



Efficiency of membrane bioreactor system in treating primary treated wastewater in Kuwait

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ABSTRACT

A skid-mounted nonsubmerged membrane bioreactor (MBR) system was installed and operated at the Riqqa Wastewater Treatment Plant in Kuwait. This system was investigated as a substitute for secondary clarifier in the activated sludge process to treat primary treated wastewater. The MBR system was operated with aerobic and anoxic tanks and with the flux of 16–24 L/m².h and an HRT of 5 h. The mixed liquor wasting rate was set to give an SRT in the range of 22 d and an MLSS concentration of 6,000–8,500 g/l. MBR filtrate produced was found to be effluent from the plant's conventional treatment systems. Good removal of particulate contaminants, including coliform bacteria, was achieved. The overall results of this project indicate that the MBR system is capable of treating wastewater under the prevalent conditions in Kuwait. The average removal efficiencies of the MBR system for biological oxygen demand (BOD) and chemical oxygen demand (COD) were 93.9% and 92.7% respectively.

Keywords: Wastewater; Treatment; Activated sludge; Membrane

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