



ABSTRACT

The one of important component in Geothermal Power Plant (PLTP) is cooling tower. Cooling tower is a heat exchanger that works to remove heat from the condensate into the environment. The cooling process in the cooling tower at PT. Geo Dipa Energy Dieng Unit is expected to reach temperatures close to the ambient wet bulb temperature that is 18.8 ° C. Furthermore, the condensate that has been cooled will be flowed to the main condenser to be a steam cooling spray. If the cooling water has a temperature that is too high, the pressure will increase and vacuum in the main condenser decreases.

To find out the cooling tower performance, an analysis of cooling tower performance is needed, including analysis and calculation of the cooling capacity, range, approach and efficiency of the cooling tower. Furthermore, this analysis will be one of the company's considerations for maintenance or replacement.

The analysis showed that the cooling capacity of the cooling tower in April 2020 was 37,522,997.57 MJ / hr with a range value was 11.88 ° C, an approach value was 3.48 ° C, and efficiency was 77.34%.



INTISARI

Salah satu komponen penting pada Pembangkit Listrik Tenaga Panas Bumi (PLTP) adalah *cooling tower*. *Cooling tower* adalah alat penukar panas yang berfungsi membuang panas dari kondensat ke lingkungan. Proses pendinginan pada *cooling tower* di PT. Geo Dipa Energi Unit Dieng diharapkan mencapai suhu yang mendekati temperatur *wet bulb* ambien yaitu 18,8°C. Selanjutnya, kondensat yang telah didinginkan akan dialirkan ke *main condenser* menjadi *spray* pendingin uap. Apabila air pendingin memiliki temperatur yang terlalu tinggi, akan menyebabkan tekanan meningkat dan vakum pada *main condenser* berkurang.

Untuk mengetahui kinerja *cooling tower*, diperlukan analisa performa *cooling tower*, diantaranya adalah analisa dan perhitungan terhadap *cooling capacity*, *range*, *approach* dan efisiensi *cooling tower*. Selanjutnya analisa tersebut akan menjadi salah satu pertimbangan perusahaan untuk melakukan perawatan atau penggantian.

Hasil analisa menunjukkan bahwa *cooling capacity* yang dimiliki *cooling tower* pada bulan April 2020 adalah 37.522.997,57 MJ/hr dengan nilai *range* sebesar 11,88°C, nilai *approach* sebesar 3,48°C, dan efisiensi sebesar 77,34%.