Identifikasi dan evaluasi pengolahan limbah cair industri farmasi studi kasus pt kimia farma plant Jakarta = Identification and evaluation of pharmaceutical industry waste water treatment case study pt kimia farma plant Jakarta

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Abstrak

Instalasi Pengolahan Air Limbah PT. Kimia Farma Plant Jakarta mengolah air limbah yang berasal dari kegiatan produksi obat, pencucian, limbah domestik yang menggunakan proses biologis dengan metode anaerob-aerob. Setelah 20 tahun beroperasi, IPAL tidak pernah dicek kesesuaian parameter disain unit pengolahannya sehingga harus dilakukan evaluasi untuk meningkatan efisiensinya. Evaluasi dilakukan dengan menghitung parameter-parameter disain pada kondisi eksisting dan membandingkannya dengan kriteria disain padaliteratur.Hasilnya yaitu efisiensi pengolahan keseluruhan penyisihan BOD=91%, COD=88%, TSS=96% dan telah masuk kriteria disain. Selain itu, terdapat beberapa parameter yang tidak masuk rentang kriteria disain diantaranya waktu tinggal dan organic loading (bak anaerob), F/M dan MLSS (bak aerob), overflow rate (bak sedimentasi). Sehingga pada perhitungan keseuaian kondisi rencana IPAL, bak anaerob tidak difungsikan dan dilakukan beberapa kontrol perbaikan agar mencapai nilai kinerja MLSS 4000 mg/L, F/M Ratio 0,076, kebutuhan udara 4195,37 m3/day, overflow rate 8,182 m3/m2.h.

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Wastewater Treatment Plant of PT Kimia Farma Jakarta processesinfluent from the units of producingdrugs and washing equipment. It also processes waste water from biological process using anaerobic-aerobic method.After 20 years of operation, WWTP of PT Kimia Farma Plant Jakarta have never checked the suitability of the design parameters and the application in each unit, so that should have been done to improve the efficiency of The WWTP. An evaluation is conducted by calculating the design parameters on existing conditions and comparing it to the design criteria?s literature. The results of the overall processing efficiency in removal BOD were : 91%, COD: 88%, TSS: 96%.Moreover, there are several parameters that are not in the range of design criteria such as residence time and organic loading (unit of anaerobic), the F/M ratio and MLSS (unit of aerobic), overflow rate (unit of sedimentation). So that in the planning process, anaerobic unit was not used. Then, the writer used some improvements to achieve the performance value of MLSS 4000 mg/L, the F/M Ratio 0,076, aeration air demand 4195,37 m3/day, overflow rate 8,182 m2 m3/h.