



Efforts to Prevent Leakage of Cargo Pipes on MT. Anggraini Excellent

Adi Casmudi¹, Bambang Setiawan^{2*}, Paulina M. Latuheru², Janny adriani djari³, and Mayo Treevansyah²

¹Sekolah Tinggi Ilmu Pelayaran, Jakarta

² Politeknik Transportasi Sungai, Danau dan Penyeberangan Palembang

³Politeknik Ilmu Pelayaran Semarang

email: jakabaring18@gmail.com

Abstract. MT. Anggraini Excellent is one of the tankers owned by PT. Adovelin Raharja which has a dead weight of 2600 GT and has several tanks, most of which are cargo tanks, fresh water tanks, slop tanks and ballast tanks. In the implementation of loading and unloading activities, tanks and loading and unloading equipment require maintenance and repair to maintain the condition of the loading and unloading pipe can be maintained properly so that the implementation of loading and unloading can run quickly and safely, but in the implementation of the ship loading and unloading pipe leaks resulting in inhibition of loading and unloading activities this study aims to determine the countermeasures undertaken in the event of a leak in the ship loading and unloading pipe MT. Anggraini Excellent and know the cause of the leak pipe load. The method used in this study is qualitative with descriptive approach. Data analysis used is a qualitative approach to primary data through interviews, observations, documentation related to the Prevention of leakage of loading pipes on ships MT. The Orchid Is Excellent.

Based on the research, it can be concluded that the cause of the leakage of the loading pipe on the ship MT. Anggraini Excellent is caused by corrosion on pipes that are poorly maintained, countermeasures are made at the time of pipe leakage by patching pipes using fiber which has been carried out in accordance with standard operating procedures on board and carried out pipe maintenance to prevent corrosion on the load pipe.

Keywords: Leakage, Corrosion, Countermeasures, Pipes

1. Introduction

MT. Anggraini Excellent is one of the tankers owned by PT. Adovelin Raharja where the author carries out marine practices as well as the author's place during the research. The ship has a deadweight of 2600 GT and has several tanks, most of which are cargo tanks, fresh water tanks, slop tanks and ballast tanks. At the time of carrying out prala on the ship MT. ANGGRAINI EXCELLENT namely the occurrence of leakage in the load pipe when loading and unloading due to rust, the incident caused the loading and unloading activities have been delayed long enough, the leak in the pipe is caused by a rusty load pipe. This causes delays in loading and unloading caused by corrosion on the load pipe section, so that patching action is required on the part of the pipe that has a leak.

© The Author(s) 2024

P. M. Latuheru et al. (eds.), *Proceedings of the International Conference of Inland Water and Ferries Transport Polytechnic of Palembang on Technology and Environment (IWOSPA-T&E 2023)*, Advances in Engineering Research 236,

https://doi.org/10.2991/978-94-6463-484-6_10

2. Research Methodology

The research made by this author uses a qualitative system which is research on descriptive research and tends to use data analysis. Qualitative research is research that intends to understand the phenomenon of what is experienced by the subject of research such as behavior, perception, motivation, action, and others. Qualitative descriptive research method is to analyze, describe and summarize various conditions, situations from various data collected in the form of interviews or observations of the problems studied that occur in the field. The researcher chose the qualitative approach because the qualitative method relies on data collection through direct interviews with sources and viewing and researching directly at the research site.

In this study, the researcher used documentation instruments, interviews and observations at the place where the researcher studied. Documentation comes from the Word document which means recorded goods. In order to carry out research on documentation methods, research investigates matters in the form of transcripts, records, books, and documents.

3. Analysis and Discussion

3.1 Data Presentation

The data presented in this study in the form of Interview data conducted in order to obtain information orally so that the data obtained more extensive and in-depth. Information obtained from the interview is the factors that cause leakage of cargo pipes on the ship MT. ANGGRAINI EXCELLENT and efforts to prevent leakage of cargo pipes. Furthermore, there is observational data which is done by observing all the symptoms that appear directly based on existing facts. Observation results have a relationship with the results of the interview, this could have similarities or differences. Then proceed with the shooting which is a form of documentation of the implementation of research. Documentation in this study is used to collect data from sources that can strengthen the research process. Documentation in the form of photos during the loading process, interviews with respondents, and other documents to support the research.

3.2 Data Analysis

According to the results of interviews, observations and documentation of the author, the author found that the Prevention of leakage of the load pipe on the ship MT. Anggraini Excellent is caused by the amount of corrosion that occurs in the ship's loading pipe, it happens because of lack of maintenance on the pipe so that it is gradually causing leakage in the ship's loading pipe.

