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THE CAUSE OF THE LOADING DELAY WAS DUE TO A PROBLEM WITH THE CARGO PUMP AT MT. SNAPPER

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ABSTRACT

In the operation of loading and unloading a cargo on a ship, special expertise and more attention are needed to support the smooth operation of the ship. In addition to operational problems, negligence in supervision of cargo can also result in hazards to ships, such as overflow and contamination of other cargoes, in this paper explains the preparations that occur in the implementation of loading and unloading operations and anticipating failures both from the ship and the dock. There are elements that can hinder the stages of loading operations when the ship is docked on the jetty, including the performance of the cargo pump, the initial circulation process, and the understanding of the guard officer himself. To overcome these things is by following every standard operating procedure that has been set, conducting good supervision during guard service, and routinely carrying out regular checks every hour so that safe, smooth, and proper cargo operations can be realized.
Keywords: *Loading and Unloading Operations, Tankers, Liquid Cargo*

ABSTRAK

Dalam operasi bongkar muat suatu muatan di atas kapal, dibutuhkan suatu keahlian khusus dan perhatian lebih guna menunjang kelancaran operational kapal. Selain masalah operational, kelalaian pengawasan terhadap muatan juga bisa mengakibatkan bahaya terhadap kapal, seperti overflow dan terkontaminasi muatan lain, dalam penulisan ini menjelaskan tentang persiapan yang terjadi dalam pelaksanaan operasi bongkar muat dan mengantisipasi kegagalan-kegagalan baik faktor dari pihak kapal maupun pihak dermaga.Terdapat unsur-unsur yang dapat menghambat tahapan operasi pemuatan saat kapal sedang sandar pada jetty, yang diantaranya yaitu kinerja pompa cargo, proses sirkulasi awal, pemahaman dari perwira jaga itu sendiri. Untuk mengatasi hal-hal tersebut adalah dengan cara mengikuti setiap standart operasional prosedure yang telah di tetapkan, melakukan pengawasan yang baik selama berdinas jaga, dan rutin menjalankan regulary check setiap jam sehingga operasional cargo yang aman, lancar, dan tepat dapat terwujud.
Kata kunci: Operasi Bongkar Muat, Kapal Tanker, Muatan Cair

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1. INTRODUCTION

Ships are means of sea transportation that function to move goods or cargo from one location to another. The operation is carried out by the crew consisting of the Captain or Master as the leader, the Chief Engineer as the Head of the Engine Room (KKM), and the watch officers. Because conditions outside and inside the ship are often unpredictable accurately, the crew must always be vigilant, pay full attention, and be alert in taking action on any situation that arises. Although loading and unloading are two different activities, they have similarities in the aspects of occupational safety whose regulations are listed in the ISM Code (International Safety Management Code). Loading and unloading activities on tankers are one of the main operations besides navigation activities on shipping lanes. The smooth running of this process is influenced by various factors, including the condition of loading and unloading equipment, human resource competence, environmental conditions, and other supporting aspects. On tankers, *the cargo pump* is the main tool that ensures that the cargo transfer process runs smoothly, both during loading and unloading at the terminal and when transferring between ships. If there is a problem during the process, loading and unloading activities can be stopped or changed, so that ship operations are disrupted and costs can increase. Loading and unloading operations are hampered due to heavy density loads, then cargo pumps that are not yet in a condition ready to operate. The solution to the root of this problem is that the ship only needs to circulate on the line up that has been prepared, but the deck crew and guard officers on duty do not understand the operation too well to circulate, so the senior officer (*Chief Officer*) intervenes to take over the operation. On that basis of loading and unloading operations, we must also ensure the safety aspect in loading and unloading operations, by paying attention to the internal (ship) and external (jetty) aspects are ready before the implementation of loading and unloading is carried out, for this reason, the author

feels the need to further study this topic in a scientific paper entitled "The Causes of Cargo Operation Obstruction Due to Problem 2 at the Cargo Pump in MT. SNAP".

2. METHOD

This research was conducted at MT. KAKAP, which is one of the Oil Product Tanker ships owned by PT Pertamina International Shipping. as a Deck Cadet on the MT ship. SNAPPER from November 23, 2023 to December 06, 2024. In writing this scientific paper, the author uses the method of data collection through observation. This approach provides a deeper and more comprehensive understanding of the object being studied, so that the author can answer problems, collect relevant data, and draw conclusions according to conditions in the field. Through direct observation, the author can see and feel for himself various things that require special attention, including the obstacles that arise during the process of loading and unloading the ship, the factors that cause these obstacles, and the efforts made to overcome them.

