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Continuity of Safety and Lifesaving Training at Sea in Facing Emergency Situations on Board the MT. Jayne-I Owned by PT. Bumi Shipping

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Abstract

Safety and lifesaving at sea are vital in ship operations, particularly on tankers facing high risks of fires, explosions, collisions, and sinking. To mitigate these risks, implementing continuous safety training per international regulations is crucial. This study aims to evaluate and establish the continuity of safety and lifesaving training on the MT. Jayne-I tanker (owned by PT. Bumi Shipping), aligning it with international standards like SOLAS 1974. This study utilized a qualitative descriptive method. Data was collected through direct onboard observation, crew interviews, and the examination of ship safety documents, including muster lists and emergency procedures. Results indicate that while safety and lifesaving training on the MT. Jayne-I is conducted routinely, it remains suboptimal. Key obstacles include the crew's low awareness regarding the importance of safety training, inadequate proficiency with safety equipment, and a tendency for exercises to be formalistic rather than simulating actual emergencies. Additionally, the ship's demanding operational schedule negatively impacts training continuity. In conclusion, improving the effectiveness and continuity of safety training on the MT. Jayne-I is essential. This requires highly disciplined, meticulously planned exercises adhering strictly to SOLAS 1974, STCW 1978, and the ISM Code. By enhancing training quality, the crew will be better prepared and skilled in handling emergencies, ultimately ensuring the safety of lives, the vessel, its cargo, and the marine environment.

Keywords: Maritime Safety, First Aid At Sea, Emergency Training, SOLAS 1974, Tanker.

1. Introduction

In the contemporary era of globalization, maritime transportation has evolved significantly, diversifying into various specialized vessel types to meet global trade demands. Among these, the oil tanker remains a critical component of the global energy supply chain, utilized extensively for transporting crude oil and petroleum products between geographic locations. The subject of this research, the MT. Jayne-I, actively contributes to this logistical network by operating primarily in the transport of oil products, specifically Fatty Acid Methyl Ester (FAME), from its main loading ports in SDO or SDS Dumai, Sumatra, to various discharge ports, including Tanjung Priok, Jakarta. Maritime transport is an indispensable alternative for the global trade chain; therefore, maintaining a safe and secure shipping environment is paramount. When all requirements for navigational safety are rigorously met, the ship's crew is empowered to perform their duties optimally and efficiently.

However, a vessel is inherently a floating entity operating in dynamic and often hostile environments. As ships traverse various navigational areas over extended periods, propelled at varying speeds, they are exposed to a multitude of risks driven by factors such as adverse weather conditions, navigational channel constraints, and mechanical failures. These factors can precipitate emergency situations that not only threaten the timely arrival of the vessel but, more critically, endanger the lives of those on board. According to Thamrin (2025), preparation for maritime emergencies is necessitated by the unpredictable and dangerous nature of the marine environment. Conditions such as severe weather, technical malfunctions, or human error can trigger emergency situations at any moment. Consequently, ensuring that passengers and crew possess the means and knowledge to survive, reducing panic, and increasing orderliness during evacuation are critical objectives. Emergency situations on board must be handled immediately and effectively by the ship's crew. Yet, as humans, crew members possess limited capabilities in managing such high-stress events. In extreme scenarios where damage is catastrophic—such as imminent sinking—the Master, as the supreme authority on board, retains the right to order the abandonment

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of the ship.

Human error remains a predominant cause of maritime accidents. According to the International Maritime Organization (IMO), human error contributes to approximately 80% of shipboard accidents, encompassing errors committed by the Master, Officers, Engineers, Ratings, and Pilots. Accidents are an unfortunate but frequent reality in the maritime domain, a topic often approached with trepidation due to the potential for significant loss of life and property. Recognizing this vulnerability, maritime nations collectively established the International Convention for the Safety of Life at Sea (SOLAS) in 1974 in London, under the auspices of the IMO. This convention serves as the bedrock of maritime safety regulation.

