the next voyage includes the following:

1. Perform the voyage safely
2. Safely handle, transport, and monitor the condition of the cargo
3. The engine room is safe to operate
4. Maintain proper propulsion and steering
5. To effectively extinguish fires in any part of the ship if required
6. To exist the possibility to leave the ship safely and quickly if required
7. To prevent environmental pollution
8. Maintain the stability
9. Maintain the required tightness
10. To have the ability to communicate with the crew
11. To ensure safety and hygiene conditions
12. In case of an accident should support it with the optimum information

Any of these deficiencies could lead the ship to detention. It is up to PSCO to decide if he/she will give a code of 17(pre-departure rectification) or 30(detention). Detention of the ship can be achieved with a deficiency code which is less serious in nature.

Furthermore, a very important part of the detentions' characteristics is the list of deficiencies which grouped under relevant Conventions and/ or Codes that could justify the detention of the ship. This list includes:

1. "The lack of valid certificates and documents as required by the relevant instruments. In this category, there is an exception for the ships which have the flag of State without being a party to a Convention or not having implemented another relevant instrument. These ships have the possibility not to carry these certificates but if in applying the "no more treatment" clause, substantial compliance with the provisions must be required before the ship sails.
2. The areas under SOLAS
   - Failure of proper operation of propulsion and other essential machinery, as well as electrical installations;

- Insufficient cleanliness of the engine room (excessive quantity petroleum and oil mixtures in water collectors, pollution from pipeline insulation oil, malfunctioning systems pumping of water collectors);
- Failure of the proper operation of the main and auxiliary steering gear;
- Absence, insufficient capacity or serious deterioration of personal lifesaving appliances, survival craft, and launching arrangements;
- Absence, non-compliance, or substantial deterioration to the extent that it cannot comply with its intended use of fire detection system, fire alarms, firefighting equipment, fixed fire extinguishing installation, ventilation valves, fire dampers, quick closing devices;
- Absence, substantial deterioration, or failure of proper operation of the cargo deck area fire protection on tankers;
- Absence, non-compliance, or serious deterioration of lights, shapes, or sound signals;
- Absence or failure of the proper operation of the radio equipment, taking the provisions of SOLAS into account;
- Absence of corrected navigational charts, and/or all other relevant nautical publications necessary for the intended voyage, taking into account that type-approved electronic chart display and information system (ECDIS) operating on official data may be used as a substitute for the charts;
- Absence of non-sparking exhaust ventilation for cargo pump-rooms;
- Serious deficiencies in the operational requirements (PSCC Instruction Guidance on procedures for operational controls);

3. The areas under the IBC (International Bulk Chemical) Code

- Transport of a substance not mentioned in the Certificate of Fitness or missing cargo information;
- Missing or damaged high-pressure safety devices;
- Electrical installations not intrinsically safe or corresponding to code requirements;
- Sources of ignition in hazardous locations;
- Contraventions of special requirements;

- Exceeding of maximum allowable cargo quantity per tank;
- Insufficient heat protection for sensitive products.

4. The areas under the IGC Code (International Code for the construction and equipment of ships carrying Liquefied Gases in Bulk)
   - Transport of substance not mentioned in the certificate of Fitness or missing cargo information;
   - Missing closing devices for accommodations or service areas;
   - Bulkhead not gastight;
   - Defective air locks;
   - Missing or defective quick closing valves;
   - Missing or defective safety valves;
   - Electrical installations not intrinsically safe or not corresponding to code requirements;
   - Ventilators in cargo area not operable;
   - Gas detection plant and/or toxic gas detection plant defective;
   - Transport of substances to be inhibited without valid inhibitor certificate.
5. The areas under LOADLINES
   - Significant areas of damage or corrosion or pitting of the plating and associated stiffening in decks and hull affecting seaworthiness or strength to take local loads, unless proper temporary repairs for a voyage to a port for permanent repairs have been carried out;
   - A recognized case of insufficient stability;
   - Absence of sufficient and reliable information, in the approved form, which by rapid and simple means enables the master to arrange for the loading and ballasting of his ship in such a way that a safe margin of stability is maintained at all stages and varying conditions of the voyage, and that the creation of any unacceptable stresses in the ship’s structure is avoided;
   - Absence, substantial deterioration or defective closing devices, hatch closing arrangements, and water tight doors;
   - Overloading;

- Absence of or impossibility to read the draught mark.