The focus of the research includes the cause of the loading delay due to problems with the pump in accordance with the applicable rules. Data collection was carried out using observation methods, interview methods and documentation methods to obtain factual and accurate information about the loading process in MT. SNAPPER All data is analyzed using qualitative methods systematically to understand the problem, analyze the implementation of loading, and find optimal solutions in the implementation of loading in MT. SNAPPER

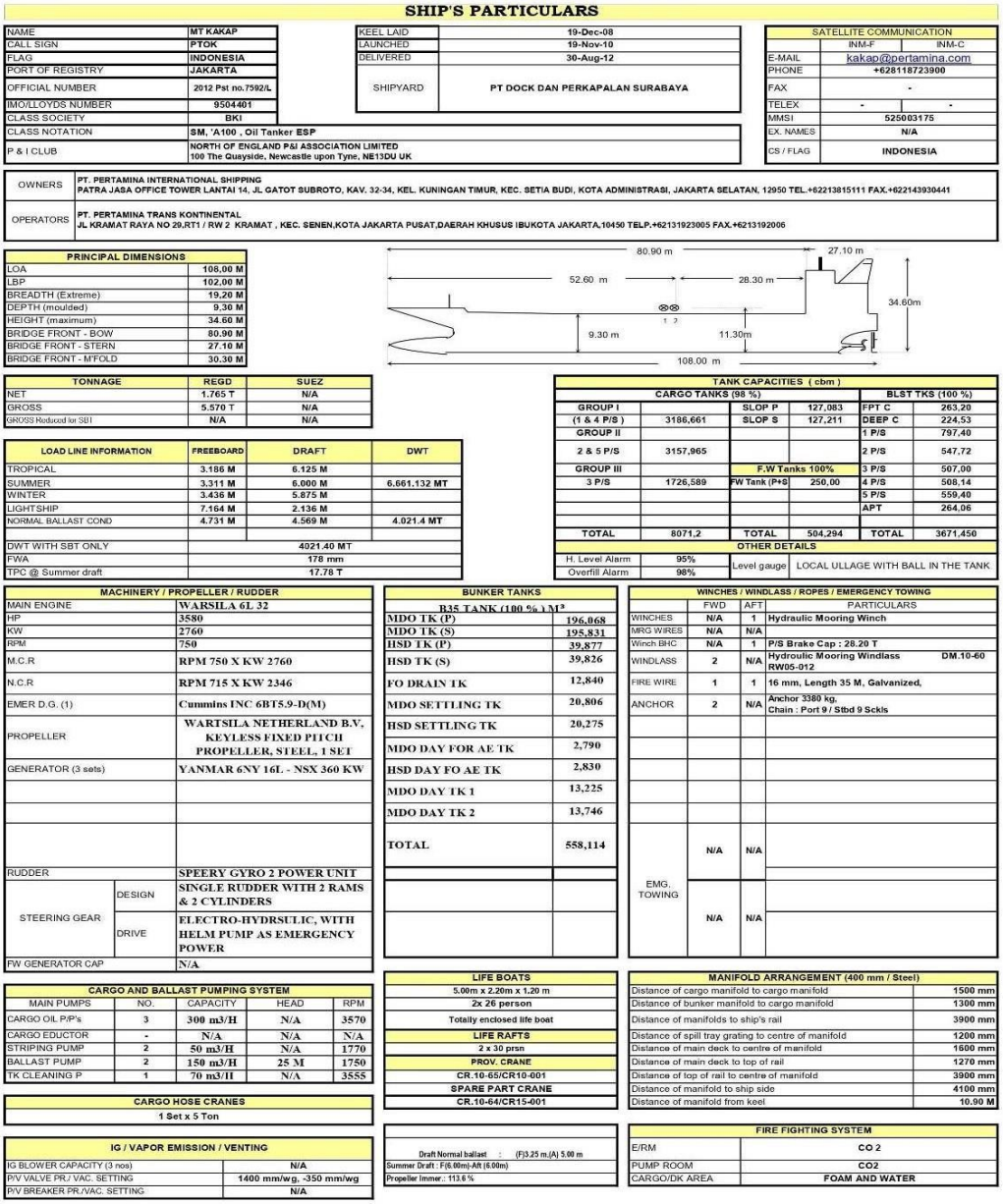
3. RESULTS AND DISCUSSION

3.1 A Brief History of MT. SNAPPE

Figure 1. MT. SNAPPER

MT Kakap is an oil tanker owned by PT *Pertamina Internasional Shipping* which was built at the PT. DOK & Shipping Surabaya in Indonesia in 2012. This ship, also known as Kakap/N.08602, has specifications as an oil tanker with a capacity of around 6,500 tons. The ship has a length of 108 meters and a draft depth of 9.30 meters, using *a* double *hull design* that was common at the time of its construction.

