

Improved Supervision of Loading and Unloading of Oil Fuel to Minimize Shrinkage of Loads at MT. Nirbita

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ARTICLE INFO

Article history:

Received: 13-07-2020

Revised: 13-07-2020

Accepted: 31-07-2020

Keywords:

Supervision of Loading and Unloading, Fuel Oil, Depreciation of Cargo

ABSTRACT

This study aims to determine the importance of monitoring loading and unloading of fuel oil to minimize the occurrence of load shrinkage. After conducting an evaluation of existing events, two main problems were found that occurred in the implementation of ISGOTT in MT. Nirbita, namely the problem of lack of supervision and accuracy of loading and unloading fuel oil resulting in load shrinkage. The occurrence of cargo depreciation on board the ship is a lack of proper supervision according to ISGOTT by Officer Deck for Abk during cargo operations. The occurrence of cargo losses is also due to the lack of accuracy of deck and abk officers in measuring cargo tanks and calculating cargo as well as standardization of loading and unloading equipment onboard resulting in less optimal operational cargo. Lack of understanding of matters relating to cargo operations, both those related to measuring instruments used on tanker ships, triggers cargo depreciation. There are three alternative solutions to problems, namely conducting safety meetings, conducting training, and supervising Abk's work in cargo operations. From the results of the evaluation of the three alternative solutions to the problem, it was found that each alternative has advantages and obstacles that will be faced in its application on board.

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1. Introduction

Indonesia is a maritime country consisting of thousands of islands and is also a producer of oil and natural gas, both produced in the oceans and on land. Oil and gas and mining products in Indonesia are used as export commodities to various countries in the world and also play an important role as foreign exchange and capital for the development of the Indonesian nation, especially from the oil and gas factor, so to transport these petroleum products the sea transportation sector facilities are vital and dominant. In supporting the smooth transportation of the petroleum. However, it is undeniable that in the transportation and at the time of loading and unloading the oil, which in this case is transported by ships carrying oil (tanker), there may be a shrinkage of cargo.

In the petroleum world, shipping companies that have vessels loading fuel oil, especially from PT. Pertamina (Persero). The problem of depreciation (losses) is a problem that often and continuously occurs when the ship finishes loading or before unloading at the port. This problem arises because of differences in calculations between the ship and the land where the calculation results exceed the tolerance limit given by Pertamina.

The implementation of unloading and loading on tankers is very complex, for that reason, deck and deck officers are required to be able to carry out loading and unloading properly so that there are no obstacles in the implementation of these activities. With good supervision, the loading and unloading process can run smoothly, thus avoiding the frequent depreciation of fuel oil loads.

Depreciation control (Loss Control) aims to control the depreciation of oil from the specified tolerance of depreciation (Tolerable Loss), by reducing, maintaining and overcoming, thereby increasing profits for the company.

With the difference in calculations between the ship and the land, this problem will hamper the distribution of fuel to the existing Pertamina regions or depots. The fact that the writer found on the ship when

doing research is during Voyage 14 / DI / N / XI / 2016 on November 20, 2016 with a cargo of Solar "Grade Cargo HSD". The following is a picture of the charge type Solar or HSD

At the time of the ship MT. Nirbita STS (Ship To Ship) with MT. Mount Kemala in Kota Baru (South Kalimantan, Indonesia) and on Voyage 04 / D1 / N / II / 2017 on February 27, 2017 at Pertamina Bau - Bau TBBM Port (South Sulawesi, Indonesia) the cargo experienced a decrease of 0.4%. This exceeds the tolerance limit given by Pertamina, which is 0.07%.

Table 1.

Ratio of Comparison of Numbers / Total Cargoes between Ship and Land Calculations in MT. Nirbita.

