DAFTAR PUSTAKA

[1] Muis Alie, M. Z., dan Adiputra, R. 2018. *Investigation on the Ship Hull Girder Strength With Grounding Damage*. Makara J. Technol. Vol. 22. 88.

[2] Fadillah, R., Zakki, A. F., dan Kiryanto. 2020. *Analisa Fatigue Pada Kapal Tanker 6500 DWT*. Vol. 8. 588.

[3] Winarto, C., Iskandar, B. H., dan Arkeman, Y. 2017. *Perbandingan Kinerja Kapal-kapal Tanker Angkutan BBM dan Minyak Mentah Menggunakan Multivariate Analysis of Variance : Studi Kasus PT . Pertamina (Persero) Performance Comparison of Product Oil and Crude Oil Tankers*. Vol. 29. 47.

[4] Rizkiani, T., Ramadhan, M. I., dan Muis Alie, M. Z. 2019. *Progressive Collapse Behaviour of VLCC under Longitudinal Bending*. 1.

[5] Kharis, M., dan Pribadi, T. W. 2014. *Analisis Teknis dan Ekonomis Konversi Kapal Tanker Single Hull Menjadi Double Hull J.* Vol 2. 1.

[6] Muis Alie, M. Z., dan Latumahina, S. I. 2019. *Progressive collapse analysis of the local elements and ultimate strength of a Ro-Ro Ship* Int. J. Technol. Vol 10. 1065.

[7] Van, T. V., Yang, P., dan Van, T. D. 2018. *Effect of uncertain factors on the hull girder ultimate vertical bending moment of bulk carriers* o*cean engineering.* Vol. 148. 161.

[8] Muis Alie, M. Z. 2018. *Simplified approach on the ultimate hull girder strength of asymmetrically damaged ships*. Int. J. Offshore Polar Eng. Vol. 28. 200.

[9] Paik J.K., Thayambali, A.K. 1998. *Residual Strenght Assesment of Ships after Collision and Grounding.* Vol. 35. 38.

[10] Soares, G. 2008. *Benchmark Study on the Use of Simplified Structural Codes to Predict the Ultimate Strength of a Damaged Ship Hull*. Vol. 55. 87.

[11] Muis Alie, M. Z., Sitepu, G., Wahyuddin, J., Nugraha, A. M., dan

Alamsyah, A. 2016. *The influence of Superstructure on the longitudinal ultimate strength of a RO-RO ship*. Vol. 4. 1022.

[12] Ohtsubo, H., Kawamoto, Y., dan Kuroiwa, T. 1994. *Experimental and Numerical Research on Ship Collision and Grounding of Oil* Tanker*s.* Vol 150. 385.

[13] Özgüç, Ö., Das, P.K., dan Barltrop, N. 2005. *A Comparative Study on the Structural Integrity of Single and Double Side Skin Bulk Carriers Under Collision Damage.* Vol 18. 511.

[14] Notaro, G., Kippenes, J., Amlashi, H., dan Russo, M. 2010. *Residual Hull Girder Strenght of Ships with Collision or Grounding Damages.* 941.

[15] Solly, R. 2019. *Supertanker: Living on a Monster VLCC.* Vol. 1. 266.

[16] Leffmann, H. 1920. *The Petroleum handbook*. Vol 6. 189.

[17] Hayler, W. B. 2003. *American Merchant Seaman's Manual.* Vol 7.

[18] Yao, T., dan Fujikubo, M. 2016. *Buckling and Ultimate Strenght of Ship and Ship-Like Floating Structures.* 949.

[19] Shama, M. 2013. *Buckling of ship structures.* 19.

[20] Parkway, M. V. 2012. *Design and Construction of Oil Tankers*. 9.

[21] Livings Oceans Society. 2011. *TANKER TECHNOLOGY: Limitations of Double Hulls*. Vol 1. 1.

[22] Muis Alie, M. Z., Mustafa, W., dan Yusuf, R. 2021. *Prediction of Fatigue Life on Double Hull Oil Tanker with Single and Double Longitudinal Bulkheads*. Vol. 9. 731.

[23] Rules, S., Oil, C. S. R., dan Glory, A. *2015. Analisa fatigue crude oil tanker 306507 dwt berdasarkan common structural rules (csr) oil tanker*. Vol. 3. 83.

[24] BKI. 2017. *RULES FOR THE CLASSIFICATION AND CONSTRUCTION.* Vol. 2. 87.

[25] Isworo, H. 2018. *Metode Elemen Hingga.* 12.

[26] Béghin, D., Caldwell, J. B., Payer, H. G., dan Schellin, T. E. 2010. *Ship Structural Analysis and Design*. Vol 1. 245

[27] Sujiatanti, S. H., dan Setyawan, D. 2017. *Analisis Kekuatan Konstruksi Sekat Melintang Kapal Tanker dengan Metode Elemen Hingga*. Vol 6. 2.

[28] Muis Alie, M. Z. 2016. *Finite Element Analysis on The Hull Girder Ultimate Strength of Asymmetrically Damaged Ships.* 2.

