

ABSTRAK

PT. Semen Baturaja. Tbk merupakan perusahaan manufaktur semen yang terletak di Baturaja Kabupaten Ogan Komering Ulu, Sumatera Selatan. Saat ini PT. Semen Baturaja. Tbk memiliki dua pabrik yaitu pabrik Baturaja I (BTA I) dan Baturaja II (BTA II) yang beroperasi selama 24 jam, salah satunya adalah pabrik Baturaja II (BTA II). Salah satu tahapan dalam proses produksi semen di PT. Semen Baturaja. Tbk yaitu tahapan penggilingan bahan baku (*Raw meal dosing*), tahapan ini diproses di Mesin *Raw Mill*. Pada perawatan mesin *Raw Mill* BTA II, perusahaan telah menerapkan perawatan preventif yaitu perawatan yang dilakukan sebelum terjadinya kerusakan terhadap mesin maupun *equipment*. Berdasarkan observasi dan data historis perusahaan, mesin *Raw Mill* BTA II memiliki nilai *downtime* yang cukup tinggi dan nilai *downtime* tersebut paling tinggi diantara mesin-mesin produksi lainnya. Meskipun penerapan perawatan preventif dan prediktif telah diterapkan oleh PT. Semen Baturaja. Tbk, namun fakta di lapangan belum maksimal. Penelitian ini diharapkan dapat memberikan usulan *maintenance* dalam upaya menurunkan *downtime* mesin *Raw Mill* BTA II.

Metode yang digunakan pada penelitian ini yaitu metode RCM (*Reliability Centered Maintenance*). Metode ini akan menghasilkan penentuan jenis tindakan pemeliharaan dan interval waktu perawatan mesin, dengan menggunakan beberapa informasi mengenai mesin *raw mill* BTA II seperti sistem kerja mesin, kegagalan fungsional *equipment*, profil *equipment* kritis, dan data gangguan mesin *raw mill* BTA II dalam periode satu tahun.

Hasil penelitian dengan metode RCM (*Reliability Centered Maintenance*) diperoleh perbandingan *downtime* sebelum dan sesudah dilakukan usulan perencanaan *maintenance*, *downtime* pada *equipment* yang dikategorikan *High (Require Risk Control Actions)* mengalami penurunan 25,72% pada *equipment Lubrication Unit* dari 409,59 jam menjadi 304,22 jam, penurunan *downtime Belt Conveyor* 7,16% dari 51,50 jam menjadi 47,81 jam, *Belt Feeding* dengan penurunan *downtime* 5,27% dari 14,74 jam menjadi 13,97 jam, *Weighfeeder* dengan penurunan *downtime* 7,28% dari 62,78 jam menjadi 58,21 jam, *Rotary Airlock* penurunan *downtime* 4,06% dari 36,60 jam menjadi 35,11 jam dengan, *Air Slide* dengan penurunan *downtime* 8,95% dari 12,91 jam menjadi 11,80 jam, *Bridge Type Reclaimer* dengan penurunan *downtime* 4,15% dari 23,75 jam menjadi 22,76 jam, *Bucket Exavator Reclaimer* dengan penurunan *downtime* 6,93% dari 20,66 jam menjadi 19,23 jam, *Pneumatic Two-way Valve* dengan penurunan *downtime* 5,87% dari 10,06 jam menjadi 39,47 jam, *Belt Bucket Elevator* dengan penurunan *downtime* 8,19% dari 22,09 jam menjadi 20,28 jam, *Main Drive System* dengan penurunan *downtime* 3,34% dari 8,02 jam menjadi 7,75 jam, dan *Separator* dengan penurunan *downtime* 15,28% dari 42,23 jam menjadi 35,78 jam.

Kata Kunci: *Downtime*, Interval Pemeliharaan, Mesin *Raw Mill*, Pemeliharaan, *Reliability Centered Maintenance*.

**PROPOSAL FOR MAINTENANCE PLANNING EFFORTS TO REDUCE
DOWNTIME ON RAW MILL BTA II MACHINE USING RELIABILITY
CENTERED MAINTENANCE (RCM) METHOD**

ABSTRACT

PT. Semen Baturaja. Tbk is a cement manufacturing company located in Baturaja, Ogan Komering Ulu Regency, South Sumatra. Currently, PT. Semen Baturaja. Tbk has two factories, namely Baturaja I (BTA I) and Baturaja II (BTA II), which operate 24 hours a day, with Baturaja II (BTA II) being one of them. One of the stages in the cement production process at PT. Semen Baturaja. Tbk is the raw meal dosing stage, which is processed in the Raw Mill machine. For the maintenance of the Raw Mill BTA II machine, the company has implemented preventive maintenance, which is performed before any damage occurs to the machine or equipment. Based on observations and historical data from the company, the Raw Mill BTA II machine has a high downtime value, the highest among other production machines. Although preventive and predictive maintenance has been implemented by PT. Semen Baturaja. Tbk, the reality in the field is not yet optimal. This study aims to provide maintenance recommendations to reduce the downtime of the Raw Mill BTA II machine.

The method used in this research is the Reliability Centered Maintenance (RCM) method. This method will determine the type of maintenance actions and the maintenance interval for the machine, using various information about the Raw Mill BTA II machine such as machine work systems, functional equipment failures, critical equipment profiles, and data on Raw Mill BTA II machine disturbances over a one-year period.

The results of the study using the RCM (Reliability Centered Maintenance) method showed a comparison of downtime before and after the proposed maintenance planning. The downtime for equipment categorized as High (Require Risk Control Actions) decreased by 25.72% for the Lubrication Unit from 409.59 hours to 304.22 hours, Belt Conveyor downtime decreased by 7.16% from 51.50 hours to 47.81 hours, Belt Feeding downtime decreased by 5.27% from 14.74 hours to 13.97 hours, Weighfeeder downtime decreased by 7.28% from 62.78 hours to 58.21 hours, Rotary Airlock downtime decreased by 4.06% from 36.60 hours to 35.11 hours, Air Slide downtime decreased by 8.95% from 12.91 hours to 11.80 hours, Bridge Type Reclaimer downtime decreased by 4.15% from 23.75 hours to 22.76 hours, Bucket Excavator Reclaimer downtime decreased by 6.93% from 20.66 hours to 19.23 hours, Pneumatic Two-way Valve downtime decreased by 5.87% from 10.06 hours to 39.47 hours, Belt Bucket Elevator downtime decreased by 8.19% from 22.09 hours to 20.28 hours, Main Drive System downtime decreased by 3.34% from 8.02 hours to 7.75 hours, and Separator downtime decreased by 15.28% from 42.23 hours to 35.78 hours.

Keywords: *Downtime, Maintenance, Maintenance Intervals, Raw Mill Machines, Reliability Centered Maintenance.*