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IMPLEMENTATION OF MARINE POLLUTION (MARPOL) AND SAFETY OF LIFE AT SEA (SOLAS) TOWARDS WASTE MANAGEMENT APPLICATION ON THE SHIP

MAHBUB ARFAH

POLTEKPEL Malahayati Banda Aceh

Abstract: **This research aims to; (1) knowing how the application of MARPOL (Marine Pollution) annex 1 regulation 17 on the ship, (2) knowing how the application of SOLAS (Safety of Life at Sea) Chapter II-I Part C Regulation 35-1 on the ship and (3) knowing understanding owned by the crew of the rules of MARPOL and SOLAS. The method used in this study is Action Research, which is a form of self-reflection research conducted by participants in social situations (including education) to improve their own practice. The data obtained is the result of monitoring the waste treatment system contained in ships that dock at 3 (three) major ports and have received permission from KSOP at the local port, namely Tanjung Periuk Port in Jakarta, Tanjung Perak Port in Surabaya, and Port Soekarna Hatta in Makassar. Research results show that; (1) From the percentage of conformity of the evaluation criteria and the actual conditions on the ship, it can be concluded that there is only I (one) ship that complies with the SOLAS (Safety Of Life At Sea) Chapter II-I Part C Regulation 35-I, namely the MV. Meratus Jayapura. (2) From the percentage of conformity of the evaluation criteria and the actual conditions on the ship, it can be concluded that there is only I (one) vessel that is in compliance with MARPOL (Marine Pollution) Annex 1 of Regulation 17, namely the MV. Meratus Jayapura. (3) In order to preserve the maritime environment, it is necessary to provide understanding to all crew members before they work, namely by socializing or training which essentially provides provisions to the crew about the importance of protecting the maritime environment also while on the ship an understanding of MARPOL and SOLAS must continue at convey both visually and orally so that they continue to care about the maritime environment.**

Keywords: **Marine Pollution, Safety of Life at Sea, Regulation, Ship.**

1. INTRODUCTION

At first people thought that by looking at the vastness of the ocean, all waste products and industrial remnants originating from human activities on land could all be accommodated by the ocean without causing any harmful consequences. Pollutants entering the oceans will be diluted and the power of contaminating them will slowly be weakened, making them harmless. With the rapid growth of the world's population and the increasing industrial environment, more toxic substances are thrown into the sea in quantities that are difficult to control precisely.

Seawater is a component that interacts with the terrestrial environment, where waste discharges from land will flow into the sea. In addition, sea water is also a place for pollutants (pollutants) that fall from the atmosphere. The waste which contains pollutants then enters the coastal and marine ecosystems. Some are soluble in water, some sink to the bottom and are concentrated into sediments, and some enter the body tissues of marine organisms (including phytoplankton, fish, shrimp, squid, shellfish, seaweed, etc.).

One of the most dangerous pollutants for human health is heavy metals. WHO (World Health Organization) or the World Health Organization and FAO (Food Agriculture Organization) or the World Food Organization recommends not to consume seafood (seafood) which is contaminated with heavy metals. Heavy metal has long been known as an element that has a very potent toxicity and has the ability to accumulate in human organs. Not even a few that cause death.

The sea is a source of life for fishermen, sea turtles, coral reefs and various other marine animals. the sea that looks clean from trash is very beautiful to look at and of course makes the residents inside feel calm and at ease. the establishment of various marine protection organizations and special rules regarding the sea have been prepared to protect and preserve the sea and the wealth in it, one of the factors of marine pollution is originating from the engine room such as the existence of fuel pipe leaks and treatment of waste that is not in accordance with existing regulations. And the most fundamental is the Human Error factor, which is a human factor that does not understand the effects caused by pollution.

So many major events that have impacted the pollution of the marine environment such as: the ship Torrey Canyon (in the Cornwall-England area, 1976, spilling 117,000 tons), Amoco Cadiz (England, 1978, spilling 223,000 tons), Exxon Valdez (Alaska, 1989, spilling 11.2 x106 tons along 3800 km of coastline), and Mega Borg (Texas, 1990, spilling 500,000 gallons). But not a few sea pollution due to the impact of Non-Convention Ships such as warships, Cargo ships carrying 500 GT Tonnage, ships that are not driven by mechanical power, wooden ships built in primitive (traditional) and fishing boat.

To prevent oil spills from ships both on and off the coast, it certainly requires a high understanding and commitment from the crew working on Non-Convetion vessels both to the rules that apply and the impacts that will result from sea pollution.

In line with that, the Ministry of Transportation, in this case BPSDMP (Transportation Human Resources Development Agency) is implementing CSR training (Cooperate Service Responsibility) or commonly known as DPM (Community Empowerment Training) which has been spread in several UPTs such as in the Makassar Shipping Polytechnic and BP2IP Barombong and UPT under BPSDMP with 45 participants. 435 people for the marine sector and this education and training are free of charge, with the aim of creating quality human resources (HR) in the field of marine transportation. Therefore DPM participants must really understand about the impacts of sea pollution because if they neglect environmental concerns, especially sea pollution then they will become one of those who will contribute to sea damage and pollution but vice versa if they are able to process waste as well as contained in Marpol and Solas and has a high commitment to safeguard it is sure the future sea conditions will be better protected from oil pollution. Sea pollution is a threat that really must be dealt with seriously. For that, we need to know what is sea pollution, how ocean pollution occurs, and what is the right solution to deal with sea pollution.

