

ABSTRAK

Muhammad Lathif Firdaus : Pengukuran Nilai *Overall Equipment Effectiveness* (Oee) Sebagai Dasar Perbaikan Tingkat Efektifitas Mesin *Annealing Pickling Line* (APL) (Studi Kasus : PT. Jindal Stainless Indonesia)

PT. Jindal Stainless Indonesia (JIS) merupakan perusahaan yang bergerak di bidang *sheet* dan *coil metal job* dimana bahan baku utamanya yaitu *stainless steel*. Pada proses produksi *stainless steel* mengalami masalah pada mesin *Annealing Pickling Line* (APL) dimana mesin tersebut memiliki frekuensi kerusakan paling tinggi sehingga mengakibatkan target produksi tidak tercapai. Maka dari itu diperlukan adanya analisis mengenai tingkat efektifitas mesin yang bertujuan untuk mengetahui kinerja produksi serta mengidentifikasi permasalahan yang terjadi dan faktor-faktor yang menyebabkan terjadinya permasalahan tersebut sehingga usaha perbaikan menjadi terfokus dengan menggunakan metode *Overall Equipment Effectiveness* (OEE) dan *Failure Mode and Effect Analysis* (FMEA). Hasil penelitian didapatkan nilai rata-rata *availability rate* 95%, *performance rate* 62%, *quality rate* 99%, dan OEE 59%. Jika dibandingkan dengan nilai OEE standar kelas dunia, maka nilai OEE dari mesin APL dikatakan belum mencapai kondisi optimal. Faktor *six big losses* yang mempengaruhi adalah *reduced speed losses* dengan nilai presentase 55.7%, diikuti nilai presentase *idle and minor stoppages* 20.5%, *set-up and adjustment losses* 18.8%, *equipment failure losses* 3.6%, *defect losses* 0.9%, dan *reduced speed losses* 0.5%. Usulan perbaikan menggunakan metode FMEA dengan melihat nilai *Risk Priority Number* (RPN) tertinggi adalah melakukan perencanaan sistem perawatan secara periodik baik perawatan tingkat kecil hingga tingkat intensif, melakukan pergantian *roll furnace* dengan yang baru, melakukan perbaikan perencanaan produksi agar tidak terjadi keterlambatan material sehingga mesin tidak *idle*, penyettingan ulang mesin serta peremajaan semua *part* mesin yang bermasalah, melakukan pembersihan *roll bridge* secara intensif agar *roll* selalu bersih, dan lebih selektif dalam melakukan perekrutan operator serta memberikan training secara berkala.

Kata Kunci: *Overall Equipment Effectiveness* (OEE), *Six Big Losses*, *Failure Mode and Effect Analysis* (FMEA)

ABSTRACT

Muhammad Lathif Firdaus: *Measurement of Overall Equipment Effectiveness (OEE) Value as a Basis for Improving the Effectiveness of the Annealing Pickling Line (APL) Machine (Case Study: PT. Jindal Stainless Indonesia)*

PT. Jindal Stainless Indonesia (JIS) is a company engaged in sheet and coil metal jobs where the main raw material is stainless steel. In the stainless steel production process, there was a problem with the Annealing Pickling Line (APL) machine where the machine had the highest frequency of damage so that the production target was not achieved. Therefore it is necessary to have an analysis of the level of machine effectiveness which aims to determine production performance and identify problems that occur and the factors that cause these problems so that improvement efforts become focused using the Overall Equipment Effectiveness (OEE) method and Failure Mode and Effect Analysis (FMEA). The results showed that the average availability rate was 95%, performance rate was 62%, quality rate was 99%, OEE was 59%. When compared with the world-class standard OEE value, the OEE value of the APL machine is said to have not reached optimal conditions. The influencing factor of six big losses is reduced speed losses with a percentage value of 55.7%, followed by the percentage value of idle and minor stoppages 20.5%, set-up and adjustment losses 18.8%, equipment failure losses 3.6%, defect losses 0.9%, and reduced speed losses 0.5%. Proposed improvements using the FMEA method by looking at the value of the highest Risk Priority Number (RPN) is to conduct periodic maintenance system planning, from small to intensive maintenance, change the furnace roll to a new one, improve production planning so that there is no delay in material so that the machine does not idle, reset the machine and rejuvenate all problematic machine parts, perform intensive roll bridge cleaning so that the roll is always clean, and be more selective in recruiting operators and providing regular training.

Keywords: *Overall Equipment Effectiveness (OEE), Six Big Losses, Failure Mode and Effect Analysis (FMEA)*