

**Politeknik Kesehatan Kemenkes Bandung**

**Program Sarjana Terapan Sanitasi Lingkungan**

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**Abstrak**

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**PERBEDAAN VARIASI KECEPATAN PUTARAN METODE  
ROTATING BIOLOGICAL CONTRACTOR (RBC) TERHADAP  
PENURUNAN BOD AIR LIMBAH DOMESTIK DI PT. BAKRIE PIPE  
INDUSTRIES**

vii + 73 Halaman + 11 Tabel + 27 Lampiran

PT. Bakrie Pipe Industries, industri yang bergerak di bidang pepipaan pelapisan logam di Bekasi. Penanganan air limbah di PT. Bakrie Pipe Industries dilakukan dengan 2 cara yaitu *blackwater* dialirkan ke tangki septik dan *greywater* dialirkan ke drainase tanpa pengolahan. Limbah cair tak diolah menyebabkan masalah seperti penyakit *cholera*, *disentri*, *thypus*. Studi pendahuluan dilakukan 3 kali kadar BOD di PT. Bakrie Pipe Industries melebihi batas 109,1 mg/L, 99,72 mg/L dan 102 mg/L. Menurut Permen LHK Nomor 68 tahun 2016 tentang Baku Mutu Air Limbah Domestik untuk parameter BOD yaitu 30 mg/L. Sehingga pengolahan metode sederhana, salah satu metode *Rotating Biological Contractor* (RBC). Penelitian bertujuan mengetahui perbedaan penurunan kadar BOD air limbah domestik di PT. Bakrie Pipe Industries. Jenis penelitian eksperimen berdesain penelitian *pre-post test without control*. Sampel air limbah domestik berasal dari outlet pembuangan air limbah Bagian Kantor Administrasi PT. Bakrie Pipe Industries sampel 36, 3 variasi dan 6 kali pengulangan. Penelitian analisis data uji *One-way Anova* dan Uji *Post Hoc*. Berdasarkan hasil analisis data variasi kecepatan putaran 5 rpm dengan kadar BOD 102,47 mg/L menurunkan 56,32%, namun variasi kecepatan putaran 10 rpm kadar BOD 99,76 mg/L menurunkan 61,90% dan variasi kecepatan putaran 15 rpm kadar BOD 95,05 mg/L menurunkan 80,16%. Variasi kecepatan putaran 15 rpm adalah variasi efektif menurunkan kadar BOD air limbah domestik *greywater* di PT. Bakrie Pipe Industries karena penurunan 19,30 mg/L. Diharapkan penelitian selanjutnya menggunakan kecepatan putaran yang lebih besar agar kadar BOD memenuhi persyaratan sesuai peraturan yang ditetapkan.

DAFTAR PUSTAKA: 17 (2011-2019)

KATA KUNCI : *Rotating Biological Contractor*, Limbah Cair, Kecepatan Putaran

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**Abstract**

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**THE DIFFERENCE OF ROTATION SPEED VARIATION WITH THE ROTATING BIOLOGICAL CONTRACTOR (RBC) METHOD AGAINST THE BOD WATER DOMESTIC DECREASE IN PT. BAKRIE PIPE INDUSTRIES**

vii + 73 Pages + 11 Tables + 27 Attachments

PT. Bakrie Pipe Industries is an industry engaged in metal coating piping in Bekasi. Wastewater treatment in PT. Bakrie Pipe Industries is carried in 2 ways as blackwater flowing into the septic tank and the greywater that flowing into drainage without processing. Unprocessed liquid waste causes problems such as cholera, dysentery, typhoid. Preliminary studies have been carried out obtained 3 times in a row of BOD levels at PT. Bakrie Pipe Industries exceeds limit 109.1 mg/L, 99.72 mg/L and 102 mg/L. According to LHK Regulation Number 68 of 2016 concerning Domestic Wastewater Quality Standards for BOD parameters is 30 mg/L. It needs processing simple method, one of the methods is the Rotating Biological Contractor (RBC). This research aims to determine differences in reduction of BOD levels in domestic wastewater PT. Bakrie Pipe Industries. This research is an experiment with a pre-post test without control of research design. The sample of domestic wastewater comes from waste water outlet in the Administration Office of PT. Bakrie Pipe Industries with total sample of 36, 3 variations and 6 repetitions. Research uses analysis of One-way Anova test data and Post Hoc Test. Based on results of data analysis, the variation of rotation speed 5 rpm with a BOD level 102.47 mg/L decreases 56.32%, while the variation of rotation speed 10 rpm the BOD content of 99.76 mg/L decreases 61.90% and on rotation speed variation 15 rpm BOD levels of 95.05 mg/L decreased by 80.16%. It is known that the rotational speed variation 15 rpm is effective variation in reducing the BOD levels of greywater domestic wastewater at PT. Bakrie Pipe Industries due to decrease of 19.30 mg/L. It is expected further research will use greater rotational speed so that BOD levels meet requirements accordance established regulations.

**BIBLIOGRAPHY** : 17 (2011—2019)

**KEYWORDS** : Rotating Biological Contractor, Liquid waste, Rotation Speed