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Differences between sewage effluent parameters for dry and rainy periods in tropical climate area

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ABSTRACT

Communication between urban drainage and sewage collection systems can cause various damages to the effluent treatment, such as changing its initial characteristics, overloading the sewage system and its treatment performance. During the 3 y period, for a large sewage treatment plant (345,600 m^3 d^{-1}), of the type of activated sludge, the work proposed to identify and evaluate changes in the parameters of inlet flow, pH, temperature, total chlorine, biochemical oxygen demand (BOD), chemical oxygen demand (COD), sedimentable solids, total suspended solids, oil and greases, nitrate, nitrite ammoniacal nitrogen and efficiency of treatment in two distinct periods: those with the interference of rainwater (rainy season from April to August) and without its influence. From the confidence interval test, in general, the sewage treatment plant showed on rainy days an increase in flow rate (16.5%), dilution in chlorine, BOD, COD, ammoniacal nitrogen and oils and greases, higher acidity on dry days and increased concentration in total suspended solids and nitrite. Therefore, despite the increase in the sewage flow, there was no change in the treatment efficiency in the activated sludge system. Despite the changes, according to European Union, World Health Organization and national legislation (Brazil) recommendations, there were disapprovals in the indicators of oils and greases and ammoniacal nitrogen on days without rain (European Union and Brazil).

Keywords: Wastewater treatment; Absolute separator system; Activated sludge

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