This research aims to :

1. Know how the application of MARPOL (Marine Pollution) annex 1 regulation 17 on the ship.

2. Knowing how to apply SOLAS (Safety of Life at Sea) Chapter II-I Part C Regulation 35-1 on the ship.

3. Knowing the understanding possessed by the crew of the rules of MARPOL and SOLAS.

2. LITERATURE REVIEW

Marine Pollution (MAPOL)

MARPOL (Marine Pollution) is an international regulation that aims to prevent pollution at sea. Every system and equipment on board which is supporting this regulation must be certified by the class. The following is the scope of MARPOL, where each vessel must be equipped with various systems that comply with this regulation:

Regulation on the prevention of oil pollution (Annex I)

To comply with this regulation, each vessel must fulfill the following equipment:

1. Oil record book. Is a ship's record of all activities related to oil. Starting from the process of discharge cargo, discharge slop tank, cleaning cargo tank, and so on. All records must always be on board if there are periodic checks or local checks.

2. Oil discharge monitoring system. Is a system that controls the level of oil in the water that will be thrown into the sea. The monitoring system must function properly in various environmental conditions to monitor and control all kinds of controlled by the monitoring system is a form of violation.

This monitoring system consists of:

• Oil meter to measure oil content in water

• Ship speed indicator to find out the speed of the ship (in knots).

• Ship position indicator to find out the ship's position

• Discharge control to regulate oil disposal

• Data recorder to record data at the time of discharge

• Data display to show data when the discharge is in progress.

This system is connected to an alarm that will sound and automatically close the drain if the oil mixed with water released exceeds 30 liters per nautical mile and the oil content that is discharged exceeds 15 ppm (parts per million).

Regulation on the prevention of pollution by liquid NOx (Annex II) The categories of chemicals referred to in this annex are:

Category X:

NOx if it is discharged into the sea is considered to pose the highest level of danger to the marine environment, human health, so a ban is given for the disposal of this type of chemical.

Category Y:

NOx if discharged into the sea poses a danger to the marine environment and human health, so limits are given on the amount and quality of these chemicals to be discharged into the sea.

Category Z:

NOx if discharged into the sea poses a relatively small danger to the marine environment and human health, so that no strict restrictions are given regarding the discharge of this chemicals substance into the sea.

Regulation on the prevention of pollution by hazardous substances which are transported in packages (annex III)

Hazardous substances and packaging in question are substances that fall within the IMDG (International Maritime Dangerous Good) criteria. This regulation is intended to prevent marine pollution by goods that have dangerous properties (both physical and chemical) so that special treatment needs to be obtained. As an implementation of these rules, several procedures must be carried out as follows:

Implementation of regulations:

1. Plaque installation. Each vessel with a length of more than 12 meters must have a plaque available as a warning to the crew of the garbage disposal.

2. Ship garbage management plan. Every ship over 400 tons of GT and ships with a crew capacity of 15 or more must have a garbage management plan that all crews must follow. This includes segregation of waste by type, and installation of treatment facilities for waste, for example: incinerators. Ship garbage record book Every ship above 400 tons GT and ships with a crew capacity of 15 or more must be able to show the garbage record book to the port when it will be anchored.

These guidelines and conventions are:

1. International Cooperation And Mutual Assistance. Member states agree to cooperate and help each other member who asks for help cope with pollution that occurs, provided that they have the ability and adequate means and the party asking for help must pay to those who help with the cost of assistance provided. For developing countries, payment promises will be promised.

2. Pollution Reporting. Member states agree that ships, offshore units, flight units, ports and other loading and unloading facilities will report all pollution that occurs to the nearest coast of a country or the port authority of the nearest neighboring country, and notify neighboring countries including the International Maritime Organization (IMO).

3. Oil Pollution Emergency Plans, needed for:

a) Oil tankers of 150 GT or more, and other types of vessels of 400 GRT or more.

b) All installed or floating offshore installations or structures used in oil and gas operations, exploration, production, and loading and unloading.

c) All noisy ports and loading and unloading facilities cause pollution.

4. National and Regional Preparedness and Response Capability. In pollution both in national and regional scope, a convention requires the establishment of a national system to immediately deal effectively with the pollution that occurs. This includes the minimum basis for the establishment of the National Contingency Plan, the determination of national authorities and responsible persons for the operation of pollution prevention, its preparation and implementation, reporting, and requests for assistance as needed.

5. Technical Cooperation And Transfer Of Technology. Cooperation between members in the field of engineering and training can use and utilize the facilities and equipment available to tackle pollution. In addition, the members can actively collaborate in technology transfer.

6. Research and Development. Direct cooperation or through the IMO Agency to conduct regular international symposiums, exchange experiences and discover new discoveries, equipment used and results of research carried out, monitoring technology and techniques, storage, dispersion used, cleaning and recovery.