6. The areas under Annex I to MARPOL
   - Absence; serious deterioration or failure of proper operation of the oily-water filtering equipment, the oil discharge monitoring, and control system or the 15 ppm alarm arrangements;
   - Remaining capacity of slop and/or sludge tank insufficient for the intended voyage;
   - Oil record book not available;
   - Unauthorized discharge bypass fitted;
   - Survey report file missing or not in conformity with the double hull and double bottom requirements.
7. The areas under Annes II to MARPOL
   - Absence of the P&A Manual;
   - Cargo is not categorized;
   - Lack of the cargo record book;
   - Transport of oil-like substances without satisfying the requirements;
   - Unauthorized discharge by-pass fitted.
8. The areas under Annex III to MARPOL
   - Absence of a valid Document of Compliance for carriage of dangerous goods (if required);
   - Absence of a Dangerous Cargo manifest or detailed stowage plan before departure of the ship;
   - Stowage and segregation provisions of the IMDG Code Chapter 7.1 and 7.2 are not met;
   - Ship which carries dangerous goods, not in compliance with the Document of Compliance for carriage of dangerous goods of the ship;
   - Ship is carrying damaged or leaking dangerous goods packages;
   - Ship's personnel assigned to specific duties related to the cargo are not familiar with those duties, any dangers posed by the cargo, and with the measures to be taken in such a context.
9. The areas under Annex IV to MARPOL
   - Absence of a Sewage treatment system

- Not functioning Sewage comminuting and disinfecting system
- Absence of a Sewage discharge connection

10. The areas under Annex V to MARPOL
    - Absence of the garbage management plan;
    - No garbage record book available;
    - Ship's personnel are not familiar with the disposal/discharge requirements of the garbage management plan.
11. The areas under Annex VI to MARPOL
    - See PSCC Instruction Guidelines for the Port State Control inspections for compliance with Annex VI of MARPOL regulations for the prevention of air pollutions from ships.
12. The areas under STCW
    - Failure of navigational or engineering watch arrangements to conform to the requirements specified for the ship by the flag State Administration;
    - Absence in a watch of a person qualified to operate equipment essential to safe navigation, safety radio communications, or the prevention of marine pollution;
    - Inability to provide for the first watch at the commencement of a voyage and for subsequent relieving watches persons who are sufficiently rested and otherwise fit for duty.
13. The areas under MLC,2006
    - See PSCC Instruction Guidance for inspection on Maritime Labour Convention, 2006 and Guideline for the Port State Control Officer on the inspection of hours of work/rest and fitness for duty.
14. The areas under AFS Convention
    - See PSCC Instruction Preliminary Guidelines for Port State officers on control of Anti-Fouling Systems (AFS) on ships." (Paris MoU, n.d.)

Specifically, the deficiencies related to the SOLAS, due to the nature of this Convention, it is easier to create the ground for detention. For example, deficiencies like the failure of proper operation of the propulsion or the failure of the proper operation of the emergency generator, the failure of the proper operation of the main

and auxiliary steering gear, or substantial deterioration or failure of proper operation of life-saving or firefighting equipment and many more.

The detention procedure is simple. The PSCO compiles the notice of detention (a sample is presented in the appendix) for the master and sends this form to the flag and classification society of the vessel. The master is obliged to notify the flag State if the vessel is detained after the inspection by the port state.

When the deficiencies are provoked by accidental damage suffered by the ship during the trip, must be taken into account the contract which pertains to the ship's damage. A detention order cannot be given under the following conditions. Firstly, the flag of the ship has been apprised. The proper inspector of the flag State has been notified or the Recognized Organization (RO) which is responsible for the publish of the corresponding certificate. Before the arrival, the master or the shipping company has submitted to the Authority Port details of damage conditions and information on communication with the ship's flag. The last is the appropriate corrective measures have been taken in accordance with the instructions of the Authority Port State and in consultation with the ship's flag. According to the previous conditions, the ship will not be in detention. Otherwise, the ship will be placed in detention and attributed by the PSCO to the previous accident.

10.1.1 BANNING

"Banning" means refusal of access and it occurs when a port denies entry to a particular ship. In case of repeated detentions on a ship, the port authority considers the ship dangerous and decides to take measures against him. Especially, it prohibits the entry in the port and in all the ports which are pertained to the same MoU. The master, the shipowner, the flag of the ship, and the classification society be informed in writing of this decision by the Port Authority. According to the Paris MoU region, there are three serious reasons to characterize one ship as "banning". Firstly, ships with a flag which belongs in the grey list and have been carried out more than two detentions in the last 24 months or ships whose flag belongs to the black list and have become more than two detentions in the past 36 months within the limit's jurisdiction of the regional agreement. Secondly, if a ship jumps a detention, and thirdly, if a ship does not call at the agreed repair yard following a detention. Prohibition of access to the area of

jurisdiction of the regional agreement enters into force immediately upon departure from the port or anchorage. An exception is a case where a ship has due to force majeure or overriding safety reasons or due to minimization of the risk of pollution. Thus, in these cases only, it is possible to be allowed in by the competent authority of a Port State.

