ABSTRAK

Auxiliary Steam merupakan sistem yang berfungsi menunjang penggunaan uap pada operasional pembangkit listrik tenaga uap dan memenuhi kesiapan sistem utama saat mengunakan atau awal kondisi *start unit*. *Auxiliary steam* adalah uap pembantu yang terdapat dalam operasi pembangkit listrik tenaga uap dimana diperoleh dari uap ekstrasi pengoperasian yang dimanfaatkan kembali untuk kebutuhan operasi dimana diambil dari jalur *Primary Superheater dan Cold Reheat.* Untuk menjaga temperatur *auxiliary steam* agar sesuai dengan ketentuannya dilengkapi oleh *spray auxiliary steam* yang berfungsi menjaga tekanan *spray* menuju jalur *auxiliary steam* dapat masuk dan menjaga besarnya temperatur *auxiliary steam*.

Oleh karena itu *spray auxiliary steam* dilengkapi dengan serangkaian sistem kontrol otoamtis yang terdiri dari sensor-sensor, *positioner*, serta kontroler guna menunjang keandalan operasinya. Salah satu metode pengontrolan *spray auxiliary steam* menggunakan sistem kontrol *tuning manual* PI *close loop* dimana pengendalian tekanan menggunakan PCV (*Presure Control Valve*) dan *feedback* dari *Presure Transmitter*, untuk nilai proporsional *exsisting* sebesar 100 dan integral *exsisting* sebesar 10 penggunaan sistem kontrol ini menimbulkan osilasi pada sistem tekanan *spray auxiliary steam*.

Pembukaan aktuator yang berosilasi dapat menyebabkan pengikisan *disk plug* pada valve *water hammer* pada jalur pipa karena perbedaan besarnya tekanan inlet dengan tekanan outlet yang menimbulkan kerugian biaya perbaikan hingga kurang lebih 634 juta. Menggunakan metode kontrol PID Cohen-Coon respon keluaran sistem sesuai dengan yang diharapkan sehingga menghilangkan osilasi yang besar terhadap tekanan pada *auxiliary steam spray*.

Kata Kunci: Auxliary Steam, Sensor, Transmitter, PID, Close Loop, Pressure Control Valve

ABSTRACT

Auxiliary Steam is a system that functions to support the use of steam in the operation of steam power plants and to meet the readiness of the main system when using or starting the start unit condition. Auxiliary steam is auxiliary steam contained in the operation of steam power plants which is obtained from the operating extraction steam which is reused for operation needs which is taken from the Primary Superheater and Cold Reheat lines. To maintain the temperature of the auxiliary steam to comply with the provisions, it is equipped with an auxiliary steam spray which serves to maintain the pressure of the spray to the auxiliary steam paths to enter and maintain the magnitude of the auxiliary steam temperature.

Therefore spray auxiliary steam is equipped with a series of automatic control systems consisting of sensors, positioners and controllers to support the reliability of its operation. One method of controlling auxiliary steam spray uses a PI close loop manual tuning control system where the pressure control uses a PCV (Presure Control Valve) and feedback from the Presure Transmitter, for proportional exsisting values of 100 and integral exsisting of 10 using this control system causing oscillations in the system pressure auxiliary steam spray.

The opening of the oscillating actuator can cause erosion of the disk plug on the valve water hammer in the pipeline due to the difference in the amount of inlet pressure and outlet pressure which results in a repair cost of approximately 634 million. Using the Cohen-Coon PID control method the output response of the system is as expected, thereby eliminating large oscillations of pressure in the auxiliary steam spray.

Keywords: Auxliary Steam, Sensor, Transmitter, PID, Close Loop, Pressure Control Valve