7. International Arrangement and Support.

Safety of Life at Sea (SOLAS) Consolidated Edition 2009

Solas Consolidated Edition 2009 in section C "Machinery Installations" there are 13 (Thirteen) rules ranging from rule 26 to rule 39. Namely:

1. Regulation 26, General

2. Regulation 27, Machinery

3. Regulation 28, Means of Going Astern

4. Regulation 29, Steering Gear

5. Regulation 30, Addition Requirements For Electrohydraulic Steering Gear

6. Regulation 31, Machinery Controls

7. Regulation 32, Steam Boilers and Boiler Feed Systems

8. Regulation 33, Steam Pipe Systems

9. Regulation 34, Air Pressure System

10. Regulation 35, Ventilation System in Machinery Spaces

11. Regulation 35-1, Bilge Pumping Arrangements

12. Regulation 36, Protection Against Noise

13. Regulation 37, Communication Between Bridge and Machinery Space

14. Regulation 38, Engineer's' Alarm

15. Regulation 39, Location of emergency Installation In Passenger Ships.

Regulation 35-1, Bilge Pumping Arrangements.

Bilge pumping arrangement

1. This regulation applies to ships constructed on or after 1 January 2009

2. Passenger ships and cargo ships

2.1. An efficient bilge pumping system shall be provided. Capable of pumping from and draining any watertight compartment other than a space permanently appropriated for the carriage of fresh water, water ballast, oil fuel or liquid cargo and for which other efficient means of pumping are provided, under all practical conditions. Efficient means shall be provided for draining water from insulated holds.

2.2. Sanitary, ballast and general service pumps may be accepted as independent power bilge pumps if fitted with the necessary connections to the bilge pumping system.

2.3. All bilge pipes used in or under coal bunkers or fuel storage tanks or in boiler or machinery spaces, including spaces in which oil settling tanks or oil fuel pumping units are situated, shall be of steel or other suitable material.

2.4. The arrangement of the bilge and ballast pumping system shall be such as to prevent the possibility of water passing from the sea and from water spaces into the cargo and machinery spaces, or from one compartment to another. Provision shall be made to prevent any deep tank having bilge and ballast connection being inadvertently flooded from the sea when containing cargo, or being discharged through a bilge pump when containing water ballast.

2.5. All distribution boxes and manually operated valves in connection with the bilge pumping arrangement shall be in positions which are accessible under ordinary circumstances.

2.6. Provision shall be made for the drainage of enclosed cargo spaces situated on the bulkhead deck of a passenger ship and on the freeboard deck of a cargo ship. Provided that the administration may permit the means of drainage to be dispensed with in any particular compartment of any ships if it is satisfied that by reason of size or internal subdivision of those spaces the safety of the ship is not thereby impaired.

2.6.1. Where the freeboard to the bulkhead deck or the freeboard deck. Respectively, is such that the deck edge is immersed when the ship heels more than 50, the drainage shell be by means of a sufficient number of scuppers of suitable size discharging directly overboard, fitted in accordance with the requirements or regulations 15 in the case of a passenger ship and the requirements for scuppers. Inlets and discharges of the international conventions on load lines in force in the case of the cargo ships.

2.6.2. Where the freeboard is such that the edge of the bulkhead deck or the edge of the freeboard deck, respectively, is immersed when the ship heels 50 or less, the drainage of the enclosed cargo spaces on the bulkhead deck or on the freeboard deck, respectively, shall be led to a suitable space, or spaces of adequate capacity, having a high water level alarm and provided with suitable arrangement for discharge overboard in addition it shall be ensured that:

1. The number, size and disposition of the scuppers are such as to prevent unreasonable accumulation of free water.

2. The pumping arrangement required by this regulation for passenger ships or cargo ships, as applicable, take account of the required for any fixed pressure water – spraying fire extinguishing system.

3. Water contaminated with petrol or other dangerous substance is not drained to machinery spaces or other spaces where sources of ignition may be present, and

4. Where the enclosed cargo space is protected by a cargo dioxide fire – extinguishing system the deck scuppers are fitted with means to prevent the escape of the smothering gas.

MARPOL Annex 1, Regulation 17

Regulation 17 - Oil Record Book, Part I (Machinery space operations)

1. Every oil tanker of 150 gross tonnage and above and every ship of 400 gross tonnage and above other than an oil tanker shall be provided with an Oil Record Book Part I (Machinery space operations). The Oil Record Book, whether as a part of the ship's official log-book or otherwise, shall be in the form specified in appendix III to this Annex.

2. The Oil Record Book Part I shall be completed on each occasion, on a tank-to-tank basis if appropriate, whenever any of the following machinery space operations takes place in the ship:

a. ballasting or cleaning of oil fuel tanks;

b. discharge of dirty ballast or cleaning water from oil fuel tanks;

c. collection and disposal of oil residues (sludge and other oil residues);

d. discharge overboard or disposal otherwise of bilge water which has accumulated in machinery spaces; and

e. bunkering of fuel or bulk lubricating oil

3. In the event of such discharge of oil or oily mixture as is referred to in regulation 4 of this Annex or in the event of accidental or other exceptional discharge of oil not excepted by that regulation, a statement shall be made in the Oil Record Book Part I of the circumstances of, and the reasons for, the discharge.