In order to have the ban lifted, the company must address a formal request to the port state authority of the member state that imposed the ban. Moreover, it is necessary the document from the flag State which proves that the ship complies with all the provisions of the applicable international conventions and secondly it needs the document from the classification society which confirms that the ship complies with the class standards.

If the ship is loaded with a second ban, the suspension will be after 12 months, and in the case that the ship is loaded with a third ban, the ban will be suspended after 24 months and it must apply certain conditions. Initially, the ship does not have a low-ranking flag, the government certificates and class certificates should be issued by recognized organizations, the ship-owning company should be highly efficient and the requirements of the Port Authority should have been covered. If the period of 24 months has passed or if there is a fourth ban then it is permanent without the possibility of suspension. Finally, the company has a right of appeal against the banning in accordance with the port state national legislation.

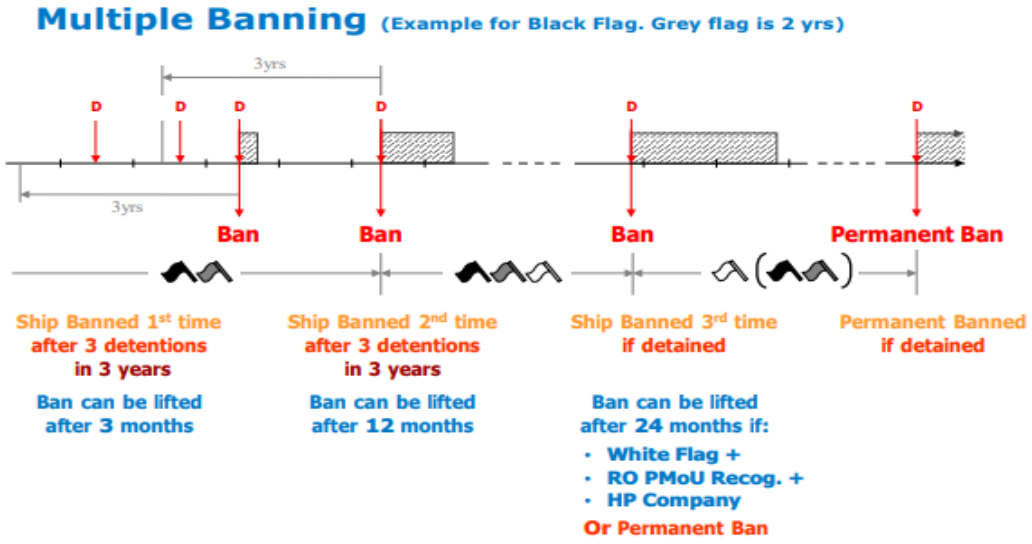

Figure 23 Graphic display of multiple banning (Paris MoU, n.d.)

10.1.2 DETENTION APPEALS

The right to appeal against the order will also be mentioned in this chapter. The PSCO has the obligation to inform the Master of this privilege. The right of appeal against a detention can be conducted by the owner or the operator or his representative. An appeal will not cause the detention to be suspended. The Master should inform about this right. Every MoU has its own detention procedure. The Master or the company has the option to use the official national procedure to appeal directly with the Port State against the detention order. If the owner does not deserve to follow the national appeal procedure, he/she needs to send his grievance to the Flag State or the Recognized Organization. The Port State is obliged to accept and assess this decision and be in constant contact with the Flag State and R.O. In case that the Port State accepts and amend the detention, it should notify the Paris MoU database and the Secretariat. If the results of the investigation do not satisfy the Flag State or the R.O, then, in a period of 120 days after the release date, it should be sent a request for review with all relevant information to the Secretariat. The Review Panel, which will be composed of the Secretariat and the corresponding MoU Authorities, will analyze all the features of the inspection which are derived from the Flag State, the R.O., and the Port State. The final decision will be made within 30 days, after the request and all related parties will be informed. In case that the review panel vindicates the Flag State or the R.O., the Port State is obliged to revise the detention order and adjust the inspection data in the database. The procedure of detention appeal is a common phenomenon and many shipowners use this right because if the vessel is detained, it is too difficult to hire because no one wants a ship with such a detention history. Moreover, the hire will be on low freight rate and then this ship will be financially unprofitable. There will be a damage to this company. All this information of low-performing ships is published in the database of the PSC MoUs and the ship may be blacklisted.

