

ABSTRACT

As one of the largest paper manufacturer in Indonesia export oriented, PT. Indah Kiat Pulp & Paper - Serang Mill (Sinar Mas Group) expands to seize the world paper market, whose consumption is currently growing at about 1.6% per year. Along with the increase in production of electricity and steam needs have increased, and supplied from PT. Dian Swastika Sentosa - Serang which is a coal-fired steam power plant. PT. DSS Serang operate 4 sets of generating system, consisting of 3 units of Boiler with 220 tons of main steam per hour (3x220T/h) and 3 units of Turbine-Generator with 30 Mega Watt (3x30MW) of power, and one Boiler unit with 300 tons of the main steam per hour (1x300T/h) and 1 unit Turbine-Generator with 70 Mega Watt (1x70MW) of power. Based on the data operational interruption during the period January - October 2015, there have been 64 times the failure of spare parts of Roller Mill - Boiler # 6 with 946.67 hours of repairs, then conducted research with the aim of knowing the root of the problem causing interruption of Roller Mill system reliability, and implementation of maintenance system to improve the reliability. Search root cause of problems using Cause-and-Effect Diagram methods and Root Cause Analysis, and corrective actions with preventive maintenance approach. Root Cause Analysis of the problem was found that the damage of Plow-Tip is a spare part of the most dominant as the root cause of the Roller Mill system failure, and improvements made through re-design the Plow-Tip with increasing of material hardness. The implementation of preventive maintenance system is done by scheduling activities, lubrication, inspection, and repair, that completed with annual budgeting strategy and provision of redundant material, has been successful in improve reliability of the Roller Mill system - Boiler #6 with increase the operational availability value.

Keywords: reliability, availability, spare parts, Roller Mill, Boiler # 6, preventive maintenance

MERCU BUANA

ABSTRAK

Sebagai salah satu produsen kertas terbesar di Indonesia yang berorientasi ekspor, maka PT. Indah Kiat Pulp & Paper – Serang *Mill* (Sinar Mas *Group*) berekspansi untuk merebut pasar kertas dunia, yang konsumsinya saat ini tumbuh sekitar 1.6% per tahun. Seiring dengan peningkatan produksinya maka kebutuhan tenaga listrik dan uap mengalami peningkatan, dan disuplai dari PT. Dian Swastatika Sentosa - Serang yang merupakan perusahaan Pembangkit Listrik Tenaga Uap berbahan bakar batubara. PT. DSS - Serang mengoperasikan 4 set sistem pembangkit listrik, terdiri dari 3 unit *Boiler* berkapasitas 220 ton *main steam* per jam (3x220T/h) dan 3 unit *Turbin-Generator* dengan daya 35 *Mega Watt* (3x35MW), serta 1 unit *Boiler* berkapasitas 300 ton *main steam* per jam (1x300T/h) dan 1 unit *Turbin-Generator* dengan daya 70 *Mega Watt* (1x70MW). Berdasar data gangguan operasional selama periode Januari – Oktober 2015, telah terjadi 64 kali kerusakan sistem *Roller Mill - Boiler #6* dengan 946.67 jam perbaikan, maka dilakukan penelitian dengan tujuan mengetahui akar masalah penyebab gangguan keandalan sistem *Roller Mill*, serta penerapan sistem perawatan untuk memperbaiki keandalan. Penelusuran akar penyebab permasalahan menggunakan metode *Cause-and-Effect Diagram* dan *Root Cause Analysis*, dan tindakan perbaikan dengan pendekatan *preventive maintenance*. Dari analisis akar penyebab permasalahan ditemukan bahwa kerusakan *Plow-Tip* merupakan *spare part* yang paling dominan sebagai sumber penyebab kerusakan sistem *Roller Mill*, dan dilakukan perbaikan melalui *re-disain Plow-Tip* dengan meningkatkan kekerasan materialnya. Penerapan sistem *preventive maintenance* dilakukan dengan kegiatan penjadwalan, pelumasan, pemeriksaan, dan perbaikan, serta diperlengkap dengan strategi *annual budgeting* dan penyediaan material *redundant*, telah berhasil memperbaiki keandalan sistem *Roller Mill - Boiler #6* di PT. DSS Serang dengan peningkatan nilai *Operasional Availability*.

Kata kunci: keandalan, ketersediaan, *spare part*, *Roller Mill*, *Boiler #6*, *preventive maintenance*

MERCU BUANA