

ABSTRAK

Sering kali MCC (*Motor Control Center*) Boiler unit 5-7 trip disebabkan gangguan ke tanah (*ground fault*) di beban motor maupun *receptacle*. Dengan kata lain, keandalan MCC Boiler kurang baik. Akibat yang ditimbulkan dari MCC Boiler trip adalah unit *derating* atau bahkan trip. Pemecahan masalah tersebut dilakukan dengan analisa kasus, studi literatur, simulasi software, simulasi hardware dan pengujian di lapangan.

Diketahui, semua beban motor yang menjadi pemicu MCC Boiler trip mengalami gangguan satu fasa ke tanah. Fakta di lapangan, MCCB (*Molded Case Circuit Breaker*) pada beban motor tersebut tidak bekerja, tetapi peralatan proteksi yang bekerja adalah ACB (*Air Circuit Breaker*) di *incoming* MCC Boiler sehingga MCC Boiler trip. Untuk memperbaiki koordinasi proteksi pada MCC Boiler, modifikasi sistem proteksi MCC Boiler dilakukan dengan penambahan proteksi *ground fault* di MCCB. Selain itu, untuk menambah keandalan dan kesiapan unit, maka modifikasi tambahan dilakukan pada MCC Boiler dengan melakukan pendistribusian beban *receptacle* pada MCC boiler.

Modifikasi tersebut terbukti dapat meningkatkan keandalan dan kesiapan MCC Boiler untuk membantu operasional unit. Dengan demikian, unit dapat dihindarkan dari kerugian karena *derating* dan trip unit sehingga kehilangan kesempatan berproduksi .

N I V E R S I T A S
M E R C U B U A N A

Kata kunci: gangguan ke tanah, koordinasi proteksi, MCC Boiler

ABSTRACT

Often the MCC (Motor Control Center) Boiler unit 5-7 trips are caused by a ground fault in the motor load or receptacle. In other words, the reliability of the MCC Boiler is not good. The consequence of an MCC Boiler trip is unit derating or even tripping. Solving this problem is carried out by case analysis, literature study, software simulation, hardware simulation and field testing.

It is known that all motor loads that trigger the MCC Boiler trip experience a single phase to ground fault. The facts in the field are that the MCCB (Molded Case Circuit Breaker) on the motor load is not working, but the protection equipment that is working is the ACB (Air Circuit Breaker) on the incoming MCC Boiler so that the MCC Boiler trips. To improve protection coordination on the MCC Boiler, modify the protection system MCC Boiler is carried out by adding ground fault protection on the MCCB. Apart from that, to increase the reliability and readiness of the unit, additional modifications were carried out on the MCC Boiler by distributing the receptacle load on the MCC boiler.

This modification has been proven to increase the reliability and readiness of the MCC Boiler to assist unit operations. In this way, the unit can be avoided from losses due to derating and unit trips resulting in lost production opportunities.

Key words: ground fault, protection coordination, MCC Boiler