10.1.3 CLASSIFICATION SOCIETY

The Recognized Organizations are graded by PSC inspections and ranked in annual lists corresponding to what happens to flags. The results that are valid for their ranking concern the last three years. The Classification Societies are classified into high, medium, low, and very low levels. Also, there are some that they do not include in the list because it needs to have at least 60 inspections in the last three years.

Therefore, a list is created annually where it records the Recognized Organizations and next to each other, the inspections, the detentions and the limits for the lower and higher area and the “factor” EF.

The Classification Society is following PSC inspections issues very closely because their ranking is related to them. Many areas of shipping such as shipowners, flags, charterers, and many more, are consulted this ranking for their decisions. The choice is determined by its position in the list which appears in the annual reports of the MoUs. The RO who is high on the list creates a sense of reliability and many shipowners prefer them. Respectively, charterers choose ships and companies which are inspected by a high-quality organization. Finally, classification societies depend to a large extent on the flags.

11.1 GENERAL GUIDE TO MASTERS

The Port State Control inspections are vital to the proper and safe operation of the ship. However, in order for inspections to be effective, they should be done unexpectedly to determine that the master and the crew are always ready to cope with any situation. In order to carry out an inspection, many parameters are taken into account and many times the target area that is to be inspected also plays an important role. When a ship is not inspected, a PSCO may not be available or the port has not had enough resources due to the remote area and it is not easy to travel someone all these miles for only one inspection. Furthermore, if six months have not elapsed since the previous inspection or the ship's schedule is not within the inspection window then the chances of an additional inspection are low. One of the most important factors is the ship's risk profile which forms the general image of the ship. It is, therefore, obvious that the performance of an inspection depends on many parameters. For these reasons no one can accurately predict when the next PSC inspection will be conducted and the ship is necessary to be always ready for an inspection.

In particular, the master who holds the highest position and is in charge of the whole ship and the crew has increased obligations and responsibilities. The Master should always have the correct statutory certificates available for inspection and should have also available the records of work and rest hours as well as the issues related to the Maritime Labour Convention. Regardless of the procedures and checklists which are provided by the organizations and companies, the Master has the obligation to ensure that these verified by a second person. An exception is the Concentrated Inspection Campaign (CIC) which must be issued by the MoU. In this case, environmental issues have the same gravity and impose even greater attention on the Master.

12.1 GUIDANCE FOR COMPANIES

It is obvious that the efficient and the smooth operation of the ship is achieved within the company. The company targets to create the duly and accurate procedures in order for the ship to succeed in the Port State Control inspection. For this reason, every company should provide a guidance and checklists to the ship for better preparation.

First of all, the company should ensure and confirm that the ship holds all the necessary and valid certificates about the ship's seaworthiness and about the crew before the ship begins the duty. Additionally, it is necessary to apply the SMS which gives the proper guidance to the shipboard personnel for the safe operation of equipment and maintenance in order to prevent a potential deficiency. Information related to Port State Control CIC campaigns should be sent to the ship. The information should include CIC checklists, alerts, PSC statistics, downloadable PSC videos, and specific details on the most frequent deficiency areas. Moreover, the shore company has the obligation to inform the ship of any change about the Flag State requirements before the ship arrives at specific ports. There are some programs that reduce the risk of detention.

As mentioned in another chapter, in case the ship has any damage to the equipment or has made any corrective action it must report it before entering the port. Furthermore, after the inspection, the Master has the right to disagree with any deficiency and he must inform the company. Then the company will be making a formal appeal with the local PSCO Authorities or it will ask for a review process through the appropriate MoU. Always with the support of the ship's Flag State or the Recognized Organizations. The local agent has a statutory role for the ship because he/she advises on the local regulations and policies.

Another serious issue that arises in the shipping industry is bribery. Bribery and facilitation payments are universally illegal. The distinction between them is that a facilitation payment is a payment aimed at speeding up an already predetermined process. But if this payment is intended to change the outcome, then it means bribes. Today, some Acts endeavor to apply a strict policy in order to stop the facilitation payments because it has serious adverse effects in the shipping industry.