VESSEL'S EXPERIENCE FACTORS													
VOYAGE : 11/L/N/VI/2017													
Ship Name : MT. Nirbita PLACE : CILACAP													
L.Port	D.Port	Ship Fig Brl	B/L Fig BRL	Diff:	R1%	B4 DISCH	Diff	R2%	SHORE RCVT	DIFF	R3%	R4	%
CLCF	BAUBAU/NEW EL	166249,882	165901,213	348,669	0,210	166146,429	-103,453	-0,06	49723,693	337,644	-0,20		
CLCF	TG MANGGES	116.084,892	116.177,320	-92,428	-0,08	116006,796	-78,096	-0,07	115081,708	-92,088	-0,80	-1096,612	-0,66
CLCF	MANGGES/NEW EL	165.889,807	165.581,317	308,490	0,20	165805,034	-84,773	-0,05	61960,268	-66,133	-0,04		
CLCF	WAYAME	93.778,633	93.621,049	157,584	0,17	93733,938	-44,695	-0,05	93347,667	-386,271	-0,41	273,362	-0,29
CLCF	MANGGES/NEW EL	195.479,533	195.264,647	214,886	0,11	195414,020	-65,513	-0,03	60306,484	-21,687	-0,01		
CLCF	B PAPAN	135.285,849	135.158,163	127,686	0,09	135242,673	-43,176	-0,03	134806,149	-437,524	-0,32	-353,014	-0,18
ELFN	BAUBAU/NEW EL	183.501,343	183.590,006	-88,663	-0,05	183310,153	-191,190	-0,10	80710,463	-741,193	-0,40		
ELFN	TG MANGGES	101.858,497	102.879,543	-1021,046	-0,99	101823,796	-34,701	-0,03	101637,287	-186,509	-0,18	-1242,256	-0,68
CLCF	SEMARANG	197.302,909	198.765,485	-1.462,576	-0,74	197195,240	-107,649	-0,05	196963,063	232,197	-0,12	197,597	+0,1
CLCF	SEMARANG	194.719,017	194.787,132	-68,115	-0,04	194895,325	176,308	0,09	194560,489	-334,836	-0,17	-227,243	-0,12
CLCF	TUBAN	185.048,858	185.124,429	-75,571	-0,04	185035,730	-13,078	-0,01	184793,511	-242,269	-0,13	-331,118	-0,18
CLCF	SEMARANG	185.546,963	185.078,961	468,002	0,25	185007,621	55,658	0,03	124647,569	562,550	0,93		
CLCF	GEREM/NEW EL	60.993,941	60.431,392	562,549	0,93	61214,580	220,639	0,37	60624,819	-589,761	-0,98	193,427	0,10
CLCF	MANGGES/NEW EL	190.388,949	190.419,295	-30,346	-0,02	190305,336	-83,613	-0,04	99628,730	-59,322	-0,03		
CLCF	SEMARANG	90.617,284	90.790,565	-173,281	-0,19	90561,873	-55,411	-0,06	90757,636	195,763	0,22	-32,929	-0,04
ELFN	BAUBAU	184.139,519	183.766,220	373,299	0,20	184267,659	128,140	0,07	124.396,646	-607,117	-0,33		
ELFN	MANGGES/NEW EL	59.263,893	59.369,574	-105,681	-0,18	59389,475	125,582	0,21	59011,503	-377,972	-0,64	-358,071	-0,60

INDRA PURNOMO
CHIEF OFFICER

Source: Ship MT. Nirbita / PNRD

Knowledge and understanding are deemed necessary for prospective officers to develop success in efforts to minimize load depreciation and should be preceded by an understanding of cargo measurements and calculations both in the ship compartment and in the land compartment so that optimal results can be obtained so that as little as possible can avoid problems between land parties and ship party. The problems encountered when researchers were on board on Voyage 14 / DI / N / XI / 2016 and 04 / D1 / N / II / 2017 are as follows: 1). The restoration occurs after calculation, 2). Checking the empty tanks on the ship by the loading master, 3). Delays in ship operations, 4). The occurrence of differences in the number of loads (letter of discrepancy), 5). The occurrence of a charge claim

2. Research methods

This research was conducted from 29 June 2016 to 15 July 2017. The research was conducted on the MT ship. Nirbita with DWT 29,996 with ex name MT. Dailong which was previously purchased from a Thai company owned by PT. Caraka Tirta Pratama. With the type of tanker chartered by PT. Pertamina to transport diesel oil products.

The method used in this research is a qualitative descriptive method because the researcher wants to describe the facts or circumstances or symptoms that arise from the lack of loading and unloading supervision of fuel oil so that there is a shrinkage of the cargo which will have an adverse impact.

3. Results and Discussion

3.1. Data Description

In this chapter, the researcher will explain the supervision and accuracy of deck and abk deck officers about the causes of load shrinkage in the unloading process.

