



# The Analysis of Watchkeeping on GAS ARJUNA

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**Abstract.** The study titled "The Analysis of Watchkeeping on GAS ARJUNA" (First Author: Gilbert Christianto Mongan, Second Author: Dr. Capt. Moh Aziz Rohman) focuses on the importance of watchkeeping duties on board ships or at ports, which are essential for ensuring safe and controlled conditions. The research examines watchkeeping practices in both the deck and engine departments, governed by the STCW 1978, as amended in 1995, Chapter VIII, which outlines the crew's duties while operating at sea or in port. The research was conducted at PT. Pertamina International Shipping, specifically on the GAS ARJUNA vessel, from December 30, 2023, to January 19, 2024. This quantitative research emphasizes numerical data gathered through interviews, questionnaires, and observations. The results of the study indicate that the implementation of watchkeeping on board GAS ARJUNA was evaluated at 70%, suggesting that it is generally well implemented. However, the research also revealed that 30% of the time, crew members occasionally neglected their duties or made mistakes. Therefore, while the watchkeeping service on GAS ARJUNA is considered satisfactory, improvements are needed to address the lapses in performance.

**Keywords:** Analysis, Duties, GAS ARJUNA

## 1 Introduction

Ships are chosen as the main means of sea transportation because goods can be shipped in large quantities. Basically, sea transportation facilities tend to prioritize more effective and efficient cargo handling. In order for the above to be carried out well, a high sense of responsibility and work ethic is needed for the officers and crew of the ship. For this reason, every crew member, especially those on the deck, must understand the watchkeeping regulations.

In accordance with the established guard regulations on board the ship, crew members assigned to guard duties are required to carry out their responsibilities without exception. The organization must foster a conducive environment that supports a comfortable working atmosphere for all crew members. When carrying out guard duties, whether the ship is sailing or engaged in loading and unloading activities, it is crucial to maintain precision, vigilance, and responsibility. These duties must be adhered to by all crew members, particularly those in the deck section, to prevent any incidents that could lead to cargo damage or legal claims against the shipping company.

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In many cases of ship accidents caused by human negligence, the responsibility to prevent such incidents lies with those tasked with navigation duties on the ship's bridge. Therefore, a ship's captain must have a thorough understanding of and strictly apply the 1972 Collision Regulation (COLREG). Similarly, the navigation watch officer, when on duty at sea, acts as the captain's representative and must carry out watch duties with the utmost care. It is their responsibility to ensure continuous and effective supervision to prevent accidents and maintain safety at sea.

Because of the importance of efforts to increase work productivity on board the ship, the author took the title " The Analysis of Watchkeeping on GAS ARJUNA "

## **2 Literature Review**

### **2.1 Definition Analysis**

According to Wiradi (2006: 103), analysis is an activity that contains a number of activities, such as mastering, differentiating, sorting things to be classified, filling them in based on certain criteria, and then looking for the meaning and relationship of each.

### **2.2 Definition Watchkeeping**

According to E.W. Manikome (2008) in the watchkeeping book, means to look carefully or be alert. Watch also means a period of being on guard. In sea watch duty the term means duty (usually for four hours) for officers and crew of a ship. So the term watch duty means:

1. Careful means paying full attention and watching vigilantly or guarding the ship carefully.
2. Caution means being on guard continuously and very carefully for a definite reason or purpose, especially to see and avoid the danger of collision.
3. Alert emphasizes a state of being very alert and ready to act to overcome whatever will happen.

## **3 Research Methods**

Quantitative research relies heavily on numerical data, from collection and interpretation to the presentation of results. In this type of research, data is typically gathered through tools like questionnaires, and the responses are analyzed using statistical methods. A Likert scale is commonly used to assess attitudes or opinions, where respondents indicate their level of agreement or disagreement with statements. The collected data is then processed and analyzed to derive meaningful conclusions and patterns.

