

EVALUASI PENURUNAN KADAR AMONIAK DAN FOSPAT
PADA PENGOLAHAN LIMBAH CAIR
TIPE *HORIZONTAL GRAVEL FILTER*
DI RUMAH SAKIT PANTI BAKTININGSIH KLEPU JOGJAKARTA

Abstraksi

Limbah cair dari kegiatan Rumah Sakit dihasilkan dari kegiatan laundry, dapur, kegiatan operasi, gawat darurat dan pemakaian air di kamar mandi dan wastafel. Dari kegiatan tersebut menyebabkan kandungan fosfat dan amoniak sangat tinggi. Untuk meminimalkan dampak negatif dari kegiatan Rumah Sakit diperlukan suatu treatment. Horizontal Gravel Filter adalah salah satu bangunan pengolahan limbah yang ada di Rumah Sakit Panti Baktiningsih. Untuk itu perlunya evaluasi bagaimana Horizontal Gravel Filter dapat meremoval bahan-bahan berbahaya yang dihasilkan oleh kegiatan Rumah Sakit Panti Baktiningsih sehingga aman bagi lingkungan terutama untuk kandungan amoniak dan fosfat.

Metode yang digunakan untuk menghitung kandungan fosfat dalam sampel air limbah adalah dengan menggunakan metoda Stano Klorida, SNI APHA 1998, Section 4500-PD. Sedangkan metode yang digunakan untuk menghitung kandungan amoniak dalam sampel air limbah adalah dengan menggunakan metoda Nessler, SNI 06-2479-1991.

Dari hasil penelitian didapatkan, amoniak mengalami penurunan 12,65% sedangkan fosfat mengalami kenaikan +9,77%. Melihat masih tingginya kandungan amoniak dan fosfat pada Horizontal Gravel Filter maka disini diperlukan solusi perbaikan untuk menurunkan amoniak dan fosfat di Rumah Sakit Panti Baktiningsih. Septic tank-Baffle reaktor-Anaerobik filter-Horizontal gravel filter disertai dengan proses nitrifikasi dan denitrifikasi-pembubuh alum-bak pencampur alum-kolam indikator merupakan rekomendasi alur pengolahan limbah di Rumah Sakit Panti Baktiningsih. Selain itu harus memperhatikan waktu detensi, kebutuhan area permukaan, karakteristik media, waktu pencucian media kerikil, loading rate, kedalaman Horizontal Gravel Filter, pemilihan jenis tanaman, umur tanaman, ketinggian tanaman.

Kata Kunci : Amoniak, Fospat, Horizontal Gravel Filter

**EVALUATION OF AMMONIAC AND PHOSPHATE
CONCENTRATION DECLINE
AT WASTE WATER TREATMENT
WITH HORIZONTAL GRAVEL FILTER TYPES
IN PANTI BAKTININGSIH HOSPITAL
KLEPU, JOGJAKARTA**

ABSTRACT

A liquid waste of activities in a Hospital comes from some such activities as laundry, cooking, operations, emergencies and the use of water in the bathroom and wash basin. From those activities they result in causing phosphate and ammoniac concentration in very high level. To minimize any negative impacts of the Hospital activities it is needed a treatment. Horizontal Gravel Filter is the one of the existing treatment constructions in the Hospital of Panti Baktiningsih. For the reason an evaluation is needed to know how the Horizontal Gravel Filter can remove any dangerous substances resulted of the activities of Panti Baktiningsih Hospital so it is safe for the environment especially for the concentration of ammoniac and phosphate.

Method used to calculate the phosphate concentration in sample of the water waste is by using a method of Stano Chloride, SNI APHA 1991 Section 4500-PD. Method used to calculate the ammoniac concentration in sample of the water waste is by using a method of Nessler, SNI 06-2479-1991.

From the outputs in the study it was found that ammoniac decreased 12,65% while phosphate increase +9,77%. Seeing the high ammoniac concentration and phosphate concentration in the Horizontal Gravel Filter then here it was needed a remedy solution to decrease the ammoniac and phosphate in Panti Baktiningsih Hospital. Septic tank-Baffle reactor-Anaerobic filter-Horizontal gravel filter accompanied with processes of nitrification and denitrification-alum placing-alum mixing basin-indicator pond is a recommendation of waste treatment line in Panti Baktiningsih hospital. In addition it must pay the attention in detention time, the need of surface area, media characteristic, time of washing of gravel media, loading rate, the deep of Horizontal gravel filter, choosing of kind of plant, age of the plant and the height of the plant.

Keywords: Ammoniac, Phosphate, Horizontal Gravel Filter