

# EFFECTIVENESS OF USING ANAEROB-AEROB BIOFILTERS TO REDUCE PHOSPAT LEVELS

(Study of Wastewater Treatment Plants at Regional Public Hospitals  
Dr. Wahidin Sudiro Husodo Mojokerto East Java in 2019)

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## ABSTRACT

*Regional General Hospital Dr. Wahidin Sudiro Husodo Mojokerto is a type B hospital that has a wastewater treatment plant using the anaerobic-aerobic biofilter method. After treatment, wastewater quality is measured according to the parameters of BOD, TSS, Free Ammonia, Phosphate and Total Coliform. Unstable phosphate levels cause the addition of microorganisms every day in equalization tanks. The purpose of the study was to analyze the wastewater treatment plant of Dr. Wahidin Sudiro Husodo Mojokerto in reducing phosphate levels.*

*The research was descriptive in which the researcher observed the hospital wastewater treatment plan of Dr. Wahidin Sudiro Husodo Mojokerto to see the results of the existing phosphate levels from laboratory tests that had gone through the anaerobic-aerobic biofilter system.*

*The results of the study showed that after going through the Anaerobic-Aerobic Biofilter process, the phosphate levels decreased and met the requirements (1.68 mg /L, 1.90 mg / L and 1.40 mg /L ). The effectiveness of the reduction was equal to 34.44%. The researcher suggested the hospital reduce the use of microorganisms that were put into the equalization tank and monitor and implement the Standard Operating Procedure for wastewater treatment plant according to the Treatment Process of the Wastewater Treatment Plant with anaerobic-aerobic biofilter system.*

*Keywords: Anaerobic-aerobic Biofilter; Phosphate; Wastewater Treatment.*

# EFEKTIVITAS PENGGUNAAN ANAEROB-AEROB BIOFILTER DALAM MENURUNKAN KADAR PHOSPAT

(Studi Instalasi Pengolahan Air Limbah Rumah Sakit Umum Daerah  
Dr. Wahidin Sudiro Husodo Mojokerto Jawa Timur Tahun 2019)

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## ABSTRAK

Rumah Sakit Umum Daerah Dr. Wahidin Sudiro Husodo Mojokerto merupakan rumah sakit tipe B yang telah memiliki instalasi pengolahan air limbah dengan metode *anaerob-aerob biofilter*. Setelah dilakukan pengolahan, kualitas air limbah diukur sesuai dengan parameter BOD, TSS, Amonia Bebas, Phospat dan Total Coliform. Kadar phospat yang tidak stabil menyebabkan harus dilakukan penambahan mikroorganisme setiap hari di bak equalisasi. Tujuan penelitian adalah menganalisis instalasi pengolahan air limbah Rumah Sakit Umum Daerah Dr. Wahidin Sudiro Husodo Mojokerto dalam menurunkan kadar phospat.

Metode penelitian adalah deskriptif, dengan melakukan pengamatan pada instalasi pengolahan air limbah rumah sakit Dr. Wahidin Sudiro Husodo Mojokerto untuk melihat hasil kadar phospat yang ada dari pemeriksaan laboratorium yang telah melalui IPAL sistem *anaerob-aerob biofilter*.

Hasil penelitian kadar phospat sesudah melalui proses *Anaerob-Aerob Biofilter* telah mengalami penurunan kadar dan memenuhi syarat (1,68 mg/L, 1,90 mg/L dan 1,40 mg/L). Efektivitas penurunan yaitu sebesar 34,44 %. Saran peneliti untuk rumah sakit yaitu mengurangi penggunaan mikroorganisme yang dimasukkan kedalam bak equalisasi serta memantau dan melaksanakan Standar Operasional Prosedur IPAL sesuai dengan Proses Pengolahan pada Instalasi Pengolahan Air Limbah dengan sistem *anaerob-aerob biofilter*.

*Kata kunci: Anaerob-aerob Biofilter; Phospat; Pengolahan Air Limbah.*