

ABSTRACT

ANALYSIS OF THE EFFECTIVENESS OF WASTEWATER TREATMENT SISTEM INI COAL POWER PLANT (CPP): CASE STUDY OF TARAHAH CPP

By

MELISA BITHA

Coal Power Plant (CPP) is a power plant that has a major impact on the environment including water because its wastewater can disrupt the balance of nature such as water pollution. Therefore, CPP of Tarahan carries out a series of wastewater treatment processes including using the WWTP installation. This study aims to determine the source of wastewater, the wastewater treatment process and the content and quality of wastewater in accordance with the Regulation of the Minister of Environment No. 08 of 2009. This type of research is cross-sectional and observational. The tests that have been carried out, it is known that the sources of wastewater come from the drainage of the boiler unit, condenser unit, WTP unit, and chlorination plant unit. Wastewater is processed through the stages of primary treatment, secondary treatment and tertiary treatment. Data was obtained through purified wastewater samples as output data and storage ponds #3 and #4 as input data. The content obtained was in the form of pH, conductivity, TDS, TSS, turbidity, total hardness, total iron, and free res chlorine. The quality obtained was expressed as a percentage where the results of pH were 80.36%, conductivity 74.09%, TDS 75.38%, turbidity 55.53%, total iron 66.66%, free res chlorine 60%. TSS was not calculation because the analysis results were quite low but still met the established quality standards, total hardness and silica were not calculation because they were in the form of minerals whose accurate data can only be obtained on RO products.

Keywords: *Wastewater, CPP, CPP Of Tarahan, WWTP*

ABSTRAK

ANALISIS EFEKTIVITAS SISTEM PENGOLAHAN AIR LIMBAH DI PEMBANGKIT LISTRIK TENAGA UAP (PLTU): STUDI KASUS PLTU TARAHAN

Oleh

MELISA BITHA

Pembangkit Listrik Tenaga Uap (PLTU) menjadi pembangkit listrik yang memberi pengaruh besar terhadap lingkungan hidup termasuk perairan karena air limbahnya memungkinkan untuk mengganggu keseimbangan alam seperti pencemaran air. Oleh karena itu PLTU Tarahan melakukan serangkaian proses pengolahan air limbahnya termasuk menggunakan instalasi WWTP. Penelitian ini bertujuan untuk mengetahui sumber-sumber air limbah, proses pengolahan air limbah serta kandungan dan kualitas air limbah sesuai dengan Peraturan Menteri Lingkungan Hidup No 08 Tahun 2009. Jenis penelitian ini termasuk penelitian *cross sectional* dan bersifat observasional. Pengujian yang telah dilakukan, diketahui bahwa sumber-sumber air limbah berasal dari drainase unit boiler, unit kondensor, unit WTP, dan unit *chlorination plant*. Air limbah di proses melalui tahap *primary treatment*, *secondary treatment* serta *tertiary treatment*. Data diperoleh melalui sampel *purified waste water* sebagai data *output* serta *storage pond #3* dan *#4* sebagai data *input*. Kandungan yang diperoleh berupa pH, *conductivity*, TDS, TSS, *turbidity*, *total hardness*, *total iron*, dan *free res chlorine*. Kualitas yang diperoleh dinyatakan dengan persentase dimana hasil pH 80,36%, *conductivity* 74,09%, TDS 75,38%, *turbidity* 55,53%, *total iron* 66,66%, *free res chlorine* 60%. TSS tidak dilakukan perhitungan karena hasil analisisnya yang cukup rendah tetapi masih memenuhi baku mutu yang ditetapkan, *total hardness* dan silika tidak dilakukan perhitungan karena berbentuk mineral yang data akuratnya hanya dapat diperoleh pada produk RO .

Kata kunci: Air Limbah, PLTU, PLTU Tarahan, WWTP