Desalination and Water Treatment
www.deswater.com
1944-3994/1944-3986 © 2012 Desalination Publications. All rights reserved
doi: 10/5004/dwt.2012.3018

Taylor & Francis
Taylor & Francis Group

42 (2012) 304–308
April

On the significance of recirculation between intakes and outfalls of desalination and thermal power plants

Adrian Wing-Keung Law[a,b]

[a]*DHI-NTU Centre, Nanyang Environment and Water Research Institute, Nanyang Technological University, N1.2-B1-02, 50 Nanyang Avenue, 639798 Singapore*
[b]*School of Civil and Environmental Engineering, Nanyang Technological University, 639798 Singapore*
Tel./Fax: +65 67905296; email: cwklaw@ntu.edu.sg

Received 2 June 2011; Accepted 26 December 2011

ABSTRACT

In this study, a quantitative analysis is performed to examine the effect of recirculation between intakes and outfalls to the operational performance of coastal desalination as well as thermal power plants. The results show that the effect to desalination plants is substantially more significant than that of thermal power plants, with the increase in salinity of the ambient waters near the intake having a direct impact on the operating cost of the desalting process. Thus, it is important to minimise the magnitude of recirculation for the desalination plant. The potentially higher initial capital cost required (such as placing the outfall further offshore) can be compensated by the corresponding savings in the operation cost in the long run.

Keywords: Recirculation; Intake; Thermal power plant; Desalination plant; Cost implications; Outfall

2011 Qingdao International Desalination Conference Symposium on Desalination and Water Treatment Global Platform for Water Solutions, June 20–23, 2011 Qingdao, China