

ABSTRAK

Mesin press merupakan salah satu mesin kritis pada pabrik kelapa sawit yang berfungsi untuk mengekstraksi minyak dari hasil pelumatan buah kelapa sawit. Tingginya beban kerja dan jam operasi yang panjang menyebabkan mesin press rentan mengalami kerusakan, sehingga dapat meningkatkan downtime dan mengganggu kelancaran proses produksi. Penelitian ini bertujuan untuk menyusun jadwal perbaikan dan perawatan mesin press menggunakan metode Reliability Centered Maintenance (RCM) guna meningkatkan keandalan mesin dan mengurangi frekuensi kerusakan.

Penelitian ini dilakukan di PT. Perkebunan Nusantara IV Regional II Unit Pabrik Kelapa Sawit Adolina dengan menggunakan pendekatan deskriptif kuantitatif. Data yang digunakan terdiri dari data primer yang diperoleh melalui observasi langsung dan wawancara dengan operator serta teknisi, serta data sekunder berupa data historis kerusakan dan laporan perawatan mesin. Parameter keandalan mesin dianalisis menggunakan Mean Time Between Failure (MTBF) dan Mean Time To Repair (MTTR) sebagai dasar dalam penerapan metode RCM.

Hasil penelitian menunjukkan bahwa total waktu operasi mesin press selama periode pengamatan adalah 1.670 menit dengan jumlah kerusakan sebanyak lima kali, sehingga diperoleh nilai MTBF sebesar 334 menit. Nilai MTTR yang diperoleh adalah 70 menit, yang menunjukkan bahwa waktu perbaikan mesin masih relatif lama. Komponen yang paling sering mengalami kerusakan meliputi bearing, sistem hidrolis, screw press, dan gearbox. Berdasarkan hasil analisis RCM, disusun jadwal perawatan preventif yang lebih terencana untuk komponen kritis tersebut. Penerapan metode RCM diharapkan dapat mengurangi downtime, meningkatkan keandalan mesin press, serta mendukung kelancaran proses produksi di pabrik kelapa sawit.

Kata kunci: Mesin press, Reliability Centered Maintenance, MTBF, MTTR, Pabrik Kelapa Sawit

ABSTRACT

The press machine is one of the critical machines in palm oil mills, functioning to extract oil from the mashed palm fruit. High workload and long operating hours make the press machine prone to failures, which can increase downtime and disrupt production processes. This study aims to develop a repair and maintenance schedule for the press machine using the Reliability Centered Maintenance (RCM) method to improve machine reliability and reduce failure frequency.

This research was conducted at PT. Perkebunan Nusantara IV Regional II Adolina Palm Oil Mill using a descriptive quantitative approach. The data used consist of primary data obtained through direct observation and interviews with operators and technicians, as well as secondary data in the form of historical failure records and maintenance reports. Machine reliability parameters were analyzed using Mean Time Between Failure (MTBF) and Mean Time To Repair (MTTR) as the basis for applying the RCM method.

The results show that the total operating time of the press machine during the observation period was 1,670 minutes with five failure events, resulting in an MTBF value of 334 minutes. The MTTR value obtained was 70 minutes, indicating that the repair time is still relatively long. The most frequently failed components include bearings, hydraulic systems, screw presses, and gearboxes. Based on the RCM analysis, a structured preventive maintenance schedule was developed for these critical components. The implementation of the RCM method is expected to reduce downtime, improve press machine reliability, and support continuous production operations in the palm oil mill.

Keywords: *Press machine, Reliability Centered Maintenance, MTBF, MTTR, Palm Oil Mill*