In the supervision of loading and unloading activities, it is not only supported by the skills and abilities of the crew members, but must be supported by the understanding of the crew about loading and unloading tools and how to use them, in order to avoid shrinkage during unloading.



Figure 1. UTI (Ullage Temperature and Interface)

At present, the UTI (Ullage Temperature and Interface) is used to check the Ullage in the tank and sounding the tape, besides that, the crew members don't really know how the equipment works.

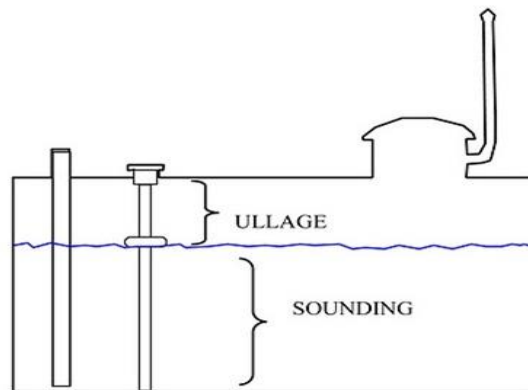


Figure 2. Illustration of Ullage Determination

Based on the observations of researchers during this study, there were several incidents that the researchers made findings which of course were related to the shrinkage of cargo on the MT ship. Nirbita, namely:

a) First Incident

On November 14, 2016 the ship MT. Nirbita completed loading at Jetty 5 Pertamina Balikpapan. The ship successfully loaded the HSD in accordance with the loading agreement 188.870,745 Bbls with the trim of the ship at that time evenkeel. The difference between the B / L figure and the ship figure is (+) 78,358 Bbls or the gain charge is (+) 0.041%. In accordance with the sailing order the ship sailed to Kota Baru, on November 20 the STS ship with MT. Mount Kemala to unload cargo brought from Balikpapan port to MT ship. Mount Kemala.

After tank refinement and calculations by the ship, the Indonesian Surveyor, Loading Master, and PQC cargo losses are more than the tolerance limit for Pertamina or the charter party so that on the ship there is a check on empty tanks, restocking and getting a claim from Pertamina resulting in delays ship operations, in the loading and unloading process (Delay Cargo Operation) because of this. The difference between B / L Figure and Ship Figure Before Discharge is (-) 585.94 Bbls or losses as much as 0.31%

b) Second incident

At the time the ship was in at TBBM Pertamina Bau - Bau voyage 04 / D1 / N / II / 2017 dated 27 February 2017The ship will unload approximately 15,000 kl half of the entire cargo brought from the Balikpapan Loading Port. Before the unloading was carried out, the cargo calculation was carried out, after the cargo calculation was carried out it turned out that cargo losses were 0.10%, this figure had exceeded the agreed tolerance limit of 0.07%.

this figure should help the number in R2. This depreciation or figure is the subject of debate between the Chief Officer and the Loading Master and causes delays in operational cargo.

The discharge activity should still be started after all that is required and prepared have been completed, unloading the cargo with an hourly rate of between 600 - 800 kl. The loading is complete in approximately 20 hours, after loading the cargo is complete. Surveyor, PQC, Second Officer, me and the helmsman surround all cargo tanks, taking the density. At that time the task of sounding was the helmsman after all the tanks were finished sounding the Chief Officer and the Loading Master calculation at the CCR, it turned out that after the 0.99 percent cargo gain calculation, this figure was the R1 accent number. Gain on R1 the accent is the conclusion of Abk's inaccuracy when the tank sounding does not match the actual sound or the previous BL.

The inaccuracy made by the pilot in measuring HSD cargo at the port of Bau - Bau, resulted in cargo losses that were more than the tolerance given by Pertamina, namely 0.07 percent of Pertamina. In carrying out their duties in tank measurement or sounding, the Jurumudi should not be done in a hurry and with full accuracy, a difference of one mm can cause considerable losses.



Figure 4. Tank sounding on the MT ship. Nirbita

Likewise when taking the temperature or charge temperature, the measurement should be made in the middle of the height of the charge so that we can know the actual temperature or temperature and in view of the temperature calculation indicator we are required not to rush because the temperature will change on the indicator. if done in a hurry. Because the temperature difference will greatly affect the results of later cargo calculations.