13.1 RESULTS

This research aimed to demonstrate the needs of the shipping industry about the safety on the ships, the environmental consciousness, and the procedures for implementing appropriate practices. The Port State Control inspections are one of the hot topics and most important issues of shipping. Port State Control has importance for this industry because the target is to prevent possible accidents with extreme damages. These detrimental effects have important environmental, economic and social consequences. The cause and occasion for the application of these regulations was the accident of Torrey Canyon which shocked the whole world. After this tragedy, in 1948 it was signed the International Convention on Safety of Life at Sea. But, almost ten years later, caused another appalling accident with a supertanker, named Amoco Cadiz, which was the determining factor to begin exist many MoUs and a range of conventions that have a lot of influence in the shipping industry until today. All these strict measures are trying to ensure better sustainable shipping and this target will be achieved through the procedures of Port State Control. Port State Control conducts inspections of foreign ships in national ports in order to assure that there is not exist any potential danger which could pose the vessel, the crew, the port, and the environment at risk. With the support of IMO and ILO were created nine Memorandums of Understanding and a separate part is the United States Coast Guard. All the MoUs have the same or the similar purpose to ensure that the foreign ships comply with the requirements of international regulations. Also, it should be mentioned that as observed the content of the memoranda has much in common with each other. Every administration in every MoU applies relevant instruments like SOLAS, LOAD LINES 66, MARPOL, STCW 78, COLREG 72, TONNAGE 69, and many more, which assist in conducting inspections and the administrations ensure that there is no any favorable treatment on ships whether the ships fly the flag of a State party to this MoU or not. Also, there are some same annexes in every MoU as Ship Risk Profile, Inspection and Selection Scheme, and Reporting obligations for ships. This dissertation performs and analyzes the chapter of the Ship Risk Profile for every MoU (or where it exists) and a small reference is made for the PSC in the USA. It is obvious that more attention and greater analysis are given to Paris MoU. Furthermore, in an age that the technology evolves in leaps and bounds, every MoU has been created useful databases which contain a wide spectrum of information about the ships and the PSC inspections. It is obvious that each

MoU has a useful database but in the dissertation is analyzed only the four most common databases.

According to the annual statistics for every MoU, which come from the databases, from 2010 until today there has been observed a gradual increase in the number of inspections and an overwhelming decrease in the number of detentions. For example, the Tokyo MoU in 2010 was recorded 25,762 inspections and in 2019 were conducted 31,372 inspections. Also, the number of deficiencies in 2010 was 90,177 and the detentions were 1,411, but in 2019 were 34,924 deficiencies and 983 detentions.

Must be mentioned as a detail that most inspections were carried out on bulk carrier ships but the ships of general dry cargo had the majority of detentions. Corresponding statistics exist in the other MoUs as well. It should be noted that the year 2020 is not included in these statistics due to the pandemic of Covid-19. Following the rapid escalation of the pandemic, restrictions have been gradually expanded and the PSC conducts only the emergency inspections. For this reason, there is not an objective view and the statistics are difficult to be compared with the previous years. Furthermore, it has been proven that the ten most deficiencies related to the certificates and documents, to the safety of navigation, to the lifesaving appliances, to emergency systems, to structural conditions, to the fire safety, to the working and living conditions, to the propulsion and auxiliary machinery, to the radio communication, to the lights, shapes, sounds signals and the most common deficiency which appear in many inspections related to the ISM Code and this is so important because it is a detainable deficiency and every year a lot of ships are detained due to they do not comply with the conventions of ISM Code. Moreover, there are some flags that have a lot of detentions compared to other flags. These flags are Panama, Belize, Liberia, Malta, the Marshall Islands, the Russian Federation, Togo, Sierra Leone, Comoros, and the Antigua and Barbuda flag. It is noted that the majority of these flags belong to the flags of convenience which creates not only a competitive advantage for those ships but also a higher risk in terms of accidents, security, or pollution because they do not have stricter safety standards. PSC is often considered as the only line of defense against ships from low-performing flag States. Additionally, all these deficiencies and detentions largely are associated with the performance of Recognized Organizations. It has been observed that the classification society of Nippon Kaiji Kyokai (NK/Class NK) is related to a big

number of deficiencies and detentions in every MoU. Then follows the DNV GL AS, the Bureau Veritas, the Lloyd's Register, and the American Bureau of Shipping. Thus, it is proven that in a deficiency or a detention an important role has additional factors.

14.1 CONCLUSIONS

As evidenced through this dissertation, Port State Control is a key component and a vital element of shipping. The Port Authorities attach great importance to the enforcement and application of international standards for ship safety. It is clear that they are investing time and money in improving the Port State Control regime in order to harmonized approach to inspections and detention and to analyze the targeting of ships for inspections based on a ship risk profile and the company performance. All of these annual reports and evaluations are a tool for improving efficiency. Port State Control inspections prevent maritime accidents that could endanger human life and the environment. MoUs are looking for ways to make inspections more effective. Continuous inspections have managed to reduce accidents but there is still a significant percentage of accidents which cannot explain that all these strict measures and cannot predict an accident. The only logical explanation is that the inspections are done on the wrong ships. In addition, we cannot exceed the target factor which is different for each MoU. To address these problems, it is proposed a better organization of databases with more information and more accurate, better training of PSCOs and a better communication and coordination between MoUs.