[29] Robial, S. M. 2016. *Analisis regresi Untuk Melihat Hubungan Regangan Pada Baja Menggunakan Least Square Method*. Vol. 6. 538

[30] Bannantine, J. A., Comer, J. J., dan Handrock, J. L. 1990. *Fundamentals of Metal Fatigue Analysis*. Vol. 27. 45

[31] Veritas, D. N. 2009. *Direct Analysis of Ship Structures*. 51.

[32] https://muhfranando.wordpress.com/2016/11/23/sistem-bahan-bakar-pada-kapal/ diakses pada 10/05/2022

[33] https:/www.marinetraffic.com/en/ais/details/ships/shipid:703290 diakses pada 16/05/2022

LAMPIRAN

LAMPIRAN I Tabel Kekuatan Batas Momen-Lentur Kondisi *Intact* Kapal *VLCC*

Sagging		*Hogging*	
Momen (Nmm)	**Rotasi (mm^{-1})**	**Momen (Nmm)**	**Rotasi (mm^{-1})**
0	0	0	0
-1,4E+13	-0,11541	1,44E+13	0,115413
-1,6E+13	-0,12986	1,62E+13	0,129864
-1,7E+13	-0,14438	1,72E+13	0,144378
-1,8E+13	-0,1736	1,79E+13	0,173605
-1,8E+13	-0,2066	1,84E+13	0,2066
-1,9E+13	-0,26207	1,89E+13	0,262066
-1,9E+13	-0,31769	1,91E+13	0,317692
-1,9E+13	-0,40641	1,94E+13	0,406411
-1,9E+13	-0,49635	1,95E+13	0,496353
-2E+13	-0,63541	1,96E+13	0,635407
-2E+13	-0,77637	1,97E+13	0,776375
-2E+13	-0,90331	1,98E+13	0,903315
-2E+13	-0,9361	1,98E+13	0,936096
-2E+13	-0,97469	1,99E+13	0,974692
-2E+13	-1,01586	1,99E+13	1,015859
-2E+13	-1,01658	1,99E+13	1,016578
-2E+13	-1,01645	1,98E+13	1,016452
-2E+13	-1,01581	1,98E+13	1,015812
-2E+13	-1,01542	1,98E+13	1,015415
-2E+13	-1,01533	1,98E+13	1,015325
-2E+13	-1,01529	1,98E+13	1,015291
-2E+13	-1,01528	1,98E+13	1,015283
-2E+13	-1,01531	1,98E+13	1,015315
-2E+13	-1,01541	1,98E+13	1,015413
-2E+13	-1,01547	1,98E+13	1,015473

LAMPIRAN II Tabel Kekuatan Batas Momen-Lentur Kondisi Kerusakan Tubrukan 50% Kapal *VLCC*

Sagging		*Hogging*	
Momen (Nmm)	**Rotasi (mm^{-1})**	**Momen (Nmm)**	**Rotasi (mm^{-1})**
0	0	0	0
-9,7E+12	-0,07987	9,73E+12	0,079867
-1,5E+13	-0,11983	1,46E+13	0,119828
-1,6E+13	-0,13101	1,58E+13	0,131011
-1,7E+13	-0,14326	1,66E+13	0,143256
-1,8E+13	-0,17692	1,76E+13	0,17692
-1,8E+13	-0,21345	1,81E+13	0,213451
-1,8E+13	-0,25061	1,84E+13	0,250608
-1,9E+13	-0,30738	1,86E+13	0,307377
-1,9E+13	-0,39353	1,89E+13	0,393533
-1,9E+13	-0,48066	1,9E+13	0,48066
-1,9E+13	-0,58328	1,91E+13	0,583281
-1,9E+13	-0,68652	1,92E+13	0,686518
-1,9E+13	-0,79054	1,93E+13	0,790535
-1,9E+13	-0,88075	1,94E+13	0,880747
-1,9E+13	-0,91706	1,94E+13	0,917058

LAMPIRAN III Tabel Kekuatan Batas Momen-Lentur Kondisi Keruskaan Tubrukan 80% Kapal *VLCC*

Sagging		*Hogging*	
Momen (Nmm)	**Rotasi (mm^{-1})**	**Momen (Nmm)**	**Rotasi (mm^{-1})**
0	0	0	0
-9E+12	-0,09921	9E+12	0,099209
-1,3E+13	-0,14881	1,35E+13	0,148813
-1,5E+13	-0,16425	1,49E+13	0,164249
-1,6E+13	-0,17735	1,59E+13	0,177352
-1,6E+13	-0,18548	1,62E+13	0,185484
-1,7E+13	-0,20394	1,69E+13	0,203945
-1,7E+13	-0,22456	1,73E+13	0,224561
-1,8E+13	-0,25707	1,77E+13	0,257071
-1,8E+13	-0,28919	1,79E+13	0,289193
-1,8E+13	-0,34054	1,82E+13	0,340537
-1,8E+13	-0,3931	1,83E+13	0,393101
-1,8E+13	-0,43354	1,84E+13	0,433544
-1,9E+13	-0,46977	1,86E+13	0,469769
-1,9E+13	-0,5149	1,86E+13	0,514897
-1,9E+13	-0,58131	1,87E+13	0,581315
-1,9E+13	-0,68272	1,88E+13	0,682724
-1,9E+13	-0,78592	1,89E+13	0,785919
-1,9E+13	-0,94328	1,9E+13	0,943283
-1,9E+13	-1,1024	1,91E+13	1,102403