Gambar 2. *Ship Particular*



SHIP'S PARTICULARS

NAME	MT KAKAP
CALL SIGN	PTOK
FLAG	INDONESIA
PORT OF REGISTRY	JAKARTA
OFFICIAL NUMBER	2012 Pst no.7592/L
IMO/LLOYDS NUMBER	9504401
CLASS SOCIETY	BKI
CLASS NOTATION	SM, 'A100 , Oil Tanker ESP
P & I CLUB	NORTH OF ENGLAND P&I ASSOCIATION LIMITED 100 The Quayside, Newcastle upon Tyne, NE13DU UK

KEEL LAID	19-Dec-08
LAUNCHED	19-Nov-10
DELIVERED	30-Aug-12
SHIPYARD	PT DOCK DAN PERKAPALAN SURABAYA

SATELLITE COMMUNICATION		
	INM-F	INM-C
E-MAIL	kakap@pertamina.com	
PHONE	+628118723900	
FAX	-	
TELEX	-	-
MMSI	525003175	
EX. NAMES	N/A	
CS / FLAG	INDONESIA	

OWNERS	PT. PERTAMINA INTERNATIONAL SHIPPING PATRA JASA OFFICE TOWER LANTAI 14, JL GATOT SUBROTO, KAV. 32-34, KEL. KUNINGAN TIMUR, KEC. SETIA BUDI, KOTA ADMINISTRASI, JAKARTA SELATAN, 12950 TEL.+62213815111 FAX.+622143930441
OPERATORS	PT. PERTAMINA TRANS KONTINENTAL JL KRAMAT RAYA NO 29,RT1 / RW 2 KRAMAT , KEC. SENEN,KOTA JAKARTA PUSAT,DAERAH KHUSUS IBUKOTA JAKARTA,10450 TELP.+62131923005 FAX.+6213192006

PRINCIPAL DIMENSIONS

LOA	108,00 M
LBP	102,00 M
BREADTH (Extreme)	19,20 M
DEPTH (moulded)	9,30 M
HEIGHT (maximum)	34.60 M
BRIDGE FRONT - BOW	80,90 M
BRIDGE FRONT - STERN	27.10 M
BRIDGE FRONT - M'FOLD	30.30 M

TONNAGE	REGD	SUEZ
NET	1.765 T	N/A
GROSS	5.570 T	N/A
GROSS Reduced for SBT	N/A	N/A

LOAD LINE INFORMATION	FREEBOARD	DRAFT	DWT
TROPICAL	3.186 M	6.125 M	
SUMMER	3.311 M	6.000 M	6.661.132 MT
WINTER	3.436 M	5.875 M	
LIGHTSHIP	7.164 M	2.136 M	
NORMAL BALLAST COND	4.731 M	4.569 M	4.021.4 MT
DWT WITH SBT ONLY	4021.40 MT		
FWA	178 mm		
TPC @ Summer draft	17.78 T		

TANK CAPACITIES (cbm)

CARGO TANKS (98 %)				BLST TKS (100 %)	
GROUP I		SLOP P	127,083	FPT C	263,20
(1 & 4 P/S)	3186,661	SLOP S	127,211	DEEP C	224,53
GROUP II				1 P/S	797,40
2 & 5 P/S	3157,965			2 P/S	547,72
GROUP III		F.W Tanks 100%		3 P/S	507,00
3 P/S	1726,589	FW Tank (P+S	250,00	4 P/S	508,14
				5 P/S	559,40
				APT	264,06
TOTAL	8071,2	TOTAL	504,294	TOTAL	3671,450

OTHER DETAILS			
H. Level Alarm	95%	Level gauge	LOCAL ULLAGE WITH BALL IN THE TANK
Overfill Alarm	98%		