All external inspections such as TMSA, Vetting, Port State Control and Class surveys are all equally important, but each kind of inspection must be conducted separately and never in combination with each other. As has been mentioned before a maritime accident has an impact on economic, political, personal, environmental level. For this reason, full attention should be given to every inspection.

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APPENDIX

All the samples are based on the Paris MoU for convenience. This does not mean that the other memoranda are not important.

Form A

Paris MoU on Port State Control	REPORT OF INSPECTION IN ACCORDANCE WITH THE PARIS MEMORANDUM OF UNDERSTANDING ON PORT STATE CONTROL*
	FORM A
[reporting authority]	
[address]	
[telephone]	
[email]	
[website]	

SHIP PARTICULARS					
Name		IMO number		Gross tonnage	
Flag		MMSI Number		Old Tonnage	
Type		Date keel laid/ Major conv.		Main engine (KW):	
Call sign		Deadweight		Emission Abatement method	

ISM COMPANY					
Name				IMO Company number	
Address		City		Country	

MLC SHIPOWNER					
Name					
Address		City		Country	

CHARTERER *(only ships carrying liquid or solid cargoes in bulk, pref. 1st charterer record)*					
Name					
Address		City		Country	
☐ Demise Charter	☐ Time Charter	☐ Voyage Charter			
Name and signature of master to confirm the receipt of the inspection report and to certify that the information on charterer is correct:					
Name		Signature			

Classification Society(ies) responsible for issuance of class certificates					
Issuing entity		date of issue		date of expiry	
Issuing entity		date of issue		date of expiry	

Recognised Organization (s) responsible for issuance of certificates on behalf of the flag State	
Issuing entity	
Issuing entity	

*) This inspection report has been issued solely for the purpose of informing the master and other port States that an inspection by the port State, mentioned in the heading, has taken place. This inspection report cannot be construed as a seaworthiness certificate in excess of the certificates the ship is required to carry.

Page 1 of ...

Paris MoU on Port State Control

REPORT OF INSPECTION IN ACCORDANCE WITH THE PARIS MEMORANDUM OF UNDERSTANDING ON PORT STATE CONTROL

FORM A

Name of ship		IMO number		Date of report		Place of inspection	

INSPECTION PARTICULARS[†]			
Date of first visit		Place of inspection	
Date report		If detained: Date of issue of detention notice	

Type of inspection			
☐ Initial inspection	☐ More detailed inspection	☐ Expanded inspection	☐ CIC

Operational control *(if any)*	Additional comment
☐ Abandon ship drill	
☐ Fire drill	
☐ Damage control drill	
☐ Enclosed space entry drill	
☐ SOPEP drill	
☐ SMPEP drill	
☐ Emergency steering drill	
☐ MOB drill	
☐ Rescue boat drill	
☐ Other (*specify*)	

Areas inspected	Additional comment
☐ Accommodation and galley	
☐ Ballast tank(s) from manhole	
☐ Ballast tank(s) internal	
☐ Cargo area	
☐ Decks and forecastle	
☐ Engine room	
☐ Navigation bridge	
☐ Passenger spaces	
☐ Steering-room	
☐ Vehicle deck	

[†] Masters, Shipowners and/or Operators are advised that detailed information on the inspection will be reported to the appropriate authorities and organisations and is subject to publication.

Paris MoU on Port State Control

REPORT OF INSPECTION IN ACCORDANCE WITH THE PARIS MEMORANDUM OF UNDERSTANDING ON PORT STATE CONTROL

FORM A

Name of ship		IMO number		Date of report		Place of inspection	

RELEVANT CERTIFICATES						
				information on last intermediate, periodical or annual		
Title certificate	issuing authority	date of issue	date of expiry	date of survey	surveying authority	country

INSPECTION ACTIONS	
Ship related inspection action taken *(if any)*	Additional comment
☐ Inspection suspended	
☐ Dismissed on AFS grounds	
☐ Excluded on AFS grounds	
☐ Ship expelled on security grounds	
☐ Ship expelled on other grounds	
☐ MARPOL investigation	