Despite these regulations, discrepancies between mandated safety standards and actual implementation persist. On April 16, 2024, the MT. Jayne-I underwent a Pertamina Safety Approval (PSA) audit. During this inspection, the inspector ordered an unannounced fire drill. The resulting execution revealed critical gaps: despite the alarm sounding, the crew's muster at the station was delayed, and several crew members demonstrated a lack of understanding regarding the correct usage of safety equipment. This incident serves as a crucial indicator that the theoretical application of emergency drills, as dictated by SOLAS 1974 Chapter III Regulation 19, the STCW 1978 Section A-V/2, and the ISM Code Chapter 8.2.3, is not being fully realized in practice.

The persistence of fire and sinking incidents highlights the critical need for effective self-rescue techniques and emergency response competence. Crew members must possess a profound understanding of how to utilize safety equipment and execute their specific roles as defined in the Muster List. All actions in an emergency must be designed to allow the crew to save themselves and others, and to preserve the ship and its cargo rapidly and precisely. However, reality often indicates a lack of sufficient knowledge among crew members regarding lifesaving at sea. This deficiency often stems from safety training exercises that are conducted without seriousness or high awareness—drills that are merely administrative formalities ("paper drills") rather than practical simulations. Such negligence leads to a lack of discipline and readiness, creating fatal risks when actual emergencies occur. Driven by these observations, this research focuses on analyzing the continuity of safety training on the MT. Jayne-I to enhance effectiveness, ensuring crew members are habituated and responsive.

2. Research Methodology

2.1 Research Design

This study employs a qualitative descriptive research design. According to Laia et al. (2023), qualitative research focuses on analyzing meanings, concepts, characteristics, and descriptions of phenomena. This method was chosen to provide a comprehensive overview of the safety culture and drill execution practices observed directly by the researcher during their sea service. The goal is to understand the "how" and "why" behind the observed lack of drill continuity and crew preparedness.

This study employs a **qualitative descriptive** research design. According to Waruwu (2024), qualitative research focuses on analyzing meanings, concepts, characteristics, and descriptions of phenomena in their natural setting. This approach allows the researcher to provide a comprehensive overview of the safety culture and drill execution practices observed directly on board.

2.2 Time and Location of Research

Location: The research was conducted on board the MT. Jayne-I (Call Sign: PNGZ, IMO: 9182849), an oil product tanker owned by PT. Bumi Shipping. The vessel operates in Indonesian waters (e.g., Dumai, Jakarta, Padang).

Timeframe: The research data was collected during the author's sea project (Prala) from August 5, 2023, to August 8, 2024 (12 months and 3 days).

Subject: The primary subjects were the deck and engine crew members of the MT. Jayne-I, totaling approximately 20-25 personnel.

2.3 Data Sources

Primary Data: Obtained directly from the source.

- *Observations*: Direct monitoring of emergency drills, equipment conditions, and daily operations.
- *Interviews*: Semi-structured interviews with key officers (Chief Officer, Third Officer) regarding safety management and drill scheduling.

Secondary Data: Obtained from existing documents.

- *Ship Documents*: Muster List, Monthly Drill Reports, Ship Particulars, Familiarization Forms, and Logbooks.
- *Literature*: Journals, books, and regulations (SOLAS, STCW, ISM Code).

2.4 Data Collection Technique

Observation: The researcher acted as a participant-observer. Specific attention was paid to the execution of the monthly drills (Fire, Abandon Ship) and the unannounced drill during the Pertamina Safety Approval (PSA) audit on April 16, 2024.

Interview: Interviews were conducted to gather qualitative insights into the crew's mindset and the management's challenges.

- *Informant 1*: Chief Officer (Mualim I) - Responsible for deck operations and safety equipment.
- *Informant 2*: Third Officer (Mualim III) - Responsible for LSA/FFA maintenance.

Documentation: The researcher collected photographic evidence of equipment conditions (e.g., leaking hoses, corroded lifeboats) and copies of drill reports to compare reported data with observed reality.

2.5 Data Analysis Technique

The data analysis followed the interactive model by Miles and Huberman:

- *Data Collection*: Gathering all field notes, photos, and interview transcripts.
- *Data Reduction*: Selecting relevant data, focusing on drill continuity and equipment condition.
- *Data Display*: Presenting the data in narrative text and tables (e.g., drill schedules) to facilitate understanding.

Conclusion Drawing/Verification: Synthesizing the findings to answer the research problems and verify them against regulatory standards.

