

EFEKTIFITAS PENGOLAHAN LIMBAH CAIR DI RUMAH SAKIT BHAYANGKARA POLDA JATENG SEMARANG

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Air limbah merupakan salah satu sumber pencemaran air yang memiliki satu atau lebih parameter bagi lingkungan yang dapat memberikan dampak negatif berupa gangguan terhadap kesehatan manusia, kehidupan biotik dan keindahan. Air limbah memerlukan pengolahan sebelum dialirkan ke lingkungan. Rumah Sakit Bhayangkara memiliki satu unit pengolahan air limbah yang selama ini belum pernah dilakukan pemeriksaan efektifitas dari unit pengolahan limbah cair ini. Penelitian ini menggunakan metode penelitian deskriptif yang mendiskripsikan parameter kualitas air limbah rumah sakit sebelum dan sesudah dilakukan pengolahan. Sampel diambil pada *influent* dan *effluent* selama tujuh hari sebanyak 42 kali masing-masing pada pukul 08.00, 12.00 dan 16.00 WIB Hasil pemeriksaan rata-rata kadar suhu *influent* 2,17 °C dan *effluent* 28,15 °C Rata-rata kadar TSS *influent* 42,14 mg/l dan *effluent* 2,76 mg/l. Efisiensi Pengolahan TSS 93,45%. Rata-rata kadar pH *influent* 7,85 dan *effluent* 7,35. Rata-rata kadar NH_4^+ *influent* 23,43 mg/l dan *effluent* 4,03 mg/l. Efisiensi pengolahan NH_4^+ 82,80%. Rata-rata kadar BOD_5 *influent* 121,91 mg/l dan *effluent* 10,62 mg/l. Efisiensi pengolahan BOD_5 91,29%. Rata-rata kadar COD *influent* 263,78 mg/l dan *effluent* 24,49 mg/l. Efisiensi pengolahan COD 90,72%. Rata-rata kadar PO_4^- *influent* 7,67 mg/l dan *effluent* 2,32 mg/l. Efisiensi pengolahan PO_4^- 69,75%. Rata-rata kadar MPN Coliform *influent* 9.166,36 MPN. Efisiensi pengolahan MPN Coliform 51,59%. Hasil pengolahan limbah Cair di Rumah Sakit Bhayangkara yang memenuhi baku mutu menurut Peraturan Daerah Propinsi Jawa Tengah No. 10 Tahun 2004 tentang baku mutu limbah cair bagi kegiatan rumah sakit adalah suhu, TSS, pH, BOD_5 dan COD kecuali NH_4^+ dan MPN Coliform. Efektifitas pengolahan limbah cair yang menunjukkan pengolahan efektif adalah TSS, BOD_5 dan COD, sedangkan yang Disarankan agar limbah cair sebelum dibuang ke badan air dilakukan proses aerasi untuk menurunkan NH_4^+ penambahan $\text{Ca}(\text{OH})_2$ untuk menurunkan PO_4^- dan klorinasi dengan dosis yang tepat untuk menurunkan MPN Coliform.

Kata Kunci: Efektifitas, Pengolahan Limbah Cair, Air Limbah, Rumah Sakit.

*THE EFFECTIVENESS OF WASTE WATER TREATMENT IN CENTRAL JAVA
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Waste water constitutes one of many sources of pollutants possessing one environmental qualitative parameter. Waste water might impose some negative effects on the environment, human health, biotic life and aesthetics. Therefore, waste water should be treated before being channeled out to the surroundings. Bhayangkara hospital has one unit of waste water treatment, but so far there has not been any done study on the effectiveness of the plant.

This study used descriptive method for describing the qualitative parameters of the waste water of hospital both before and after treatments. The samples taken 42 times, at 8 a.m., 12 a.m. and 4 p.m. everyday for 7 days. The analyses showed the following results. The average temperatures of the influents and the effluents were 28,7 and 28,15 °C. The average TSS contents of the influents and the effluents were 42, 14 and 2,76 mg/l, efficiency value of 93,45 %. The average pH contents of the influents and the effluents were 7,85 and 7,35. The average NH_4^+ contents of the influents and the effluents were 23,43 and 4,03 mg/l, efficiency value of 82,80 %. The average BOD_5 contents of the influents and the effluents were 121,91 and 10,62 mg/l, efficiency value of 91,92 %. The average COD contents of the influents and the effluents were 263,78 and 24,94 mg/l, efficiency value of 90,72 %. The average PO_4^- contents of the influents and the effluents were 7,67 and 2,32 mg/l, efficiency value of 69,75 %. The average coliforms contents of the influents and the effluents were 18.935,24 and 9.166,36 MPN, efficiency value of 51,59 %.

The effluent of the waste water treatments, in Bhayangkara Hospital, that meet the quality standards established by the Regulation Number 10, 2004 of the Central Java Province were temperatures, TSS, pH, BOD_5 and COD, whereas NH_4^+ and coliforms. The waste water treatment showed effectiveness in processing TSS, BOD_5 and COD parameters, whereas it processed NH_4^+ and coliform. It is recommended that before being disposed to environments, the waste water should be aerated in order to reduce NH_4^+ . $\text{Ca}(\text{OH})_2$ should be added to the waste in order to reduce PO_4^- contents and chlorination in appropriate dosage should also be conducted in order to reduce the coliforms contents.

Keyword : Effectiveness, Waste Treatment, Waste water, Hospital