Inspeksi Kehandalan Transformator 20/0.4kV 1600kVA Pada Project Pembangunan Aviation Fuel Hydrant System dan Depot Pengisian Pesawat Udara Kulon Progo = Quality Inspection of 20/0.4kV 1600kVA Transformer in the Construction of Kulon Progo Aviation Fuel Hydrant System and Aircraft Filling Depot Project

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Abstrak

Pesatnya pertumbuhan ekonomi di Yogyakarta berdampak pada kebutuhan transportasi udara sehingga dibangun bandara baru Yogyakarta International Airport (YIA) di Kulon Progo, Yogyakarta. Untuk memenuhi kebutuhan bahan bakar Avtur Jet A1 di YIA, PT. Pertamina Patra Niaga (PPN) selaku penyuplai membangun Depot Pengisian Pesawat Udara (DPPU) yang berlokasi di area bandara YIA Kulon Progo. Pekerjaan Project Pembangunan Aviation Hydrant System dan Depot Pengisian Pesawat Udara Kulon Progo milik PPN ini dibangun menggunakan kontraktor yaitu PT. JGC Indonesia (JIND). Untuk memenuhi kebutuhan daya listriknya, DPPU mendapat suplai tegangan 20 kV dari PT. Angkasa Pura (AP). Disalurkan ke panel Medium Voltage (MV) Switchgear 20 kV, kemudian diturunkan tegangan nya menjadi 400 V menggunakan transformator daya 20 kV / 400 V, 1600 kVA. Lalu disalurkan ke panel Low Voltage (LV) Switchgear 400 V. Panel ini terbagi menjadi 2 busbar, busbar A mendapat suplai 20 kV dari AP, busbar B mendapat suplai 400 V dari 2 buah Diesel Engine Generator dengan kapasitas masing-masing 800 kVA. Dari panel ini, peralatan-peralatan di DPPU mendapat suplai daya. Transformator daya menjadi salah satu komponen utama dalam sistem kelistrikan di DPPU, sehingga harus terjaga kualitas dan kehandalan dalam menjalankan operasinya. Sehingga untuk menjamin mutu tersebut, maka perlu dilakukan inspeksi (pemeriksaan) baik dokumen, fisik secara visual, maupun fungsinya, sesuai dengan spesifikasi peruntukannya. Pembuktian kehandalan dilakukan dengan melakukan serangkaian pengujian transformator dengan acuan standar IEC 60076-1. Dan hasil pengujian menunjukan lolos acceptance criteria sehingga transformator layak dioperasikan sesuai dengan kebutuhan. Kegiatan telah diselesaikan secara profesional dengan menjalankan prinsip dasar kode etik insinyur serta memperhatikan aspek Keselamatan, Kesehatan Kerja, dan Lindungan Lingkungan (K3LL).

.....The rapid economic growth in Yogyakarta has had an impact on the need for air transportation, so the new Yogyakarta International Airport (YIA) airport was built in Kulon Progo, Yogyakarta. To fulfil the need for Avtur Jet A1 fuel at YIA, PT. Pertamina Patra Niaga (PPN) as the supplier built an Aircraft Filling Depot located in the YIA Kulon Progo airport area. Construction of Project Pembangunan Aviation Hydrant System dan Depot Pengisian Pesawat Udara Kulon Progo that belongs to PPN, was built by contractor PT. JGC Indonesia (JIND). To cover its electrical power needs, DPPU receives a 20 kV voltage supply from PT. Angkasa Pura (AP). Lined to the 20 kV Medium Voltage (MV) Switchgear panel, then the voltage is reduced to 400 V using a 20 kV / 400 V, 1600 kVA power transformer. Then it is distributed to the 400 V Low Voltage (LV) Switchgear panel. This panel is divided into 2 busbars, busbar A gets a 20 kV supply from the AP, busbar B gets a 400 V supply from 2 Diesel Engine Generators with a capacity of 800 kVA each. From this panel, the equipment in the DPPU gets a power supply. The power transformer is one of the main components in the electrical system at DPPU, so quality and reliability must be maintained in carrying

out its operations. So, to guarantee the quality, it is necessary to carry out inspections (examinations) of both documents, physical visuals, and functions, in accordance with the specifications. Proving reliability is carried out by carrying out a series of transformer tests with reference to the IEC 60076-1 standard. And the test results show that it passes the acceptance criteria so that the transformer is suitable for operation according to requirements. Activities have been completed professionally by implementing the basic principles of the engineer's code of ethics and paying attention to aspects of Safety, Occupational Health and Environmental Protection (K3LL).