

ABSTRAK

PT Dinamika Energitama Nusantara (DEN) Surabaya merupakan perusahaan nasional yang bergerak di bidang industri *power generation*. Dalam penelitian ini, penulis akan menghitung nilai *overall equipment effectiveness* (OEE) dari mesin *bending* di lantai produksi PT DEN Surabaya. Mesin *bending* adalah alat yang digunakan untuk membengkokkan pipa pada derajat tertentu. Setelah nilai *overall equipment effectiveness* dari mesin *bending* diperoleh, selanjutnya dilakukan analisis menggunakan metode *markovian decision process* untuk menentukan kebijakan perawatan atau perbaikan yang optimal. Nilai *overall equipment effectiveness* tertinggi diperoleh pada bulan desember 2012 sebesar 79,98 % dan nilai *overall equipment effectiveness* terendah diperoleh pada bulan maret 2013 sebesar 73,12 %. Nilai *overall equipment effectiveness* mesin *bending* di lantai produksi PT DEN Surabaya selama periode oktober 2012 – maret 2013 masih belum memenuhi standart *benchmark world class* yang dianjurkan JIPM (*japan institute of plant maintenance*), yaitu OEE = 85%. Hasil perhitungan *overall equipment effectiveness* kemudian digunakan untuk menentukan *state* pada perhitungan *markovian decision process* yaitu OEE 86 % - 100 % (*state A*), OEE 61 % - 85 % (*state B*), OEE 41 % - 60 % (*state C*), dan OEE 0 % - 40 % (*state D*). Hasil perhitungan *markovian decision process* diperoleh alternatif kebijakan yang optimal berdasarkan nilai ekspektasi terbesar yaitu alternatif 6 (perawatan jika pada kondisi D) dengan nilai ekspektasi Rp 164.802,88,-.

Kata Kunci : *Overall equipment effectiveness, benchmark world class, markovian decision process.*

ABSTRACT

PT Dinamika Energitama Nusantara (DEN) Surabaya is a national company in the power generation industry. In this study, the author will calculate the value of overall equipment effectiveness (OEE) of bending machines on the production floor PT DEN Surabaya. Bending machines is the tool used to bending tubes to a constan degree. Once the value of overall equipment effectiveness of bending machine is obtained, it will be analyzed using markovian decision process to determine the optimal maintenance or repair policies. Overall equipment effectiveness highest value is obtained in december 2012 of 79.98%, and the while lowest value is obtained in march 2013 of 73.12%. Overall equipment effectiveness value of bending machines on the production floor PT DEN Surabaya during the period of october 2012 to march 2013 still does not meet benchmark standards recommended by (japan institute of plant maintenance) JIPM world class, i.e, OEE = 85%. Overall equipment effectiveness calculation results are then used to determine the state for markovian decision process, i.e, OEE at 86% - 100% (state A), OEE 61% - 85% (state B), OEE 41% - 60% (state C), and OEE 0% - 40% (state D). As a results, the optimal policy, based on the largest expected value, is the alternative 6 (treatment if the condition is D) with the expectation value of Rp 164,802.88, -.

Keywords: Overall equipment effectiveness, world class benchmark, markovian decision process.

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