ABSTRAK

ALFIN FADHILAH. Evaluasi Unit *Membrane Bio Reactor* (MBR) *Sebagai Post-Treatment* di IPAL PT X, Bantul, Daerah Istimewa Yogyakarta.. Dibimbing oleh Dr. Eng. AWALUDDIN NURMIYANTO, S.T., M.Eng.

Membrane Bio Reactor (MBR) adalah salah satu pengolahan dalam Instalasi Pengolahan Air limbah (IPAL) yang memiliki nilai efisiensi tinggi. Penelitian ini bertujuan untuk melakukan evaluasi terhadap MBR jenis Flat-sheet di PT X, Bantul, Daerah Istimewa Yogyakarta dengan mengetahui efisiensi pengolahan dalam parameter pH, *Biological Oxygen Demand* (BOD), *Chemical Oxygen Demand* (COD), Amonia, dan *Total Coliform*. Metode pengambilan sampel adalah *grab sampling* dan melakukan pengukuran pH secara langsung pada titik sampel. Metode analisis parameter COD dan Amonia dilakukakan dengan metode Spektrofotometri, BOD dengan metode Winkler-Alkali iodida azida, dan *Total Coliform* dengan metode most probable number (MPN). Berdasarkan hasil penelitian didapatkan efisiensi pengolahan pada MBR pada *post-treatment* ditinjau dari parameter COD adalah 58%, BOD sebesar 61%, *total coliform* mencapai 4,4 log dan amonia sebesar 43%.

Kata kunci: Amonia, BOD, COD, *Membrane Bio Reactor*, pH, *Total Coliform*

ABSTRACT

ALFIN FADHILAH. *Evaluation of Membrane Bio Reactor (MBR) as A Post-Treatment Plant at PT X, Bantul, Daerah Istimewa Yogyakarta*. *Supervised by* Dr. Eng. AWALUDDIN NURMIYANTO, S.T., M.Eng.

Membrane Bio Reactor (MBR) is one of the processing in Waste Water Treatment Plant (WWTP) which has high effectiveness value. This study aims to evaluate the Flat-sheet type MBR at PT X, Bantul, Yogyakarta (DIY) by knowing the processing efficiency in the parameters of pH, Biological Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Amonia, and Total Coliform. The sampling method is grab sampling and measuring pH directly at the sample point. Methods of analyzing COD and Amonia parameters were carried out using the Spectrophotometry, BOD method with the Winkler-Alkali iodide azide method, and Total Coliform using the most probable number (MPN) method. Based on the results of the study, the processing efficiency in the MBR at post-treatment in terms of COD parameters was 58%, BOD was 61%, the total coliform was 4.4 log and amonia was 43%.

Keywords: Amonia, BOD, COD, *Membrane Bio Reactor*, pH, *Total Coliform*