MACHINERY / PROPELLER / RUDDER

MAIN ENGINE		WARSILA 6L 32
HP		3580
KW		2760
RPM		750
M.C.R		RPM 750 X KW 2760
N.C.R		RPM 715 X KW 2346
EMER D.G. (1)		Cummins INC 6BT5.9-D(M)
PROPELLER		WARTSILA NETHERLAND B.V, KEYLESS FIXED PITCH PROPELLER, STEEL, 1 SET
GENERATOR (3 sets)		YANMAR 6NY 16L - NSX 360 KW
RUDDER		SPEERY GYRO 2 POWER UNIT
STEERING GEAR	DESIGN	SINGLE RUDDER WITH 2 RAMS & 2 CYLINDERS
	DRIVE	ELECTRO-HYDRSULIC, WITH HELM PUMP AS EMERGENCY POWER
FW GENERATOR CAP		N/A

BUNKER TANKS

B35 TANK (100 %) M³	
MDO TK (P)	196,068
MDO TK (S)	195,831
HSD TK (P)	39,877
HSD TK (S)	39,826
FO DRAIN TK	12,840
MDO SETTLING TK	20,806
HSD SETTLING TK	20,275
MDO DAY FOR AE TK	2,790
HSD DAY FO AE TK	2,830
MDO DAY TK 1	13,225
MDO DAY TK 2	13,746
TOTAL	558,114

WINCHES / WINDLASS / ROPES / EMERGENCY TOWING

	FWD	AFT	PARTICULARS
WINCHES	N/A	1	Hydraulic Mooring Winch
MRG WIRES	N/A	N/A	
Winch BHC	N/A	1	P/S Brake Cap : 28.20 T
WINDLASS	2	N/A	Hydraulic Mooring Windlass DM.10-60 RW05-012
FIRE WIRE	1	1	16 mm, Length 35 M, Galvanized,
ANCHOR	2	N/A	Anchor 3380 kg. Chain : Port 9 / Stbd 9 Sckls
EMG. TOWING	N/A	N/A	
	N/A	N/A	

CARGO AND BALLAST PUMPING SYSTEM

MAIN PUMPS	NO.	CAPACITY	HEAD	RPM
CARGO OIL P/P's	3	300 m3/H	N/A	3570
CARGO EDUCTOR	-	N/A	N/A	N/A
STRIPING PUMP	2	50 m3/H	N/A	1770
BALLAST PUMP	2	150 m3/H	25 M	1750
TK CLEANING P	1	70 m3/H	N/A	3555

CARGO HOSE CRANES

1 Set x 5 Ton

IG / VAPOR EMISSION / VENTING

IG BLOWER CAPACITY (3 nos)	N/A
P/V VALVE PR./ VAC. SETTING	1400 mm/wg, -350 mm/wg
P/V BREAKER PR./VAC. SETTING	N/A

LIFE BOATS

5.00m x 2.20m x 1.20 m
2x 26 person
Totally enclosed life boat

LIFE RAFTS

2 x 30 prsn

PROV. CRANE

CR.10-65/CR10-001

SPARE PART CRANE

CR.10-64/CR15-001

Draft Normal ballast : (F)3.25 m.(A) 5.00 m
Summer Draft : F(6.00m)-Aft (6.00m)
Propeller Immer.: 113.6 %

MANIFOLD ARRANGEMENT (400 mm / Steel)

Distance of cargo manifold to cargo manifold	1500 mm
Distance of bunker manifold to cargo manifold	1300 mm
Distance of manifolds to ship's rail	3900 mm
Distance of spill tray grating to centre of manifold	1200 mm
Distance of main deck to centre of manifold	1600 mm
Distance of main deck to top of rail	1270 mm
Distance of top of rail to centre of manifold	3900 mm
Distance of manifold to ship side	4100 mm
Distance of manifold from keel	10.90 M

FIRE FIGHTING SYSTEM

E/RM	CO 2
PUMP ROOM	CO2
CARGO/DK AREA	FOAM AND WATER

MT. KAKAP is an Oil Tanker owned by *Pertamina International Shipping* which is under the Indonesian flag. As for Ship Particular from MT. KAKAP as the place where the author practiced for 12 months and 13 days. MT. KAKAP is an *Oil Tanker* cargo ship operated by *Pertamina International Shipping* to serve the needs of *Lubricant Base Oil* as a *MOTHER SHIP* operating in Jakarta.

Based on the data above which contains *the particular ship* of the ship, this information can be used as an internal factor in analyzing various problems that may occur. In addition, the data can also be used as a reference to assess the extent of the effectiveness of ships in carrying out shipping activities.

3.2 Research Results

Based on research conducted by the author while conducting sea practice (PRALA) on loading activities on MT ships. It was found that operational obstacles were mainly caused by suboptimal conditions of the cargo pump due to inconsistent implementation of checking and maintenance procedures before operations began. Field data shows that some crews have not fully implemented the Standard Operating Procedure (SOP), especially at the pre-loading inspection stage which includes checking pump working pressure, leakage, lubrication, and the readiness of other support systems.

