ANALISA KEGAGALAN DESICCANT PENGERING UDARA PLTGU TAMBAK LOROK BLOK-3

LAPORAN TEKNIK

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ABSTRAK

Pengoperasian pengering udara secara terus-menerus membutuhkan perawatan dan pemeliharaan agar mesin selalu siap untuk dioperasikan sehingga tidak mengganggu kegiatan pembangkit listrik. Desiccant pengering udara yang ada di PLTGU Blok 3 telah dilakukan penggantian. Hal ini lebih cepat dari yang direncanakan. Oleh karena itu diperlukan analisa penyebab terjadinya kegagalan ini. Metode pengecekan yang dilakukan berupa metode visual dan menggunakan multimeter, process calibrator dan jangka sorong. Sedangkan untuk mencari akar permasalahan menggunakan diagram ikan Ishikawa.

Berdasarkah hasil dari data yang didapatkan, kegagalan Desiccant pengering udara dikarenakan suhu discharge yang terlalu tinggi, kerusakan solenoid valve, ketidakpatuhan operator terhadap prosedur operasional standar (SOP), serta ketidakteraturan dalam penggantian filter. Suhu discharge mencapai 55°C, melebihi batas aman, yang dapat memperpendek umur desiccant di pengering udara. Selain itu, ketidakdisiplinan operator dalam menutup inlet valve pada engering Udara yang dalam keadaan standby berkontribusi pada penumpukan udara basah, menghambat proses regenerasi. Akhirnya, kurangnya pengecekan berkala dan perawatan pada filter berpotensi merusak komponen utama dari sistem. Segera perbaiki atau ganti solenoid valve yang rusak dan pertimbangkan penggantian manual gate valve dengan motor-operated valve untuk memberikan proteksi tambahan pada sistem. Lakukan pelatihan ulang kepada operator mengenai prosedur operasional standar.

Kata kunci: Desiccant Pengering Udara, Proses Pengeringan, Proses Regenerasi

ABSTRACT

The continuous operation of the Air Dryer requires maintenance and upkeep to ensure that the machine is always ready for operation, preventing any disruption to power generation activities. The Desiccant Air Dryer at the Combined Cycle Power Plant Block 3 has been replaced sooner than planned. Therefore, it is necessary to analyze the causes of this failure. The inspection methods used include visual inspection as well as the use of a multimeter, process calibrator, and caliper. To determine the root causes, an Ishikawa fishbone diagram was employed.

Based on the results from the collected data, the failure of the Desiccant Air Dryer was attributed to excessively high discharge temperatures, damage to the solenoid valve, non-compliance by operators with standard operating procedures (SOP), and irregularities in filter replacements. The discharge temperature reached 55°C, exceeding safe limits, which can shorten the lifespan of the desiccant in the Air Dryer. Additionally, the lack of discipline among operators in closing the inlet valve on the Air Dryer while in standby mode contributes to the accumulation of moisture-laden air, hindering the regeneration process. Finally, insufficient periodic checks and maintenance of the filters pose a potential risk to the main components of the system. Immediate repair or replacement of the damaged solenoid valve is necessary, and consideration should be given to replacing the manual gate valve with a motor-operated valve to provide additional protection for the system. Retraining of operators on standard operating procedures should also be conducted.

Keywords: Desiccant Air Dryer, Dyring Process, Regeneration Process