Data analysis utilized the interactive model by Miles and Huberman, as cited in Pratitis Putri et al. (2024). This involves four concurrent flows of activity: Data Collection, Data Condensation (Reduction), Data Display (using tables and flowcharts), and Conclusion Drawing/Verification. To ensure data validity, **triangulation** of both sources (comparing Chief Officer and Third Officer statements) and techniques (comparing interview data with observation and documentation) was rigorously applied.

3. Results and Discussion

3.1 General Overview of the Research Object

The MT. Jayne-I is an Indonesian-flagged oil tanker built in 1999. It has a Length Overall (LOA) of 108.00 meters and a Gross Tonnage (GRT) of 5,169 tons. The vessel is equipped with standard SOLAS safety equipment, including two enclosed lifeboats (capacity 25 persons each), life rafts, and a fixed fire-fighting system.

Table 1. Ship's Particulars (MT. Jayne-I)

Parameter	Detail
Name Vessel	MT. Jayne-I
Type	Oil Tanker
Year of Build	1999
Flag	Indonesia
Class	ABS
LOA	108.00 M
DWT	6905 Ton
Main Engine	Wartsila/6R32LNE/(3342PS)

3.2 Research Findings

3.2.1 The Pertamina Safety Approval (PSA) Incident

On April 16, 2024, the vessel underwent a Pertamina Safety Approval (PSA) audit at the Tanjung Priok anchorage. The inspector triggered an unannounced fire drill, treating it as an actual emergency scenario. Observations revealed a sluggish muster response. Several crew members failed to proceed directly to their designated stations as per the Muster List. More critically, when randomly selected by the inspector to demonstrate the donning of the Fireman's Outfit and the Thermal Protective Aid (TPA), several crew members executed the procedures incorrectly.

The Fireman's Outfit is designed to protect the wearer from direct flame and extreme heat, while the TPA is intended to prevent hypothermia. The crew's inability to differentiate or rapidly deploy these fundamental life-saving appliances under audit pressure highlighted a severe lack of "muscle memory" and technical proficiency, stemming directly from inadequate routine training.

3.2.2 Analysis of Drill Continuity and Reporting

An analysis of the vessel's "Monthly Drill Reports" for early 2024 revealed discrepancies between the recorded data and the observed operational reality.

- January 2024: Reports indicate drills for *Abandon Ship*, *Oil Spill*, *Fire*, and *Steering Gear Failure*. The remarks state "Crew Can Understand Drill Scenario."
- February 2024: Reports list *Abandon Ship*, *Oil Spill*, *Fire*, and *Man Overboard*.
- March 2024: Reports list *Abandon Ship* and *Fire*.

However, direct observation indicated that while reports were filed ("Administrative Compliance"), the quality of the drills was often poor. Drills were frequently conducted as "tabletop" discussions or "walkthroughs" rather than full-scale simulations.

Table 2: Comparison of Drill Execution vs. SOLAS Requirements

No	Drill Type	SOLAS Requirement	MT. Jayne-I Execution	Status
1	Fire Drill	Monthly	Monthly	Consistent
2	Abandon Ship	Monthly	Monthly	Consistent
3	Collision	Periodically (e.g., 3 months)	Never Conducted	Non-Compliant
4	Grounding	Periodically	Never Conducted	Non-Compliant
5	Enclosed Space	Every 2 months	Never Conducted	Non-Compliant
6	Man Overboard	Periodically	Every 3 months	Consistent
7	Safety Orientation	On joining	Inconsistent	Non-Compliant

As depicted in Table 2, high-risk scenarios specific to tanker operations, such as Enclosed Space Entry (mandated every 2 months) and Collision/Grounding responses, were entirely omitted from the actual training regime. This selective compliance leaves the crew dangerously underprepared for high-probability hazards.

Furthermore, documentation analysis of the "Deck and Engine Familiarization Forms" for newly joined crew members (e.g., Ibnu Sucipto and Septa Baniansyah) revealed that orientations were purely administrative check-box exercises. New crew members were signed off without receiving physical, hands-on instruction regarding the location and operation of LSA/FFA.



