



Compact tertiary treatment based on the combination of MBBR and contained hollow fibre UF-membranes

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Received 20 October 2010; Accepted 6 July 2011

ABSTRACT

The paper describes a tertiary treatment method (intended for water reuse) based on the moving bed biofilm reactor (MBBRTM), followed by a high-rate biomass separation step such as disc filter, DAF or Actiflo and followed by UF. Results from an experimental period carried out in pilot scale at the Gardermoen WWTP in Norway are described. Focus was on the use of the Hydrotech disc filter in combination with a contained, hollow fiber, outside-in ultrafiltration membrane unit. Different coagulation scenarios were tested and compared to the one based on the effluent from the full scale plant that uses coagulation/flocculation and DAF after the MBBR. It is concluded that the MBBR – high rate separation – UF process (the TERFLEX[®] process) offers an interesting and competitive alternative to the activated sludge based MBR. The best result when the UF membrane was used after primary biomass separation by DAF. The use of disc filter as the high rate biomass process ahead of the UF offers a very compact solution.

Keywords: Wastewater treatment; Moving bed biofilm reactor (MBBR); DAF; Microscreening; Disc filter; Ultrafiltration

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