

ANALISIS EFEKTIVITAS PEMELIHARAAN UNIT *SHIP UNLOADER* DENGAN METODE *OVERALL EQUIPMENT EFFECTIVENESS (OEE)* DAN *RELIABILITY CENTERED MAINTENANCE (RCM)*
(Studi Kasus di PT. PJB UP Paiton)

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ABSTRAK

Pemeliharaan adalah suatu kombinasi dari berbagai tindakan yang dilakukan untuk menjaga suatu barang sampai kondisi yang bisa diterima. Tingginya angka kerusakan (tahun 2020 *ship unloader* unit 1 sebanyak 9 kali *breakdown*, *ship unloader* unit 2 sebanyak 5 *breakdown*) berakibat nilai OEE-nya rendah. Tingkat keandalan *ship unloader* beresiko tidak tercapai karena memenuhi tuntutan target pembongkaran batu bara. Tujuan penelitian untuk menentukan tingkat efektivitas sistem pemeliharaan pada unit *ship unloader*, faktor penyebab ketidakefektivan, dan usaha untuk menaikkan efektivitas pemeliharaan *ship unloader* dengan penerapan OEE dan RCM. Metode penelitian menggunakan metode *Overall Equipment Effectiveness (OEE)* dan *Reliability Centered Maintenance (RCM)*.

Hasil penelitian menunjukkan tingkat efektivitas sistem pemeliharaan *ship unloader* periode Januari-Juni 2020 tergolong rendah dengan nilai OEE *ship unloader* unit 1 rata-rata sebesar 5%, sedangkan nilai OEE *ship unloader* unit 2 rata-rata sebesar 6%, dimana nilai OEE tersebut masih jauh dibawah standar *Japan institute of plant maintenance* yaitu sebesar 85%. Faktor penyebab ketidakefektivan karena rendahnya nilai *availability rate* pada unit 1 (26%) dan unit 2 (28%), rendahnya nilai *performance rate* pada unit 1 (26%) dan unit 2 (25%), serta rendahnya nilai *quality rate* pada unit 1 (80%) dan unit 2 (82%).

Hasil analisis dengan metode RCM untuk menaikkan efektivitas unit *ship unloader* meliputi hasil penyusunan FMEA ada 7 komponen yang perlu dipelihara dengan tepat, dari hasil LTA kegagalan komponen pada unit *ship unloader* sebagian besar (69%), komponen berada pada kategori *outage problem (B)* sejumlah 18 komponen menjadi penyebab kegagalan total pada unit tersebut, sedangkan kategori *hidden failure (D/C)* sebesar 19% dengan jumlah 5 komponen, untuk kategori A (*Safety problem*) sebesar 12% dengan jumlah 3 komponen. Sedangkan hasil pemilihan tindakan dengan metode RCM, terdapat 17 komponen unit *ship unloader* yang direncanakan tindakan *Condition directed*, 3 komponen dengan tindakan *Time directed*, dan 6 komponen tindakan *Finding failure*.

Kata Kunci : Analisis, Metode, *Overall Equipment Effectiveness (OEE)*, *Reliability Centered Maintenance (RCM)*

**ANALYSIS OF SHIP UNLOADER UNIT MAINTENANCE
EFFECTIVENESS WITH OVERALL EQUIPMENT
EFFECTIVENESS (OEE) AND RELIABILITY CENTERED
MAINTENANCE (RCM) METHOD
(Case Study at PT. PJB UP Paiton)**

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ABSTRACT

Maintenance is a combination of various actions taken to maintain an item until the conditions are acceptable. The high damage rate (in 2020 ship unloader unit 1 as much as 9 times breakdown, ship unloader unit 2 as much as 5 breakdown) resulted in a low OEE value. The level of reliability of ship unloaders is at risk of not being achieved because it meets the demands of coal demolition targets. The purpose of the study was to determine the effectiveness of maintenance systems in ship unloader units, factors causing ineffectiveness, and efforts to increase the effectiveness of ship unloader maintenance with the application of OEE and RCM. The research method uses Overall Equipment Effectiveness (OEE) and Reliability Centered Maintenance (RCM) methods.

The results showed the effectiveness of ship unloader maintenance system in the period January-June 2020 is relatively low with the value of OEE ship unloader unit 1 on average of 5%, while the value of OEE ship unloader unit 2 is on average 6%, where the value of OEE is still far below the Japan Institute of Plant Maintenance standard of 85%. Factors causing ineffectiveness due to low availability rate value in unit 1 (26%) and unit 2 (28%), low performance rate value in unit 1 (26%) and unit 2 (25%), as well as the low quality rate value in unit 1(80%) and unit 2 (82%).

The results of analysis by RCM method to increase the effectiveness of ship unloader unit includes the results of fmea preparation there are 7 components that need to be maintained appropriately, from the results of LTA component failure in ship unloader units mostly (69%) components are in the category of outage problem (B) a number of 18 components that can cause total failure in the unit, while the category hidden failure (D / C) of 19% with the number of 5 components, for category A (Safety problem) of 12% with the number of 3 components. While the results of action selection with RCM method, there are 17 components of ship unloader unit planned conditoin directed action, 3 components with Time directed action, and 6 components finding failure action.

Keywords: Analysis, Method, Overall Equipment Effectiveness (OEE) and Reliability Centered Maintenance (RCM)