Paris MoU on Port State Control

REPORT OF INSPECTION IN ACCORDANCE WITH THE PARIS MEMORANDUM OF UNDERSTANDING ON PORT STATE CONTROL

FORM A

Name of ship		IMO number		Date of report		Place of inspection	

Ship related reporting action taken *(if any)*	Additional comment
☐ Flag State informed	
☐ RO informed	
☐ Next port informed	
☐ Coastal State informed	
☐ ILO informed	
☐ Shipowner & seafarer organisation informed	
☐ Shipowners organisation informed	
☐ Union representative informed	
☐ Flag state requested to submit action plan within	
☐ Other authority informed	
☐ Overriding factor	
☐ Observations to inspection	

DEFICIENCIES	☐ no	☐ yes (see attached FORM B)
OUTSTANDING DEFICIENCIES‡	☐ no	☐ yes (see attached copy of FORM B from previous inspection(s))
SUPPORTING DOCUMENTATION	☐ no	☐ yes (see annex)

PORT STATE PARTICULARS			
Head office/District office		Telephone	
Address		E-mail	
		Website:	

Name(s) of duly authorized PSCO('s) of reporting authority)	*signature*	*visit date*

This report must be retained on board for a period of at least three years and must be readily available for consultation by Port State Control Officers at all times.

‡ "Outstanding deficiencies" are listed for information only and will not be taken into account for the calculation of the Ship Risk Profile and the Company performance.

Figure 24 Form A (Paris MoU, n.d.)

Form B

Paris MoU on Port State Control

REPORT OF INSPECTION IN ACCORDANCE WITH THE PARIS MEMORANDUM OF UNDERSTANDING ON PORT STATE CONTROL

FORM B

Name of ship		IMO number		Date of report		Place of inspection	

DEFICIENCIES FOUND AND FOLLOW UP ACTIONS

Code	Defective item	Nature of defect##	Convention ref.	Action taken	Due date	Ground for detention	Accidental damage§§	RO resp.	ISM related	Additional comments
						☐	☐	☐	☐	
						☐	☐	☐	☐	
						☐	☐	☐	☐	
						☐	☐	☐	☐	
						☐	☐	☐	☐	
						☐	☐	☐	☐	
						☐	☐	☐	☐	
						☐	☐	☐	☐	
						☐	☐	☐	☐	
						☐	☐	☐	☐	

This inspection was not a full survey and deficiencies listed may not be exhaustive. In the event of a detention, it is recommended that a full survey is carried out. All deficiencies should be rectified before an application for re-inspection is made.
§§ Deficiencies marked as Accidental Damage are not taken into account for calculating the company performance and the Ship Risk Profile.

Paris MoU on Port State Control

REPORT OF INSPECTION IN ACCORDANCE WITH THE PARIS MEMORANDUM OF UNDERSTANDING ON PORT STATE CONTROL

FORM B

Name of ship		IMO number		Date of report		Place of inspection	

DEFICIENCIES FOUND AND FOLLOW UP ACTIONS

Code	Defective item	Nature of defect	Convention ref.	Action taken	Due date	Ground for detention	Accidental damage	RO resp.	ISM related	Additional comments
						☐	☐	☐	☐	
						☐	☐	☐	☐	
						☐	☐	☐	☐	
						☐	☐	☐	☐	
						☐	☐	☐	☐	
						☐	☐	☐	☐	
						☐	☐	☐	☐	

Name(s) of duly authorized PSCO('s) of reporting authority)	*signature*	*visit date*

Figure 25 Form B (Paris MoU, n.d.)

Notice of detention for the Master

Paris MoU on Port State Control

PORT STATE CONTROL
{Sample-National form}
NOTICE OF DETENTION FOR THE MASTER

No.

The undersigned:
duly authorized officer of the *{..... Shipping Inspectorate}* herewith notifies you that
the ship: "..... ", callsign:..... ,
IMO number:..... , gross tonnage:..... ,
port of registry:..... , flagstate: ..... ,
type of ship:..... , date on which keel was laid:..... ,
owner:..... , master:..... ,
agents:..... , classification society/RO:..... ,
berthed at: .....

has been detained in accordance with the provisions of article *{..}* of the *{.....}* Port State Control Act (Official Collection, 19.., no. ....),

on account of:

☐ one or more of the criteria for detention set out in Annex X of Council Directive 2009/16/EC of 23 April 2009 (Official Journal of the European Communities No L 131);

☐ crew members being unable to provide proof of professional proficiency for the duties assigned to them as mentioned in article 12 of Council Directive 2008/106/EC of 19 November 2008 (Official Journal of the European Communities No L 323);

☐ master or crew unable to comply with operational requirements as contained in the Conventions mentioned in article *{..}* of the Port State Control Act;

☐ other deficiencies which, individually or together, are clearly hazardous to safety, health or environment;

☐ the fact that the Port State Control Officer was obstructed in the execution of his duty.