In the theoretical basis it has been explained that pipe leaks can be caused by corrosion and high pressure. Corrosion on ships occurs due to lack of maintenance and checks on load pipes. In the case of the ship MT. Anggraini Excellent pipe leakage occurs because the load pipe is corroded due to lack of maintenance on the pipe which results in corrosion and the pipe becomes porous.

3.3 Discussion

Pipe leakage prevention can be done by patching and welding. In the implementation of countermeasures must be carried out in accordance with existing standard operating procedures so that countermeasures are carried out with a name, efficient, and structured. The use of iron glue is used as an emergency step so that pipe leaks can be patched quickly, in contrast to using fiber. The use of iron glue is more practical than using fiber because the use of iron glue does not require resin so that its use only applies glue to the place of leakage of the load pipe.

4. Conclusion

The main factor causing the leakage of the loading pipe on the ship MT. ANGGRAINI EXCELLENT is caused by corrosion on the load pipe so that the pipe becomes porous and leaks. In addition to high pressure corrosion on the pipe is also one of the factors causing leakage of the load pipe during loading and unloading activities so that the pressure on the pipe must be considered so as not to cross the safe limit of pressure on the load pipe. Efforts to overcome leakage in the pipe load on the ship MT. ANGGRAINI EXCELLENT are: load pipe leakage prevention can be done by welding and patching, each implementation has different standard operating procedures and must be followed in order to create a safe, efficient, and structured work environment. In the implementation of load pipe leakage prevention on MT. Anggraini Excellent is done by patching using fiber that has followed the standard operating procedures on the ship. In addition to patching, maintenance of the load pipe is carried out in order to prevent corrosion, which corrosion is the main factor that causes the leakage of the pipe. Maintenance on the load pipe is done by daily maintenance / daily work, painting, pressure test on the pipe, and docking.

Maintenance and checking of pipes must be carried out regularly so as to prevent corrosion on the load pipe and prevent leakage on the load pipe caused by corrosion. Mualim 1 as the person in charge of the cargo on the ship carry out pipe checks before the loading and unloading process so that leaks can be handled before loading and unloading activities. The company owner must pay more attention to the condition of the load pipe by conducting periodic audits, if the condition of the load pipe is found to be in an unfit condition due to corrosion or shrinking pipe thickness. The company must do the docking so that the ship's cargo pipe can be replaced with a new cargo pipe. At the time of loading and unloading activities, the pressure on the pipe must be considered continuously because the cause of pipe leakage is high pressure on the

pipe so that it must be a reference to keep the pressure on the pipe so as not to cross the safe limit of pressure on the pipe.

References

1. Istopo, (1999), Kapal dan Muatannya, Koperasi Karyawan BP3IP, Jakarta.
2. International Maritime Organization, 2020. International Safety Guidance of Oil Tanker and Terminal
3. International Maritime Organization, 2010. International Safety Management
4. International Convention for the Prevention of Pollution from Ship, 1973/1978. Marine Pollution Annex 1
5. Undang Undang Dasar No 17, (2008). Tentang Pelayaran,
6. 'Arti Kata Penanggulangan - Kamus Besar Bahasa Indonesia Online,(2013)'.
7. Palembang, Poltektrans SDP Palembang, 2023. Pedoman Penyusunan KKW, Poltektrans SDP, Palembang
8. A.R. Hakim, (2012). Analisa korosi atmosfer pada material baja karbon-sedang, semarang, universitas diponegoro.
9. Sugiyono, (2018). Metode Penelitian Kuantitatif, Kualitatif dan R & D. Bandung, Alfabeta.
10. Suwarno, BA. MM., Drs., (2011). Manajemen Pemasaran Jasa Perusahaan Pelayaran, BP UNDIP Semarang.
11. Alwi, Hasan dkk. (2002). Tentang muatan atau barang dari kapal kepelabuhanan dsb.
12. Sugiyono, (2006). Penanggulangan pemanasan global di sektor pengguna energi. BRIN, Jakarta.
13. Sappaile Baso Intang. (2007). Konsep Instrumen Penelitian Pendidikan. Jurnal Pendidikan dan Kebudayaan.
14. Darmadi H, (2011). Metode Penelitian Pendidikan. Alfabeta, Bandung.
15. Johnson, R. B., & Christensen, L. B. (2004). Educational Research Quantitative, Qualitative, and Mixed Approaches.

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