In making or completing this thesis, concrete data is needed as material for analysis in writing the main material and problems. The method used to obtain the researched data according to the author's experience while carrying out marine practices is as follows:

1. Field method (field research), namely research carried out by conducting direct inspection of the object being studied. Data and information are collected through:
  - a. Observation involves conducting direct inspections or observations in the field. In this research, the author carried out observations during sea practices aboard the GAS ARJUNA ship, specifically focusing on the implementation of guard duty on the bridge while the ship was sailing. This allowed for a firsthand assessment of how guard duties were executed, providing insights into the practical application of safety protocols and navigation procedures while at sea.
  - b. Interview, namely collecting data by holding questions and answers directly with ship officer X who has experience in carrying out guard duty on the bridge while the ship is sailing.
  - c. Questionnaire, namely by making a questionnaire and asking the respondents, namely the officers on the ship and the helmsman on the ship.
2. The literature review entails examining books and articles to establish a theoretical basis for improving guard duty on the bridge, addressing common operational challenges, and identifying effective strategies to enhance watchkeeping practices.

**Sample Heading (Third Level).** Only two levels of headings should be numbered. Lower level headings remain unnumbered; they are formatted as run-in headings.

## 4 Research Findings

During data collection on the GAS ARJUNA, a vessel operated by PT. Pertamina International Shipping, I observed areas for improvement in watchkeeping practices. The STCW 1978 Convention, as amended in 2010, emphasizes good corporate governance and social responsibility by standardizing seafaring competencies, enhancing training, and setting health and rest criteria. On the GAS ARJUNA, close loading and unloading ports lead to extended standby hours, reducing crew rest. PT. Pertamina International Shipping also mandates 2-3 hours of fixed overtime for all officers, as the GAS ARJUNA is a gas carrier with SIRE certification, allowing unrestricted entry into international waters with demanding schedules.

From the observations and data collected, I conducted an analysis of guard duty on board based on the STCW 1978, as amended in 2010. This research used a questionnaire method, targeting those responsible for watchkeeping duties, specifically the deck watch officer and the Able Seaman (AB) on watch. The questionnaire included several questions aimed at assessing the performance, challenges, and adherence to watchkeeping standards among the crew.

In conducting research, the author used quantitative data collection techniques in two ways, namely questionnaires and observation. In collecting data, questionnaires are needed as object samples to obtain research data. The following are the respondents used as research samples by the author.

### 4.1 Questionnaire Technique

In this technique, the author looks for data about the knowledge of the watchmen, namely the Chief and Helmsman, to measure the extent to which the deck crew understands the guard duty procedures on board the ship.

**Table 1.** List of Respondents in Research.

No	Respondent Name	Rank
1	Putra Samudra Yuda Laksana	Chief Officer
2	Matari Immanuel	Second Officer
3	Rindang Yekti Utami	Third Officer
4	Erlangga Mathovani	AB-1
5	Purnomo	AB-2
6	Alam Permana	AB-3

*Source: GAS ARJUNA, 2023*

For data processing in category A which consists of 5 questions. The assessment scale criteria are as follows:

**Table 2.** Assessment Criteria for Categories A, B and C.

No	Category	Score
1	Always	4
2	Often	3
3	Seldom	2
4	Never	1

*Source: GAS ARJUNA, 2023*

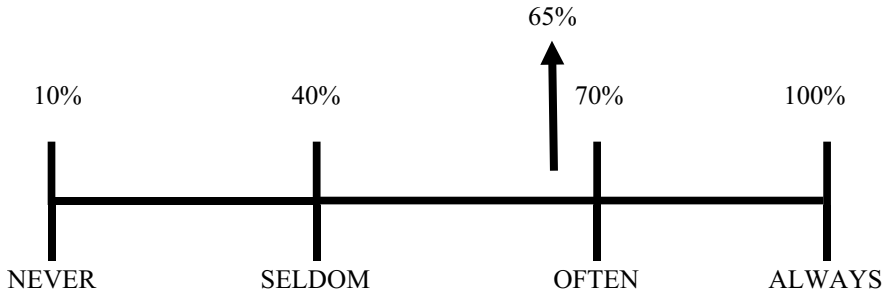
After the researcher asked questions to the respondents, the results obtained from the respondents' data regarding rest hours & fatigue were as follows:

**Table 3.** Data Processing Results A (Regarding Rest Hours & Fatigue for Officers and AB on duties).

No	Respondent	Respondent Answer Value					Score
		1	2	3	4	5	
1	Mualim 1	4	3	4	3	3	17
2	Mualim 2	3	3	3	3	3	15
3	Mualim 3	3	3	2	1	2	11
4	AB-1	3	3	2	1	2	11
5	AB-2	3	3	1	2	2	11
6	AB-3	2	3	3	3	2	13
Total Score							78

*Source: GAS ARJUNA, 2023*

The questionnaire was given to 6 respondents with the total criteria score (if each item gets the highest score) =  $4 \times 5 \times 6 = 120$ . Where for the highest score for each item = 4, the number of questions = 5 and the number of respondents = 6. Total scores from data collection = 78.



**Fig. 1.** Likert Scale Results of Data Processing About Rest Hours and Fatigue (Fatigue)

According to Figure 1, percentage of understanding about rest hours & fatigue 6 respondents, namely 78:  $120 \times 100\% = 65\%$ . This means that officers on duty and AB on duty know enough about rest hours & fatigue.

For data processing in category B which consists of 3 questions.

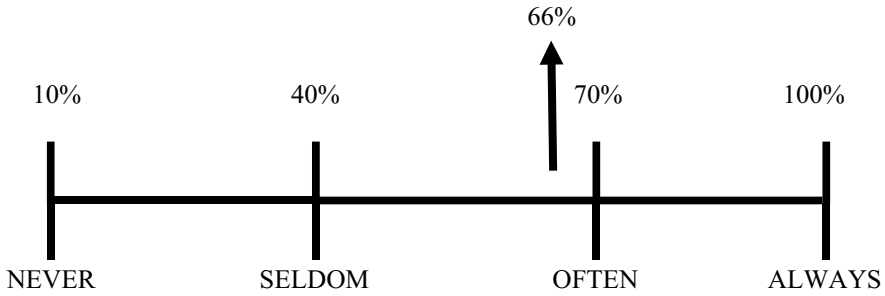
After the researchers asked questions to respondents, the results obtained from data processing of respondents regarding the prevention of alcohol abuse were as follows:

**Table 4.** Data Processing Results B (Concerning Prevention of Alcohol Abuse for Officers and AB Duties)

No	Respondent	Respondent Answer Value			Score
		1	2	3	
1	Chief Officer	4	4	3	11
2	Second Officer	4	2	2	8
3	Third Officer	4	1	2	7
4	AB-1	3	2	2	7
5	AB-2	3	2	2	7
6	AB-3	4	2	2	8
Total Score					48

Source: GAS ARJUNA, 2023

The questionnaire was given to 6 respondents with the total criteria score (if each item gets the highest score) =  $4 \times 3 \times 6 = 72$ . Where for the highest score for each item = 4, the number of questions = 3, and the number of respondents = 6. The total scores collected data = 48.



**Fig. 2.** Likert Scale Results of Data Processing Regarding Prevention of Alcohol Abuse for Officers and AB Guards

According to Figure 2, the percentage regarding preventing alcohol abuse for officers and AB on guard according to 6 respondents is 48:  $72 \times 100\% = 66\%$ . This means that the officers and AB on duty on the ship understand enough about preventing alcohol abuse.

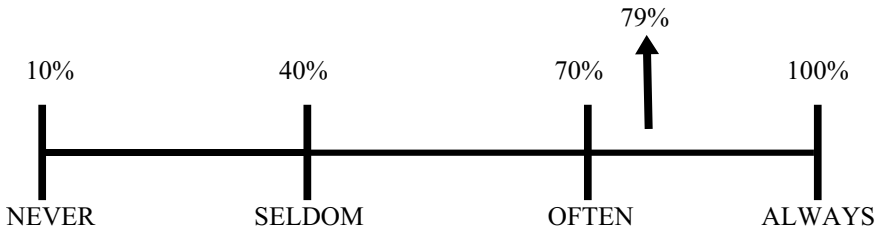
After the researcher asked questions to the respondents, the results of data processing regarding the bridge organization were obtained as follows:

**Table 5.** Data Processing Results C (Regarding Bridge Organization for Officers and AB Duties)

No	Respondent	Respondent Answer Value				Score
		1	2	3	4	
1	Mualim 1	4	4	4	4	16
2	Mualim 2	3	4	3	3	13
3	Mualim 3	3	4	3	3	13
4	AB-1	3	3	4	3	13
5	AB-2	3	2	2	2	9
6	AB-3	3	2	4	3	12
Total Score						76

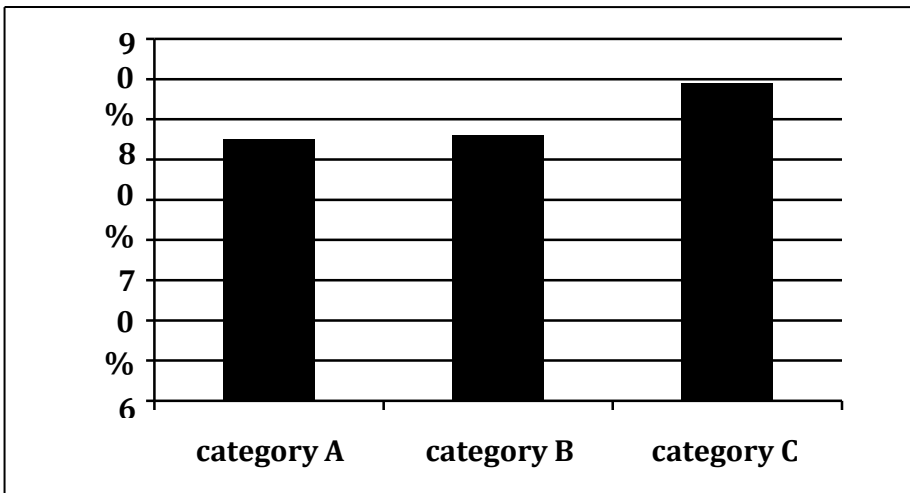
*Source: GAS ARJUNA, 2023*

The questionnaire was given to 6 respondents with the total criteria score (if each item gets the highest score) =  $4 \times 4 \times 6 = 96$ . Where for the highest score for each item = 4, the number of questions = 4, and the number of respondents = 6. The total scores collected data = 76.



**Fig. 3.** Likert Scale Results of Data Processing About Bridge Organizations

According to Figure 3, the percentage results regarding the bridge organization are  $76:96 \times 100\% = 79\%$ . This means that officers and AB on duty already understand the bridge organization.



**Fig. 4.** Frequency Diagram of Questionnaire Results. Source: Data Processing Results from Questionnaire Conclusions on the GAS ARJUNA Ship, 2023

The questionnaire results show an average implementation score of 70%, calculated from: rest hours & fatigue management at 65%, prevention of alcohol abuse at 66%, and bridge organization practices at 79%. This indicates that, overall, watchkeeping duties on board have been carried out reasonably well. However, instances of negligence and errors in recent times suggest that some crew members may not fully understand the requirements for watchkeeping duties as outlined in the STCW 1978 Amendment 2010.

## 5 Conclusion and Suggestions

### 5.1 Conclusion

1. Based on the analysis and discussion, with reference to applicable standards and theoretical studies conducted during the author's research on the GAS ARJUNA ship, an average score of 70% was achieved. This suggests that the implementation of guard duty has generally been effective. However, 30% of the findings indicate occasional negligence and errors by officers and helmsmen on watch, often due to a lack of responsibility.
2. Efforts to improve bridge watch procedures on the GAS ARJUNA include regular observation of surroundings and maintaining ship speed in line with international regulations. Professional seafarers gain respect by performing duties with discipline, fostering a safe and conducive environment on board.

### 5.2 Suggestions

In accordance with the conclusions expressed, the author proposes that:

1. To ensure effective watch duty and enhance decision-making confidence, it is essential to improve understanding of watch procedures in line with the STCW 1978 Amendment 2010, which many seafarers are not fully familiar with. Additionally, promoting leadership awareness can help optimize the implementation of guard duties, fostering a safe and supportive atmosphere on board.
2. It is recommended that the officer on duty when carrying out guard duty on the bridge be able to optimize the use of navigation tools and carry out visual observations to detect as early as possible the danger of collision and make the right decisions. Skills in operating these tools are needed so that safety can be created during shipping.

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