Fig 1. Meeting

3.2.3 Equipment Condition and Maintenance

The effectiveness of training is intrinsically linked to the reliability of equipment. The research identified significant maintenance lapses:

- Fire Hoses: During the PSA drill, several hoses were found to be leaking.
- Life Jackets: Some life jacket lights were non-functional or expired.
- Lifeboats: Davit hooks showed signs of corrosion.
- Supply Chain Issues: Interviews with the Chief Officer revealed that requisitions for spare parts often faced significant delays from the company's shore management, forcing the crew to train with substandard equipment.

3.2.4 Familiarization Gaps

Documentation study of the "Deck Department Familiarization Forms" (e.g., for crew members Ibn Sucipto and Septa Baniansyah) showed that familiarization was often treated as a checklist exercise. New crew members were

signed off as "familiarized" without receiving comprehensive physical instruction on the location and operation of LSA/FFA. The focus was predominantly on operational duties (navigation, cargo) than safety.



Fig 2. Emergency Drill

3.3 Discussion

3.3.1 Triangulation of Interview Data

To understand the root causes of these deficiencies, in-depth interviews were conducted and analyzed using source triangulation.

- Informant 1 (Chief Officer Petrus Bangun): Highlighted that the primary challenge is the vessel's dense operational schedule. The relentless tempo leaves minimal time for comprehensive physical drills. Furthermore, he noted significant logistical bottlenecks; requisitions for critical spare parts (e.g., replacement fire hoses, life jacket lights) often faced multi-month delays from shore-based management, forcing the crew to train with substandard or broken equipment.
- Informant 2 (Third Officer Liharto Situmorang): Pointed to a systemic lack of safety culture and management oversight. He emphasized that drills are often conducted as mere formalities to satisfy Port State Control. To rectify this, he strongly advocated for the integration of modern training aids, specifically the Emergency Simulation System (ESS), Decision Support System (DSS), and Safety Equipment Training System (SETS), to facilitate realistic, high-stress scenario training without disrupting ship operations.

3.3.2 Evaluation of Safety Training Implementation and Crew Preparedness on the MT. Jayne-I

The implementation of safety and lifesaving drills aboard the MT. Jayne-I currently exhibits a significant discrepancy between administrative reporting and practical execution. Although safety training schedules are formulated in accordance with the International Convention for the Safety of Life at Sea (SOLAS) and corporate guidelines, onboard observations reveal that these exercises are largely formalistic. Ship personnel frequently execute drills merely to fulfill administrative requirements and pass external safety audits, rather than to genuinely cultivate emergency preparedness. Consequently, there remains a profound deficiency in fundamental knowledge and situational awareness among the crew regarding emergency protocols and the proper utilization of lifesaving equipment.

Furthermore, the efficacy of these safety exercises is heavily compromised by the vessel's demanding operational schedule and logistical constraints. Intensive cargo operations and tight sailing itineraries leave minimal time for comprehensive safety orientations, often reducing drills to rushed activities conducted only during infrequent operational downtimes. This pressure is further exacerbated by inadequate logistical support from the shipping company. Requisitions for critical safety equipment replacements, such as fire extinguishers and protective gear, frequently experience months-long delays. This sluggish response not only impedes the execution of practical training but also critically undermines the vessel's physical readiness for maritime emergencies.

The cumulative effect of these administrative, operational, and logistical shortcomings creates a significant vulnerability in the ship's overall emergency response capabilities. The crew's inadequate understanding of

emergency procedures inevitably leads to confusion and elevated risks during both routine drills and actual crises. To mitigate these hazards, it is imperative to transition from a purely compliance-driven approach to a proactive, comprehensive safety culture. By prioritizing strictly scheduled, preventive, and predictive training exercises—coupled with responsive logistical support—the MT. Jayne-I can optimize the functionality of its safety equipment and ensure its crew is genuinely equipped to handle maritime emergencies in accordance with established regulatory standards.

3.3.3 Compliance Assessment of Safety Drills with International Maritime Conventions

The execution of safety drills aboard the MT. Jayne-I demonstrates a critical non-compliance with fundamental International Maritime Organization (IMO) regulatory frameworks, specifically the Safety of Life at Sea (SOLAS) 1974 Chapter III Regulation 19, the Standards of Training, Certification and Watchkeeping for Seafarers (STCW) 1978 Section A-V/2, and the International Safety Management (ISM) Code Chapter 8.2.3. An analysis of the vessel's monthly drill reports reveals severe operational deficiencies. Crucial emergency response exercises—including collision mitigation, anti-piracy maneuvers, grounding responses, explosion containment, and enclosed space evacuations—which are mandated to occur quarterly, were entirely omitted from the training schedule. Furthermore, the mandatory monthly orientation for safety equipment was improperly reduced to a single session per quarter, severely undermining the crew's operational readiness and the vessel's overall emergency preparedness.

