Desalination and Water Treatment
www.deswater.com
13 (2010) 217–225
January
1944-3994 / 1944-3986
doi: 110.5004/dwt.2010.1062

Successful antiscalant field trial — Optimization at higher pH and seawater temperature, Larnaca Desalination Plant

Erineos Koutsakos[a]*, Gilles Delaisse[b]*, Wiebo van der Wal[b]

[a]*SPC General Manager, MN Limassol Desalination Project, P.O. Box 21477, 1509 Nicosia, Cyprus*
Tel. +357 22 55 1267, Fax +357 33 514 294, email: e.koutsakos@lgcom.ne
[b]*ThermPhos Belgium B.V.B.A Rue Laid Burniat, 3, B-1348 Louvain-La-Neuve – Belgium*
Tel. +32 10 48 12 94; email: Gilles.delaisse@thermphosdequest.com

Received 7 May 2009; Accepted 1 December 2009

ABSTRACT

Larnaca Desalination Plant (LDP) has lead the way in operating for a number of years at elevated pH both at the first and second reverse osmosis (RO) stages at higher feed sea water temperature up to 30°C. The main reason for the higher pH was to enhance the boron rejection capability of existing membranes and thus reduce the need for a second stage at lower seawater temperatures and subsequently produce more water at less energy. However, higher pH in conjunction with high seawater temperatures create conditions for membrane scaling. Therefore an appropriate cost effective antiscalant has to be used with minimum dosing rate. This article describes field trials of choosing and applying an appropriate antiscalant and dosing optimisation as a function of feed seawater temperature and pH.

Keywords: Boron removal; RO; High pH

* Corresponding author.

Presented at the conference on Desalination for the Environment: Clean Water and Energy, 17–20 May 2009, Baden-Baden, Germany. Organized by the European Desalination Society.