For further details see the Report of Inspection forms A & B enclosed to this notice for the master.

In accordance with the provisions of article *{..}* of the Port State Control Act it is prohibited to shift the ship to another berth without the prior consent of the Port State Control Officer, or to proceed to sea without a proper Notice of Release of ship from detention.

Place: Date:

The above mentioned officer:

Appeal p.t.o.

Figure 26 Notice of detention for the Master (Paris MoU, n.d.)

Notification of detention of the ship

Paris MoU on Port State Control

PORT STATE CONTROL
(Standard)
NOTIFICATION OF DETENTION OF SHIP*

Flag State / Consulate
Classification society/recognised organization
Fax no.
E-mail

Number of pages, incl. this

Dear Sir / Madam,

[Ship's name, flag, IMO No.] – Detention of ship

The ..... Maritime Authority have on [date] carried out an inspection of the above ship at [Port, country].

The ship is detained at [time of detention] hours due to the following detainable deficiencies :

1. .....
2. .....
3. .....
4. .....
5. .....
6. .....
7. .....
8. .....
9. .....
10. .....

Enclosed please find a copy of the Report of inspection forms A & B and the Notice of detention for the Master**.

For further inquiries, please contact: [Name and contact details]

Yours faithfully,

* As per IMO-MSC/Circ.1011 and MEPC/Circ.383
** Issued per national legislation requirements.

Figure 27 Notification of detention of the ship (Paris MoU, n.d.)

Notification of release of the ship

Paris MoU on Port State Control

PORT STATE CONTROL
{Standard}
NOTIFICATION OF RELEASE OF SHIP*

Flag State / Consulate
Classification society/recognised organization
Fax no.
E-mail

Number of pages, incl. this

Dear Sir / Madam,

[Ship's name, flag, IMO No.] – Release of ship

The ..... Maritime Authority have on [date] carried out a re-inspection of the above ship at [Port, country].

The ship was released at [time of release] hours.

[Insertion of free text, if any]

Enclosed please find a copy of the Report of inspection forms A & B.

Yours faithfully,

* As per IMO-MSC/Circ.1011 and MEPC/Circ.383

Figure 28 Notification of release of ship (Paris MoU, n.d.)

Detention appeals

Paris MoU
on Port State Control

Documents submitted for review:

		Submitted by: Flag / R.O*	Submitted by: port State	Pgs:.
1	***Opinions:***			
.1	Request Flag / R.O.*, incl. opinion why detention not justified	☐		..
.2	Statement port State, incl opinion why detention is justified		☐	..
2	***PSC official documents:***			
.1	Inspection report form A & B, signed / unsigned*	☐	☐	..
.2	Print-out inspection report from database	☐	☐	..
.3	Notification of detention for the Master	☐	☐	..
.4	Notification of detention of the ship to flag State and R.O.	☐	☐	..
.5	Notification of release of the ship	☐	☐	..
.6	Request for agreement to proceed to a repair yard (if appl.)	☐	☐	..
.7	Conditions of release from a detention to a repair yard (if appl.)	☐	☐	..
.8	Refusal of access (if appl.)	☐	☐	..
3	***Correspondence:***			
.1	Ship owner – port State	☐	☐	..
.2	Ship owner – flag State	☐	☐	..
.3	Ship owner – recognized organization	☐	☐	..
.4	Ship owner – PMOU Secretariat	☐	☐	..
.5	Flag State – port State	☐	☐	..
.6	Flag State - recognized organization	☐	☐	..
.7	Flag State – PMOU Secretariat	☐	☐	..
.8	recognized organization – port State	☐	☐	..
.9	recognized organization – PMOU Secretariat	☐	☐	..
.10	Other	☐	☐	..
4	***Supporting documents / evidence:***			
.1	Photographs	☐	☐	..
.2	Copies of ship drawings	☐	☐	..
.3	Sketches made by crew / PSCO*	☐	☐	..
.4	Copies of relevant certificates	☐	☐	..
.5	Logbook entries, maintenance records	☐	☐	..
.6	Purchase orders, incl. invoice / Service order, incl. reports*	☐	☐	..
..	.....	☐	☐	..
..	.....	☐	☐	..
..	.....	☐	☐	..
..	.....	☐	☐	..
..	.....	☐	☐	..
..	.....	☐	☐	..
..	.....	☐	☐	..
..	.....	☐	☐	..

* Delete what is not applicable

Figure 29 Detention appeals (Paris MoU, n.d.)