Officer 1 as the person in charge of the cargo should also not immediately believe in the density provided by the land side, the officer should check and take the actual density of the cargo on the ship using a density measuring device because the density difference is also very influence in the occurrence of cargo losses.

c. Evaluation of Alternative Problem Solving

From the alternative solutions to the problems that have been presented above, an evaluation is conducted to obtain answers to the problems that exist above.

d. Increase the supervision of deck officers to Abk dek in cargo operations

1) Conduct a safety meeting.

Advantages: the crew will be able to better understand the criteria of the ship, especially the tools used for loading and unloading operations on the ship and add insight and knowledge for the crew in its operation. Disadvantage: not certified, safety meetings are usually held in a period of time that is not much. It could be twice a month, or once in every boat ride.

2) Conduct training on the boat.

Advantages: the crew can better know and understand how to carry out loading and unloading procedures properly so that there will be less work errors due to the crew or human errors.

Disadvantage: reduces the rest time of the crew more, resulting in physical fatigue

3) Supervise the work of Abk.

Advantages: officers can monitor how their subordinates work so that they can make corrections to Abk's performance and can provide direction on how to actually do so to get the desired results.

Loss:

a) The duties of deck officer and deck crew are increased.

b) Reduces Abk deck rest time.

c) The occurrence of physical exhaustion.

e. Increase the accuracy of deck officers and deck crew in loading and unloading.

1) Conduct a safety meeting.

Advantages: the crew will be able to better understand and be more precise about how to measure and calculate the correct cargo and know the criteria for the loading and unloading equipment on the ship.

Disadvantage: not certified, Safety meetings are usually held over a limited period of time. It could be twice a month, or once in every boat ride.

2) Make increased precision on board

Advantages: it can minimize the occurrence of errors in measurement so that there is no recalculation which can make the work increase resulting in crew physical fatigue and make ship operations smooth, get corrections as experience, get appropriate performance results, and minimize calculation errors.

Disadvantages: will increase the duties of the Officer and Abk so that more rest time is used

3) Participating in training at educational institutions.

Advantages: Abk's understanding of tankers, types of cargo and their operation will be better than before

Disadvantage: time spent at the institution can increase jobs for children who are not sent to the institution and the company must pay for sending Abk to attend the training.

f. Selected Problem Solving

In this study the researcher will choose the most appropriate problem solving by paying attention to the situation and condition of the research subject after previously evaluating each alternative problem solving.

a) Increase deck Officer supervision of deck Abk in Cargo Operations.

From the elaboration of alternative problem solving, the researcher chooses an alternative solution to the problem by supervising the work of Abk in cargo operations, because supervision can be carried out at any time, especially in the loading and unloading process and there are no additional costs incurred for alternative solutions to these problems that are more economical.

b) Increase the accuracy of deck officers and deck crew in loading and unloading.

From the elaboration of alternative problem solving, the researcher chooses alternative problem solving by conducting training on board, because the crew will immediately learn from actual or real events that occurred on the ship and can make work corrections without spending a lot of costs incurred by the company.

4. Conclusion

After conducting an evaluation of existing events, two main problems were found that occurred in the implementation of ISGOTT in MT. Nirbita is the problem of lack of supervision and accuracy of loading and unloading fuel oil to minimize the occurrence of load shrinkage.

Based on the existing problems, there are three alternative solutions to problems, namely conducting safety meetings, conducting training, and supervising Abk's work in cargo operations. From the results of the evaluation of the three alternative solutions to the problem, it was found that each alternative has advantages and obstacles that will be faced in its application on board. However, from the three alternatives, by referring to the consideration of the percentage of the constraints faced, the best alternative solution is found which is considered the most appropriate to solve the existing problem.

The conclusions about the causes of the problem include:

- a. The occurrence of cargo depreciation on board the ship is a lack of proper supervision according to ISGOTT by Officer Deck for Abk during cargo operations.
- b. The occurrence of cargo losses is also due to the lack of accuracy of deck and abk officers in measuring cargo tanks and calculating cargo as well as standardization of loading and unloading equipment on board resulting in less optimal operational cargo.
- c. Lack of understanding of matters relating to cargo operations, both those related to measuring instruments used on tanker ships, triggers cargo depreciation.

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