DESIGNING CONTROL AND SAFETY SYSTEM ON STEAM SEPARATOR USING FUZZY-PID AT PT. PERTAMINA GEOTHERMAL ENERGY AREA KAMOJANG, WEST JAVA

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Abstract
This final project aims to design control and safety system on steam separator to keep the output pressure from steam separator in order to secure turbine generator performance and stand against any disturbance. This study also provide the security of a steam separator tank on its operating pressure.

The simulation result from this study shows that the fuzzy-PID controller can control the output of steam separator with a value of 1% ess, Mp 10.345 bar, and Ts 77 seconds. Setpoint tracking test also indicates that the controller have ability to follow a modified setpoint. As for the tracking setpoint increased, the controller is able to control with a value of 2% ess value, Ts is 65 seconds, and Mp is 12.44 bar. As for the tracking setpoint is decreased, the value of ess is 2.1% and Ts is 85 seconds. The result of a controller test with additional of noise in the plant obtained a value of ess 0% Ts 165 seconds, and Mp 12.248 bar. Safety systems are applied in this study is able to maintain the operating condition of steam separatoron its operating pressure at 11 bar.

Keyword : Steam separator, Control, Fuzzy-PID, Safety system.