Cargo pump maintenance that is not carried out regularly causes several technical problems, such as fluctuations in discharge pressure, overheating of pump components, and decreased pumping capacity. This condition triggers delays in the loading and unloading process, so that the duration of the ship's port stay is longer than the standards set by the company.

Observations during loading activities show several frequent disturbances, such as:

1. A drop in pump pressure (pressure drop) which results in an unstable pumping rate.
2. Increased temperature of pump components, especially in the bearing, which has the potential to cause overheating.
3. Excessive vibration due to lack of lubrication or misalignment of pump components.
4. Load times are longer than standard, reaching 10–20% slower than the set target.

The technical glitch had a direct impact on the loading and unloading process, causing delays that impacted the ship's overall operations. From a business perspective, port stay delays affect the ship's operational costs and the charterer's level of confidence.

In addition to technical factors, this study also found that the human resource aspect is also the main cause. The crew's understanding of SOPs, especially new crews or those with limited experience, is inadequate. This can be seen from the lack of thoroughness in carrying out the pre-operation checklist and the lack of initiative to report the initial symptoms of pump failure.

3.3 Discussion

The results of the study show that the problem with loading activities in MT. Snapper is actually a combination of procedural inconsistencies and weaknesses in the maintenance aspect of the equipment. In tanker operations, the cargo pump is the center of the loading and unloading process, so the reliability of the pump greatly determines the operational efficiency of the ship.

1. The Gap between SOPs and Field Implementation

The company's SOP clearly stipulates that each cargo pump must undergo a detailed inspection before use, including checking for lubrication, leakage, pipe connections, valve condition, and control panel readiness.

2. Impact of Less Optimal Maintenance on Pump Performance

Cargo pump maintenance that is not carried out regularly causes a domino effect on the load transfer system. Unstable pump pressure results in a longer pumping process, while rising temperatures can accelerate the deterioration of internal components. Excessive vibration also indicates the potential for more serious damage if not treated immediately.

3. The Role of Crew Competence and Officer Supervision

The quality of maintenance and checking implementation is highly dependent on the competence and discipline of the crew. The findings of the study show that not all crews technically understand the functions and working mechanisms of cargo pumps, so the initial symptoms of malfunction are often

not recognized. The lack of periodic training is also a factor causing the decline in the quality of work.

4. Implications for Ship Operational Efficiency

Delays in the loading process caused by problems at the cargo pump directly reduce the operational efficiency of the ship. Longer docking times result in increased energy consumption, the use of various supporting equipment, and increased costs that ships must bear while in port.

5. Imperfect work planning (Design Faults).

In the implementation of loading, the success of the operation is highly dependent on the quality of the work planning carried out before the activity begins. Planning that is not comprehensively prepared can cause various obstacles during the process of moving loads, ranging from unpreparedness of equipment to miscommunication between parts.

The consequences of the inhibition of Cargo Operation are;

a. Delay in Unloading/Loading Schedule
b. Increased Operational Costs
c. Decreased Ship Work Efficiency
d. Disruption to the Next Cruise Schedule
e. Potential Penalties or Sanctions

As for efforts to overcome obstacles that hinder cargo operations, to overcome obstacles that hinder cargo operations on MT ships. SNAPPER, there are several steps that can be taken, depending on the type and nature of the obstacle. Here are some common approaches that can be applied according to MT's *Chief Officer*. SNAPPER which refers to *Section IV* of the *IMO Manual on Oil Pollution*

a. Evaluation and identification of issues
b. Infrastructure and equipment upgrades
c. Training and development
d. Improved procedures and processes
e. Coordination and communication
f. Regulatory and compliance handling
g. Regular maintenance

4. CONCLUSION

Based on the results of the study, it can be concluded that the obstacles to loading activities on MT ships. The snapper is caused by the lack of optimal implementation of the procedure for checking and maintaining the cargo pump before the operation begins. Cargo pumps that are not properly maintained cause technical problems and delays in the loading and unloading process. The lack of implementation of standard procedures by the ship's crew has an impact on the overall efficiency and operational effectiveness of the ship.

To overcome these obstacles, the Captain held Safety Meeting activities and periodically to all before and carrying out loading and unloading on the ship. Chief Officer Held familiarization on the form of evaluation related to what technicalities are needed according to the SOP cargo operation for smooth operation to occur, especially when the initial circulation begins the loading and unloading operation.

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