4. Each operation described in paragraph 2 of this regulation shall be fully recorded without delay in the Oil Record Book Part I, so that all entries in the book appropriate to that operation are completed. Each completed operation shall be signed by the officer or officers in charge of the operations concerned and each completed page shall be signed by the master of ship. The entries in the Oil Record Book Part I, for ships holding an International Oil Pollution Prevention Certificate, shall be at least in English, French or Spanish. Where entries in an official national language of the State whose flag the ship is entitled to fly are also used, this shall prevail in case of a dispute or discrepancy.

5. Any failure of the oil filtering equipment shall be recorded in the Oil Record Book Part I.

6. The Oil Record Book Part I shall be kept in such a place as to be readily available for inspection at all reasonable times and, except in the case of unmanned ships under tow, shall be kept on board the ship. It shall be preserved for a period of three years after the last entry has been made.

7. The competent authority of the Government of a Party to the present Convention may inspect the Oil Record Book Part I on board any ship to which this Annex applies while the ship is in its port or offshore terminals and may make a copy of any entry in that book and may require the master of the ship to certify that the copy is a true copy of such entry. Any copy so made which has been certified by the master of the ship as a true copy of an entry in the ship's Oil Record Book Part I shall be made admissible in any judicial proceedings as evidence of the facts stated in the entry. The inspection of an Oil Record Book Part I and the taking of a certified copy by the competent authority under this paragraph shall be performed as expeditiously as possible without causing the ship to be unduly delayed.

3. RESEARCH METHOD

The method used in this study is Action Research, which is a form of self-reflection research conducted by participants in social situations (including education) to improve their own practice. Thus an understanding of the practice will be obtained and the situation in which the practice is carried out. There are two essence of action research namely improvement and involvement. This directs the aim of action research into three areas, namely:

1. To improve practice;

2. For professional development in the sense of increasing practitioners' understanding / ability of the practice they carry out;

3. To improve the situation or situation in which the practice is carried out.

Data collection methods used in this study are:

1. (Field research). Is a method used to collect actual data through field observations, data collection methods in the field are carried out through survey methods (observations), where the data obtained is the result of monitoring the waste treatment system contained in ships leaning on 3 (three)) a large port and has received permission from KSOP at the local port, namely Tanjung Periuk Port in Jakarta, Tanjung Perak Port in Surabaya, and Soekarna Hatta Port in Makassar.

2. Library research. This method is used through library research, literature relating to the problem of care both through books, research reports, articles and etc. This research method must cover all aspects related to the title raised and can be implemented in the research object.

3. Interview. By way of conducting question and answer directly to the Engineers and crew of the ship related to the sewage treatment plant on the ship. Waste collection and disposal process.

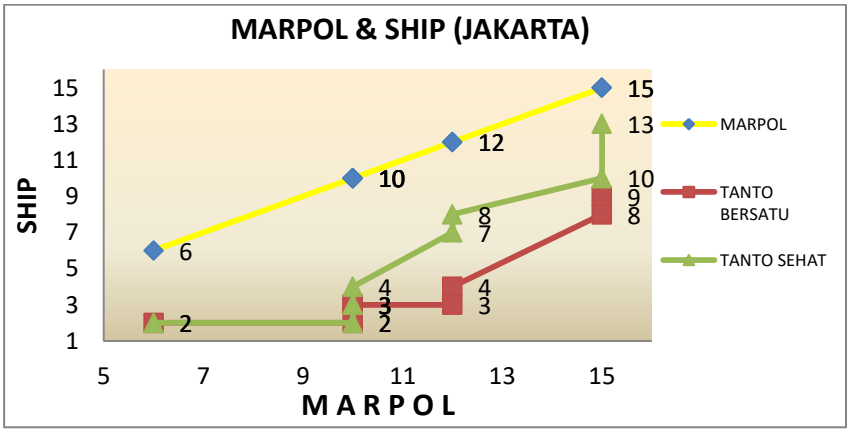
The type of data used in this study is qualitative data which the researcher obtains directly from the ship through direct observations concerning waste treatment on the ship.

4. RESEARCH RESULTS AND DISCUSSION

1. Application of MARPOL (Marine Pollution) Annex 1 Regulation 17 on Locos Research Vessels.

After the data obtained in the field are converted into numbers, a graph and table are found that show how much distortion from the application of MARPOL annex 1 regulation 17 on ships that dock and sail in Indonesian waters.

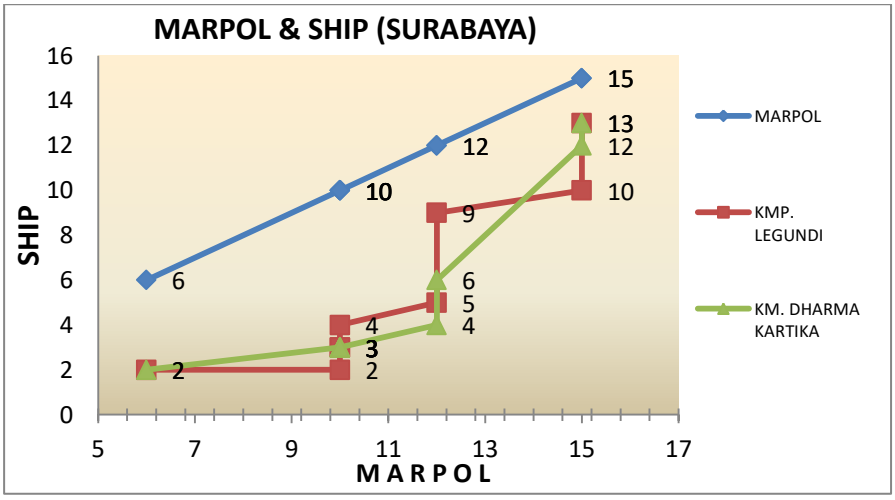
Graph 1. Relationship between MARPOL and Its Application on Ships at Tanjung Priuk Port, Jakarta.



