

## **ABSTRACT**

*The sustainability of the establishment of manufacturing and service industries in the current era of global business competition depends on how big their efforts to meet market demands are: Good quality, low cost, continuity of service, environmentally friendly, occupational safety and health. One that supports and plays an important and decisive role in trying to meet these demands is how well and focused the industry takes care of their assets at a reasonable cost. The Reliability-Centered Maintenance II (RCM-II) approach is widely used in upscale industry to meet the above expectations. This research uses RCM-II maintenance management technique to engineer the treatment decision process on the pump water distribution pump distribution capacity 7140 up to 8300 m<sup>3</sup>/hour in petrochemical industry producing methanol, PT. KMI Bontang. The RCM-II framework includes FMEA, RPN, Weibull statistical adaptation, MTTF, MTTR, reliability, availability, logic tree analysis (LTA), P-F diagrams, maintenance intervals, maintenance tasks and decisions. The results obtained in this study are: Cause of failure of pump function, pump parts, cost efficiency improvement, reliability improvement, availability improvement, maintenance maintenance interval, longer maintenance condition monitoring interval and MTTR or proactive scheduled dischard main task much longer than before the application of RCM-II.*

*Keywords: Availability, FMEA, framework, LTA, profit maintenance, MTTR, RCM II, Reliability and Weibull.*



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## ABSTRAK

Keberlangsungan berdirinya industri manufaktur maupun jasa di era persaingan bisnis global saat ini tergantung pada seberapa besar usaha mereka untuk memenuhi tuntutan pasar berupa: Kualitas bagus, biaya murah, kontinuitas pelayanan, ramah lingkungan, keselamatan dan kesehatan kerja. Salah satu yang mendukung dan berperan penting serta menentukan dalam usaha untuk memenuhi tuntutan ini adalah seberapa baik dan fokus industri tersebut merawat aset yang mereka miliki dengan biaya yang sepadan. Pendekatan *Reliability-Centered Maintenance II (RCM-II)* banyak digunakan di industri skala menengah keatas untuk memenuhi harapan diatas. Penelitian ini menggunakan teknik manajemen perawatan *RCM-II* dalam merekayasa proses keputusan perawatan pada aset pompa pendistribusian *sea water pump* kapasitas 7140 – 8300 m<sup>3</sup>/jam di industri petro kimia penghasil *methanol*, PT. KMI Bontang. *Framework RCM-II* mencakup *FMEA*, *RPN*, adopsi statistik *Weibull*, *MTTF*, *MTTR*, *reliability*, *availability*, *logic tree analysis (LTA)*, diagram *P-F*, *interval* perawatan, *maintenance task* dan *decision*. Hasil yang diperoleh dalam penelitian ini adalah: Penyebab kegagalan fungsi pompa, part-part pompa, peningkatan *cost efficiency*, peningkatan *reliability*, peningkatan *availability*, pencapaian *maintenance profit*, *interval* perawatan *condition monitoring* lebih lama dan *MTTR* atau *proactive scheduled discharge task* utama yang jauh lebih lama dibanding sebelum penerapan *RCM-II*.

Kata kunci: *Availability*, *FMEA*, *framework*, *LTA*, *maintenance profit*, *MTTR*, *RCM II*, *Reliability* dan *Weibull*.

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