

ABSTRAK

Pompa sirkulasi air pendingin digunakan untuk mengirimkan kebutuhan air dingin menuju berbagai sistem yang berada di Instalasi Radiometalurgi (IRM). Sistem pompa tersusun atas empat motor pompa yang dioperasikan tiga buah setiap hari secara bergantian. Proses pergantian operasi pompa masih dilakukan secara manual oleh operator yang bertugas. Proses pergantian pompa secara manual dinilai masih kurang efektif. Jika terjadi kegagalan sistem pada salah satu motor pompa, maka sirkulasi air dingin akan melambat dan mempengaruhi proses pendinginan pada sistem yang membutuhkan. Untuk mengatasi masalah tersebut, sistem pergantian operasi motor akan dilakukan secara otomatis baik dalam pergantian harian ataupun dalam kondisi darurat. Sistem otomasi ini memanfaatkan unit kendali PLC yang akan melakukan pergantian operasi pompa baik dalam operasi normal maupun operasi darurat. Dalam operasi normal PLC akan melakukan pergantian operasi ketika penghitung waktu menunjukkan waktu operasi selama 1 hari (24 jam). Dalam operasidarurat PLC akan melakukan pergantian operasi ketika salah satu motor berhenti beroperasi.

Kata kunci : operasi pompa, penghitungan waktu, PLC, ladder diagram, otomasi

ABSTRACT

The cooling water circulation pump is used to send cold water needs to various systems located at Radiometallurgical Installation (IRM). The pump system is composed of four pump motors which are operated three pieces each day alternately. The process of replacing the pump operation is still done manually by the operator on duty. The process of changing the pump manually is considered still less effective. If there is a system failure on one of the pump motors, then the circulation of cold water will slow down and affect the cooling process in the system that requires it. To overcome this problem, the system of changing the operation of the motor will be carried out automatically either in the daily turnover or in an emergency. This automation system utilizes a PLC control unit that will make changes to pump operation in both normal and emergency operations. In normal operation the PLC will make a change of operation when the timer shows the operation time for 1 day (24 hours). In emergency operation the PLC will make a change of operation when one of the motors stops operating.

Keywords: pump operation, time calculation, PLC, ladder diagram, automation