Data of MARPOL annex 1 of regulation 17 contained in graph 4.1 shows that the application of the 2 (two) vessels which became the object of research, has not all met the criteria in accordance with applicable regulations. MARPOL rules annex 1 regulation 17 in general the application is not implemented to the maximum, this can be seen where the ship being the object of study does not have a Certificate of Disposal which is one of the proofs that the ship is carrying out the waste disposal process in accordance with applicable regulations as well as in Sludge storage tanks where the contents in the tank do not match what is recorded on the information board and the sludge tank alarm conditions are also not installed and some items are still not as expected by MARPOL.

Meanwhile, data from the Port of Tanjung Perak Surabaya can be seen in the following chart and table:

Graph 4.2. The Relationship Between MARPOL and Its Application on Ships at the Port of Tanjung Perak Surabaya

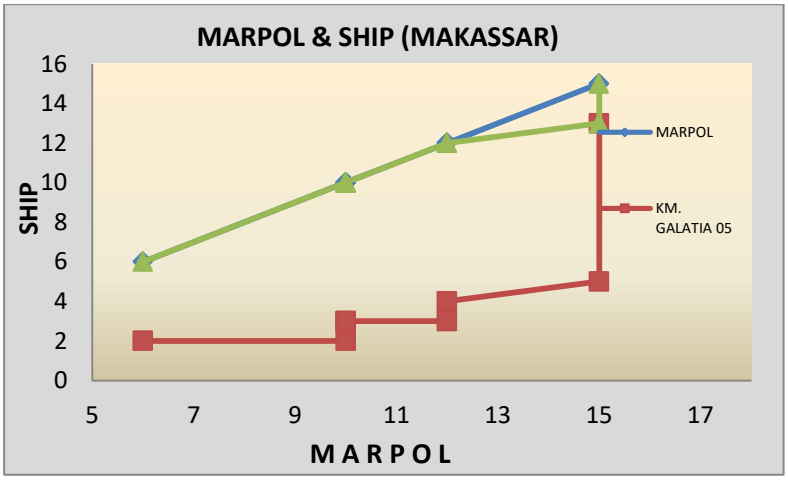


From graph 4.2 above we can see that the application of MARPOL annex 1 regulation 17 on KMP vessels. Legundi and KM. Dharma Kartika, who relied on the port of Tanjung Perak Surabaya, showed that the relationship between ideal conditions (according to regulations) and real conditions on the ship was still not the same and there were still many assessment items that did not meet the specified assessment standards. The application of MARPOL annex 1 regulation 17 is almost the same as the condition of ships in the Tanjung Priuk port in Jakarta which has been described in the graph

and table 4.1. ranging from items 1 to 9, but there are some items on one of the ships that are already suitable, such as in item number 2, namely sounding an Sludge Tank on the KMP ship. Legundi, if you look at the MARPOL assessment criteria contained in the appendix to this study, the values shown in table 4.2. item 3 is the same between MARPOL and the ship, as well as item number 9, namely the condition of the oil discharge monitoring on the KM ship. Dharma Kartika IX also shows the same value but cannot accommodate the objectives of MARPOL annex 1 regulation 17 itself because one of the objectives is good waste management to prevent pollution of the marine environment while occurring on KM ships. Dharma Kartika IX oil discharge monitoring is only used for auditing purposes and is open to its actual function, which is to detect the level of oil that will be discharged into the sea at 15 ppm.

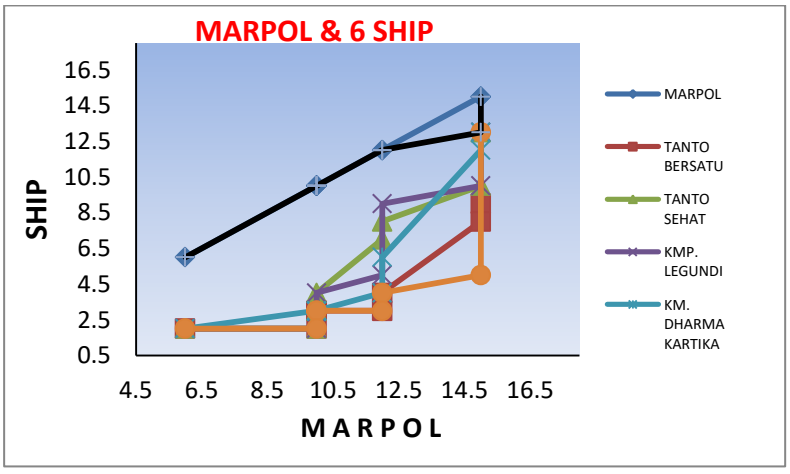
Further data processing at Soekarno Hatta port in Makassar can be seen in the graph and table below:

Graph 4.3. Relationship between MARPOL and its application on ships at the Soekarno Hatta port of Makassar.