The rigorous implementation of these international conventions is fundamentally designed to serve as a proactive mechanism for accident prevention and emergency mitigation, ensuring the rapid and accurate safeguarding of the vessel, its crew, and its cargo. However, the current practices on the MT. Jayne-I fail to achieve these objectives because they rely heavily on superficial administrative documentation rather than verifiable physical execution. To cultivate genuine reliability and preparedness in emergency scenarios, it is imperative that safety management procedures are actively tested through practical, hands-on field exercises. Relying solely on paper compliance is insufficient; the actual execution of emergency drills must be regularly evaluated to ensure that theoretical procedures translate effectively into practical survival skills during a real crisis.

To rectify these systemic failures, the shipping company must assume a more active role in accordance with SOLAS 1974 mandates, which dictate the necessity of comprehensive and periodic inspections. These evaluations should not only assess the practical effectiveness of the onboard safety drills but also rigorously audit the condition and inventory of all lifesaving appliances. The company bears a direct responsibility to promptly replace defective, expired, or depleted safety equipment with high-quality components upon request. By transitioning from a culture of administrative complacency to one of stringent routine inspections and practical drill enforcement, the company and the vessel's command can significantly minimize the probability of future operational failures and ensure a robust maritime safety environment.

4. Conclusion

Based The continuity of safety and lifesaving training aboard the MT. Jayne-I is fundamentally critical for ensuring crew preparedness during maritime emergencies. While emergency drills and safety equipment orientations are universally recognized as vital components of vessel security, their practical implementation faces significant operational barriers. Routine, systematic exercises and regular equipment inspections are necessary to build technical competence; however, persistent challenges such as critical shortages in human resources, severe time constraints dictated by operational demands, and inherent human errors consistently hinder the optimization of these protocols. Consequently, establishing a robust culture of safety awareness remains an ongoing operational challenge that prevents the crew from reaching peak emergency readiness. Although the administrative framework for safety training on the MT. Jayne-I is structurally designed to align with international maritime standards—specifically SOLAS 1974, STCW 1978, and the ISM Code—the actual execution frequently falls short of these rigorous regulatory benchmarks. The vessel's demanding operational schedule and limited resources prevent the safety drills from achieving maximum efficacy. Furthermore, inadequate external supervision and a lack of strict internal evaluation create a dangerous gap between theoretical compliance on paper and practical survival readiness at sea. To genuinely adhere to SOLAS standards, the vessel's management must ensure that training moves beyond mere administrative compliance to effectively equip the crew with the practical, rapid-response skills required to safeguard the vessel, its personnel, and its cargo. To rectify these operational and administrative deficiencies, a comprehensive improvement in resource management and supervisory oversight is highly

recommended. The managing shipping company and relevant maritime authorities must enforce stricter audits and routine oversight to guarantee that all safety drills genuinely meet SOLAS requirements in both procedure and frequency. Concurrently, vessel management must optimize operational resource allocation, dedicating sufficient, uninterrupted time and personnel specifically for mandatory training. Developing highly detailed, accessible training schedules and comprehensive evaluation reports based on the official emergency muster list will help officers accurately identify and correct individual crew underperformance, ensuring every seafarer comprehensively understands their specific duties. Furthermore, integrating advanced technological solutions is essential to elevate the quality, safety, and realism of onboard emergency training. The strategic implementation of an Emergency Simulation System (ESS), a Decision Support System (DSS), and a Safety Equipment Training System (SETS) is strongly recommended. These modern technological frameworks allow the crew to engage in highly realistic emergency scenarios without disrupting standard vessel operations or depleting physical safety resources. By facilitating practical experience and refining rapid decision-making skills, these systems ensure that safety equipment is utilized practically and efficiently in accordance with established IMO and SOLAS standards, ultimately maximizing the crew's capacity to resolve critical maritime emergencies.

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