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# Performance of outside-in pressurized ultrafiltration in the Qingdao pilot tests

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**ABSTRACT**

A new seawater desalination plant (SWDP) is to be built in Qingdao, China by Befesa Agua, S.A.U. The application of SWDP is to produce drinking water for local residents due to lack of brackish water in north China. Seawater will be treated with membrane technologies to achieve the required water quality. The key process unit operations are ultrafiltration and seawater reverse osmosis. In order to prepare for the detailed design phase and membrane selection, a pilot study was carried out, in which various ultrafiltration product and process concepts were investigated. Among other, submerged and pressurized processes were tested, using inside–out and outside in module configurations, polyethersulfone (PES) and polyvinylidene fl uoride (PVDF) fibers. Comparative results with these different technologies had been published previously. This publication provides detailed results on the first phase of testing of one of the technologies investigated: pressurized, outside-in, PVDF-based ultrafi ltration product and process. It shows performance both from a hydraulic point of view as well as the water quality characterization.

*Keywords*: Seawater; Desalination; Ultrafiltration; Pressurized; Cleaning; Air; Chemicals; Silt denisty index (SDI); Modified fouling index (MFI); Reverse osmosis; Cleaning in place (CIP); Biological oxygen demand; Chemical enhanced backwash (CEB)

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