Fatigue Life Analysis Of Pedestal Crane on Boom Structure At Fixed Platform Offshore Field Malacca Strait To Extension Life Of Operation

Name : Farii Fahmiuddin Fikri
NRP : 2709100038
Department : Teknik Material dan Metalurgi FTI-ITS
Advisor : Ir. Rochman Rochem M.Sc

ABSTRACT

Pedestal cranes are one of the component operating in the offshore platforms that serve as a means of shifting objects vertically or horizontally with a specific altitude. Pedestal cranes are various types of loads from both operations and the environment. Pedestal cranes would be extended period of operation for the next 20 years so we need fatigue analysis. This research will be carried out analysis of the operation over the past 20 years resulting in 72 000 cycles of operation. Then from technical drawing using AUTOCAD 2010 made modeling and simulation with the software FEMAP NASTRAN with SIEMENS. With simulation modeling, the largest known distribution of stress concentration lies in the pedestal boom feet pin Data processing with reference to a standard API and DNV produce the effect of 99% bending stress, shear stress of 0.1%, and a bit of the load due to wind forces. Calculation of fatigue life using the Palmgren-Miner equation and obtained initial fatigue life of 141 years for normal operating conditions and 66 years for work over operation conditions. So Pedestal Crane is feasible to use for next 20 years

Keywords: Pedestal Crane, Fatigue, Palmgren-Miner
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