From graph 4.3 above it can be seen that ideal conditions and real conditions (Marpol and Ships) have a liner line between MARPOL and MV. This Meratus of Jayapura indicates that the MARPOL assessment criteria annex 1 of regulation 17 and its application on MV ships. Meratus Jayapura, starting from items number 1 to 9, has fulfilled the criteria in accordance with the assessment criteria contained in the appendix to this study. Unlike the KM ship. Galatians 05 which are still many incompatibilities and deficiencies that occur, this is caused by several factors such as human factors (human error) as well as facilities and infrastructure factors as well as other factors that also occur in 2 (two) ports where data collection is the port of Tanjung Priuk Jakarta and tanjung Perak surabaya.

Graph 4.4 Relationship Between MARPOL and Its Application on 6 (six) Ships

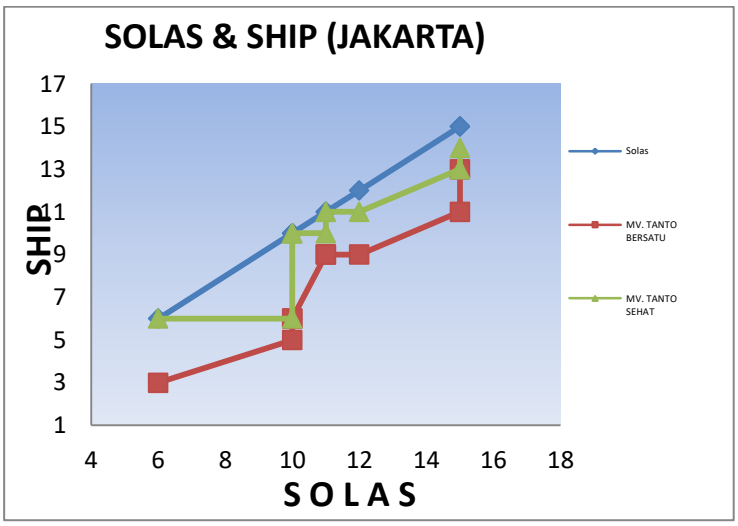


2. Application of SOLAS (Safety of Life at Sea) Chapter II-I Part C Regulation 35 at the Research Locus.

Data taken at 3 major ports in Indonesia are related to the conditions of the application of SOLAS chapters II-I part C regulation 35-I which regulates bilge pumping arrangements wherein many of the regulations explain the arrangement of sewer pumps both in the engine room and in the hold and materials used, everything has been summarized in the SOLAS assessment criteria contained in the appendix

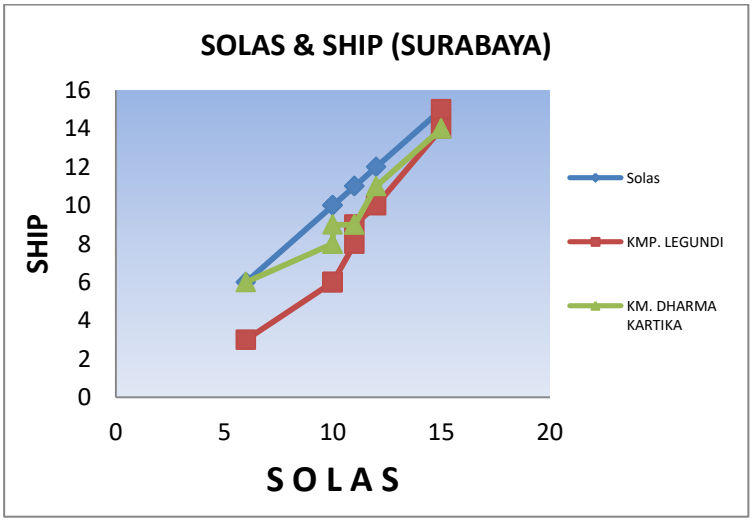
Following is an explanation of the application of SOLAS II-I part C regulation 35-I in the form of graphs and tables below:

Chart. 4.5. Relationship between SOLAS and Its Application on Ships at Jakarta's Tanjung Priuk Port



