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Lessons learnt from the operational performance of SWCC MSF desalination plants

Osman A. Hamed

Saline Water Desalination Research Institute (SWDRI), Saline Water Conversion Corporation, P.O. Box 8328, Al-Jubail 31951, Saudi Arabia
Tel. +966 (50) 2814996; Fax +966 3431615 ; email: OHamed@swcc.gov.sa

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ABSTRACT

Around 88% of water production by the Saline Water Conversion Corporation (SWCC) is provided by large MSF desalination plants which operate as power/water cogeneration plants. Despite the fact that the majority of SWCC MSF plants have been operating for more than two decades, their availability and water production as well as energy efficiency are still maintained within—or even sometimes higher—than the original design values. This is attributed to SWCC strict requirements of operation and maintenance which resulted in extending the life of the plants to more than thirty years. In this paper, the energy efficiency of SWCC existing MSF desalination plants will be assessed. SWCC successful economic implementation of scale control techniques and the use of appropriate corrosion resistant materials will be highlighted. Benefits obtained from operating SWCC MSF desalination plants within the context of dual purpose plants employing either back pressure or extraction condensing turbine for the simultaneous production of water and electricity will be identified. Experience gained from the operational performance of SWCC MSF desalination plants will be effectively utilized to identify areas where savings in operating and capital cost could be realized in new MSF plants.

Keywords: SWCC; MSF; Operation; Performance; Experience