

ABSTRACT**MODEL CONTROL OF BOILER TYPE CHENG CHEN AND FIVES CAIL BABCOCK BASED ON HAZARD ANALYSIS AND RISK IN SUGAR FACTORY CANDI BARU, SIDOARJO**

In 2009 occurred 16 times the case of damage to the boiler components of PG Candi Baru conversion clock stopped milled 122.77 hours. The year 2010 was 11 times the case of damage to components conversion clock stopped milled 47.35 hours. In 2011 occurred 19 times damage cases stopped milled components 72.40 hours. If the production process stops one day, then the target will not be achieved with a loss per day is estimated Rp. 1 billion - Rp. 2.1 billion (per hour when his production loss of Rp. 87.5 million).

Risk analysis of hazard in the boiler, risk assessment and control measures by using a method of FTA (fault tree analysis), FMEA (failure modes and effects analysis) / RCM (reliability centered maintenance) II. Risk assessment on the boiler components obtained likelihood values multiplied by consequence. Based on the analysis of the calculation of the likelihood (Table 5.20) is the highest in boiler components, namely the installation of pipe above 8 times per year (1577 times per year). Unlike bagasse carrier (BC) who had the lowest likelihood that $2 < t \leq 4$ times per year. The conclusion is, the probability of plumbing installations compared to ten other boiler components (Economizer, SAF, Pump, Handhole, Bagasse Carrier, superheater, Chimney (KTM), Dumping Grade, In Draft Fan (IDF), Electrical) is much higher.

The results of the calculation of the benefit cost analysis from breakdown (failure) on boiler components obtained $B / C > 1$, then $54.84 > 1$. Collaboration of methods hazard analysis FTA, FMEA/RCM II (qualitative) and hazard risk matrix can provide findings on the complexity of boiler components is effectively. Clock stops milled can lead to energy use in PG is not optimal. Pattern hour unscheduled stop that can be used for scheduled maintenance program, the clock stops milling in PG can be suppressed less than 5% (Saeku, 2009).

Keywords : boiler type Cheng-chen, boiler type Fives Cail Babcock, failure, risk of Hazards, FTA, FMEA, RCM II, benefit cost analysis, production loss