ABSTRAK

Generator Sinkron dengan pendingin gabungan hydrogen sistem dan *Generator Staror Cooling Water* (GSCW)sistem berpendingin air memiliki kemampuan pendinginan yang baik, tetapi juga memiliki kerugian yang cukup besar apabila keduanya terjadi masalah kebocoran. Seperti apa yangterjadipada generator sinkron UJP Labuan, *generator failure tripalarm* muncul dibarengi tekanansistempendinginturundrastisdari 0,3 Mpa sampai dengan 0,1 Mpasehingga generator mengalami trip.

Padatugasakhirinimembahasanalisa kerusakan generatorakibatkebocoran air pendingin stator-bar denganmelakukanpengujiandanpemeliharaan sesuai dengan acuan IEC dan IEEE std Electrical Rotating Mechine agar generator dapatberfungsi normal.Dari reverensi *water cooling* sistem menyatakan banyak faktor dapat menyebabkan bocornya GSCW sistem mulai dari faktor penyempitan penampang, kualitas air, dan jenuh material.

Pengujian *PMI scan, hydrostatic test ataupun flow rate test* GSCW sistem menyatakan bahwa pipa *circuit ring* mengalami *melting* sehingga membuat jalur pendingin putus, hasil pressure 0,203 Mpa air memancar ke berbagai arah menyebabkan temuan kerusakan pada bagian lain generator yaitu *wedge, teflon hose, dan box bar clip*. Dari temuan ini dilakukan analisa kerusakan dengan metode pengetesan *Hipot Test, Insulation Resistance, ELCID test dan WTD test*sesuaidenganacuan IEC, IEEE Std yang disepakatiolehperusahaansehingga peralatan dapat berfungsi normal kembali.

Kata Kunci: Generator Sinkron, Generator Stator Cooling Water, Analisa Kerusakan Generator, IEC dan IEEE Std.

ABSTRACT

The synchronous generator with the combined cooling of the hydrogen system and the Staror Cooling Water (GSCW) Generator water-cooled system has good cooling ability, but also has considerable losses if both leakage problems occur. As happens in the Labuan UJP synchronous generator, the generator failure trip alarm appears along with the cooling system pressure drops dramatically from 0.3 Mpa to 0.1 Mpa so the generator experiences a trip.

This final project discusses the analysis of generator damage due to leakage of stator-bar cooling water by conducting testing and maintenance in accordance with the IEC and IEEE standards of the Electrical Rotating Mechine so that the generator can function normally. From the water cooling system, the system states that many factors can cause the leakage of the GSCW system starting from the cross-sectional narrowing factor, water quality, and material saturation.

PMI scan testing, hydrostatic test or GSCW flow rate test system state that the circuit ring pipe is melting, causing the cooling line to break, the result of a pressure of 0.203 Mpa water radiates in various directions causing damage to other parts of the generator, wedge, teflon hose and box bar clip. From this finding a damage analysis is carried out using the Hipot Test, Insulation Resistance, ELCID test and WTD test methods in accordance with IEC's reference, IEEE Std agreed by the company so that the equipment can function normally again.

Keywords: Synchronous Generator, Water Cooling Stator Generator, Generator Damage Analysis, IEC and IEEE Std.