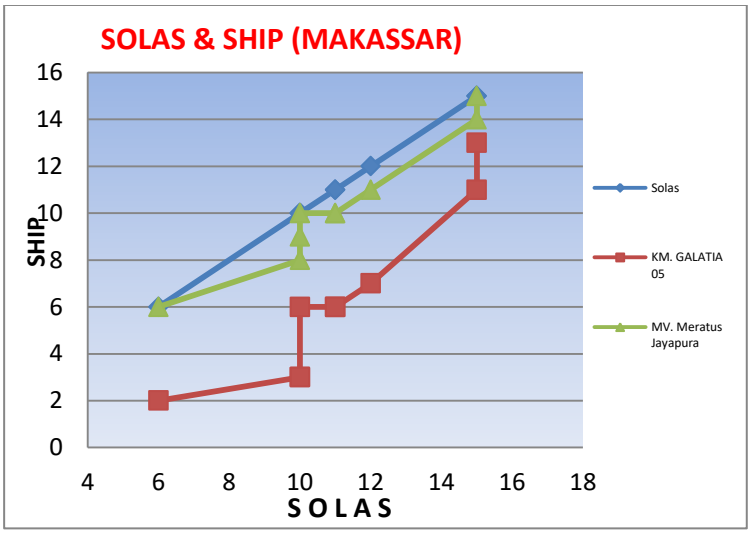
In the graph above explains that from two research objects in the port of Tanjung Priuk, Jakarta, the MV. United Tanto and MV. Tanto Sehat looks like the blue liner line is an ideal condition in accordance with SOLAS chapter II-I part C regulation 35-I (bilge pumping arrangement) the line is obtained from the assessment criteria items converted to numbers as shown in table 4.5 above, then from the blue liner line which is proposed to the other two lines (the red and green lines) the line shows the implementation of SOLAS on the MV. United Tanto and MV. Healthy Tanto has not been fully implemented as in the MV. United Tanto (green line) assessment item number 4 namely Bilge Well Cargo Room Alarm only gets 3 out of 11 ideal values that have been determined in the SOLAS assessment criteria contained in this appendix and this item is one of the most essential things in a the sewer system on the ship, as well as item number 9, the Bilge Valve, of the two vessels above the bilge valve condition is not as expected because one of the functions of the valve is opening and closing the flow while in reality there are still many bilge valves that are not functioning so that the value of each ship only gets 6 out of 12 ideal values. But there are some assessment items that are approaching even the same as the ideal value of SOLAS chapter II-I part C regulation 35-I such as item number 1,2.3.4,5 and 8 for MV ships. Tanto Sehat, all values are the same as the ideal conditions, while for MV ships. Unity Tanto items that approach are numbers 1,3,5 and 8, the inappropriate value is caused by several factors such as poor understanding of the crew and added with other factors the same as in the explanation in the MARPOL section in the previous explanation. Here is a graph for processing data from the port of Tanjung Perak Surabaya.

Chart. 4.6. Relationship between SOLAS and Its Application on the KMP Legundi Ship and KMP Dharma Kartika IX at the Port of Tanjung Perak Surabaya



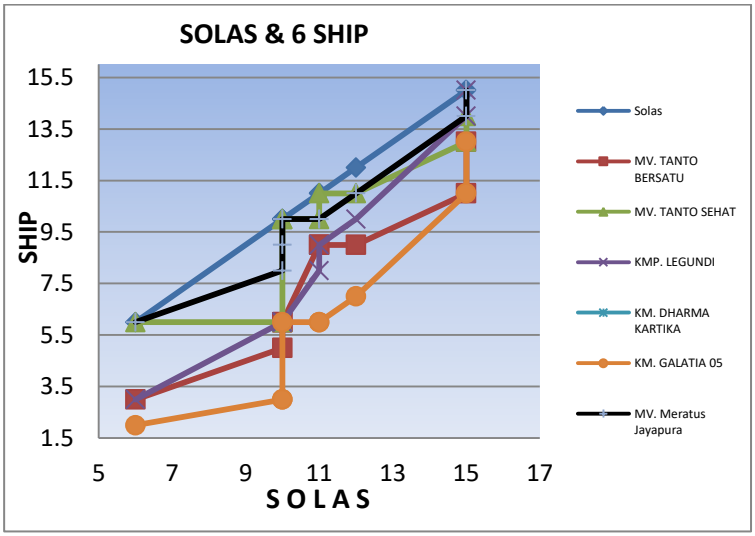
In the graph above, it can be seen that the ideal conditions of the two vessels have not met the criteria, but there are some assessment items that are approaching even the same as the ideal values as in item numbers 1,3,6 and 8 for KMP vessels. Legundi and item number 1,2,3,6 and 8 as well as other items that have not met the SOLAS assessment criteria, from the above values we can conclude that for the application of SOLAS chapter II-I part C regulation 35-I on both ships data retrieval at the port of tanjung Perak Surabaya the results are still not in accordance with SOLAS assessment criteria.

Chart. 4.7. Relationship between SOLAS and Its Application on KM Galatia 05 and MV Meratus Jayapura at Makassar Soekarno Hatta Port



The chart above shows that on the two vessels where data was collected, the KM vessel. Galatians 05 and MV. Meratus Jayapura in Makassar's Soekarno Hatta port, showing the KM boat. Galatia 05 the conditions of the application of SOLAS chapter II-I part C regulation 35-I are almost the same as the four vessels that have been discussed previously, namely the conditions are still not as expected but different from what happened on the MV.

Chart. 4.8. Relationship between SOLAS and Its Application in 6 (Six) Ships Research Locus



3. What understanding does the crew have of MARPOL rules Annex 1 Regulation 17 and SOLAS chapter II-I part C regulation 35-I.

