

# Introducing Membrane Technology for Municipal Wastewater Treatment at the Zandvliet Wastewater Plant, Cape Town, South Africa

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**Abstract:** *Membrane bioreactor (MBR) technology for municipal wastewater treatment is a relatively recent phenomenon. The MBR is essentially a liquid-solids separation process and replaces secondary clarification in a conventional activated sludge (CAS) wastewater treatment plant (WWTP). The use of MBRs is becoming more applicable in the municipal wastewater treatment environment as effluent quality requirements become more stringent; the effluent reuse potential is increased, in alignment with water demand management (WDM) objectives. Concomitantly, the capital costs of MBR plants are becoming comparable with those of CAS plants, and the properties of the membranes have been improved to provide an increased life-span of these membranes.*

*In most cases of municipal MBR installations world-wide, the process configuration has been for biological nutrient removal (BNR) with chemical phosphorus removal. In the design of the Zandvliet MBR, the UCT process configuration is used for biological excess phosphorus removal (BEPR) with an external MBR for solids liquid separation.*

*The selection of an MBR in favour of CAS and secondary clarification was primarily due to the substantial saving in footprint on the site and the improved effluent quality. These benefits are compared to the increased energy consumptions.*

*This paper will present the lessons learnt and challenges on the design, the construction and initial operation of the 18MI/d MBR module built at the City of Cape Town's Zandvliet Wastewater Plant, Cape Town.*

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