Evaluation of the first nine years operating data of a RO brackish water desalination plant in Las Palmas, Canary Islands, Spain

A. Ruiz-García\textsuperscript{a,}\textsuperscript{*}, E. Ruiz-Saavedra\textsuperscript{b}, S.O. Pérez-Báez\textsuperscript{c}, J.E. González-González\textsuperscript{c}

\textsuperscript{a}Departamento de Ingeniería Civil, Escuela de Ingenierías Industriales y Cíviles, University of Las Palmas de Gran Canaria, Edificio de Ingenierías, Campus Universitario de Tafira, 35017 Las Palmas de Gran Canaria, Spain, Tel. +34 928 459629; Fax: +34 928 454388; email: aruizgarcia84@gmail.com

\textsuperscript{b}CAFMA Research Group, Escuela de Ingenierías Industriales y Cíviles, University of Las Palmas de Gran Canaria, Edificio de Ingenierías, Campus Universitario de Tafira, 35017 Las Palmas de Gran Canaria, Spain

\textsuperscript{c}Departamento de Ingeniería de Procesos, Escuela de Ingenierías Industriales y Cíviles, University of Las Palmas de Gran Canaria, Edificio de Ingenierías, Campus Universitario de Tafira, 35017 Las Palmas de Gran Canaria, Spain

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\textbf{ABSTRACT}

The RO brackish water desalination plant described in this paper has been operating from June 2004 without using acid in the pretreatment and only using antiscalants during 75,000 h with the same RO elements. The present research describes the graphical evolution of the operating information of the first nine years. A study of the normalization and standardization of the information about the nine years of evolution of the plant for fixed feedwater conditions, operating pressure, and system recovery are also shown, so that the performance evaluation of the plant can be indicated correctly. From these results it has been deduced the compaction and fouling factor values, and the average ionic permeability coefficients of the RO membrane utilized. Likewise, this paper describes the graphic evolution of the brine Langelier saturation index and Stiff and Davis stability index (actual and theoretical values). The conclusions of this study and the operating experience are intended to get a practical and optimum design of RO brackish water desalination plants without using acid in the pretreatment and having a reasonable operating life between 9 and 10 years.

\textit{Keywords:} Brackish water; Reverse osmosis; Desalination plants; Operating data; Normalization

\textsuperscript{*}Corresponding author.


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