After observing on 6 (six) ships in 3 (three) major ports in Indonesia, namely (Jakarta, Surabaya and Makassar) which were the objects of this research and saw the results of data processing related to the application of MARPOL Annex 1 Regulation 17 and SOLAS chapter II-I part C 35-I regulation, the researchers see that there are several factors that cause the implementation of the regulation is not carried out optimally, namely:

a. Internal factors

The point is the condition of the crew / operators themselves who do not know and do not want to know about the rules that exist on MARPOL and SOLAS and do not take into account the negative impacts that will result from actions that are not in accordance with existing procedures.

b. External Factors

There are several reasons for this external factor, namely:

1) Company Outreach

One of the ways to prevent maritime environmental pollution is to provide an understanding of ship crews before they work on board, this can be done by shipping companies by providing training for 1 or 2 days discussing SOLAS and MARPOL related to pollution.

2) Ship Socialization.

There are many ways that can be done to provide an understanding to the entire crew of the importance of protecting the maritime environment, of the 6 (six) ships that have been diuraika on board only MV. Meratus Jayapura routinely conducts socialization by playing videos about the impacts caused by waste pollution from ships and this activity is carried out twice a month at times that do not interfere with ship operational activities.

3) Procurement of Spare Parts.

Most ships that do not carry out SOLAS and MARPOL rules complain about the problem of procuring non-linear parts, for example damage to oil discharge monitoring on MV vessels. Tanto Sehat where the alarm does not work and the demand for spare parts has been submitted to the company but more than a month the spare parts have not been supplied to the ship, this indicates that the lack of support from the company to succeed the clean the ocean campaign in order to guard the implementation of MARPOL rules and SOLAS.

4) Less Firm Punishment

To enforce the existing rules, it is necessary to have a joint commitment in order to safeguard these rules so that no violations occur, of course it requires hard work from all parties and related elements. For example if there is a ship whose oil water separator is not functioning then the ship is not permitted to sail, the decision not only comes from the regulator but the ship in this case the skipper can also decide that the ship immediately makes repairs before the ship sails. Or at the time of internal or external audit the audit function should have been to assist the ship to remind important items which if ignored were likely to cause disasters.

5. CONCLUSION

Based on the results of research conducted on 6 (six) ships (MV. Tanto Bersatu, MV. Tanto Sehat, KMP. Legundi, KMP.Dharma Lautan, KM. Galatia 05 and MV. Meratus Jayapura) in 3 (three) large ports in Indonesia, namely the port of Tanjung Priuk Jakarta, Surabaya Tanjung Perak and Soekarno Hatta Makassar, which examined the "Implementation of SOLAS (Safety Of Life At Sea) Chapter II-I Part C Regulation 35-1 and MARPOL (Marine Pollution) Annex 1 Regulation 17 Against Implementation of Arrangement Waste on Ships ", several conclusions can be drawn, namely:

1. For the Implementation of SOLAS (Safety Of Life At Sea) Chapter II-I Part C Regulations 35-I (bilge pumping arrangements) on 6 (six) vessels can be seen as follows:

a. MV. Tanto Bersatu = 71%

b. MV. Tanto Sehat = 91%

c. KMP. Legundi = 77%

d. KMP. Dharma Kartika IX = 88%

e. KM. Galatians 05 = 57%

f. MV. Meratus Jayapura = 93%

From the percentage of conformity of the evaluation criteria and the actual conditions on the ship, it can be concluded that there is only I (one) vessel that is in line with Chapter AS-I Part C Regulations 35-I, namely the MV. Meratus Jayapura

2. For the implementation of MARPOL (Marine Pollution) Annex 1 Regulation 17 (Oil Record Book Part 1) on 6 (six) ships the following presentation can be seen:

a. MV. Tanto Bersatu = 31%

b. MV. Tanto Sehat = 52%

c. KMP. Legundi = 51%

d. KMP. Dharma Kartika IX = 49%

e. KM. Galatians 05 = 38%

f. MV. Meratus Jayapura = 98%

From the percentage of conformity of the evaluation criteria and the actual conditions on the ship, it can be concluded that there is only one (1) vessel that is in compliance with MARPOL (Marine Pollution) Annex 1 Regulation 17, namely the MV. Meratus Jayapura.

3. In the context of preserving the maritime environment, it is necessary to give understanding to all crew members before they work, namely by socializing or training which essentially provides provisions to the crew about the importance of protecting the maritime environment as well as when on board understanding about MARPOL and SOLAS must continue to be conveyed well visually or orally so that they continue to care about the maritime environment.

6. SUGGESTION

1. So that the implementation of SOLAS (Safety Of Life At Sea) Chapter II-I Part C Regulations 35-I (bilge pumping arrangements) can be carried out optimally on the ship, it is necessary to have high awareness from all parties starting from regulators, operators and other stakeholders and providing sanctions that educate those who do not comply with existing regulations.

2. Likewise with the implementation of MARPOL (Marine Pollution) Annex 1 Regulation 17 (Oil Record Book Part 1) which is still found many discrepancies that occur on the ship, so that it does not repeat itself, it is necessary to socialize these rules to all parties and not continue. only at the time of the audit but this socialization activity became a good habit so that in the future our seafarers could understand and be aware of the importance of good waste management to prevent pollution of the maritime environment.

3. The socialization activities provided by the company and the ship are one of the forms of concern for environmental pollution but if from each person there is no awareness and desire to do good that does not violate the rules, then the socialization activities will be in vain.

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