



Major Data Center in India Reduces Water Consumption by 450,000 liters per day



CASE STUDY - INSTITUTIONAL

CH-1270



SITUATION

A 2.3 million square foot data center located in an industrial park in Bangalore, India, was facing the dual challenge of meeting government discharge requirements and reducing water costs. The only solution was to treat and recycle facility effluent for irrigation and cooling tower makeup. This approach would ensure that the facility met its discharge requirements and lowered its water costs.

for recycling. Since the facility's wastewater was comprised of streams from kitchens, sanitary sewer, cooling tower blowdown and RO reject water, the technical challenge was to design a system that could consistently treat and maintain water quality levels given an effluent high in total dissolved solids (TDS). See Figure 1.

SOLUTION

When presented the problem, the Nalco team began with a detailed assessment of water quality, discharge requirements, and options

Given the outcome of the assessment, Nalco developed an onsite mobile unit with all ancillary piping, pumps, controls and tankage to support the main technology components of an ultrafiltration program followed by reverse osmosis.

Figure 1

Category	Facility Influent	Recycled Output
Flow Rate	580 - 670 m ³ /day	350 - 450 m ³ /day
TDS (90% reduction required)	1200 ppm	120 ppm

ENVIRONMENTAL INDICATORS

Reduced annual water consumption by over 164 million liters



ECONOMIC RESULTS

Annual savings of approximately US\$84,000



Nalco reports eROI values to customers to account for contributions in delivering both environmental performance and financial payback.

(Continued on Reverse Side)



First stage of treatment containerized Ultrafiltration unit.



Second stage of treatment containerized Reverse Osmosis unit.

IMPLEMENTATION

The turnkey program included Nalco specialty chemicals to assist in the ultra-filtration stage, lowering the Silt Density Index (SDI) to less than five. The RO system utilizes PermaCare™ technology for anti-scalant and membrane cleaning. Nalco's 3D TRASAR® Membrane Technology delivered automated system control, remote monitoring and data logging for the quantity and quality of

product water. Nalco installed and commissioned the program, providing scheduled maintenance to ensure that water quality and quantity requirements were met.

RESULTS

The program reduced water consumption by 164,250,000 liters annually. According to the United Nations Development Program

(UNDP), the minimum water requirement in India per person is approximately 150 liters per day. In this case, the reuse/recycle of the data center's effluent water provided fresh water for 3,000 Bangalore residents per day.

At full capacity, this reduction in water will result in an annual water cost savings of US\$84,000 for the facility.

NALCO

North America: *Headquarters* – 1601 West Diehl Road • Naperville, Illinois 60563 • USA
Energy Services Division – 7705 Highway 90-A • Sugar Land, Texas 77487 • USA

Europe: Richtistrasse 7 • 8304 Wallisellen • Switzerland

Asia Pacific: 2 International Business Park • #02-20 The Strategy Tower 2 • Singapore 609930

Latin America: Av. das Nações Unidas 17.891 • 6° Andar 04795-100 • São Paulo • SP • Brazil

www.nalco.com

eROI, 3D TRASAR, NALCO and the logo are Trademarks of Nalco Company

Ecolab is a trademark of Ecolab USA Inc.

PermaCare is a Trademark of Nalco Limited

©2013 Ecolab USA Inc. All Rights Reserved 5-13