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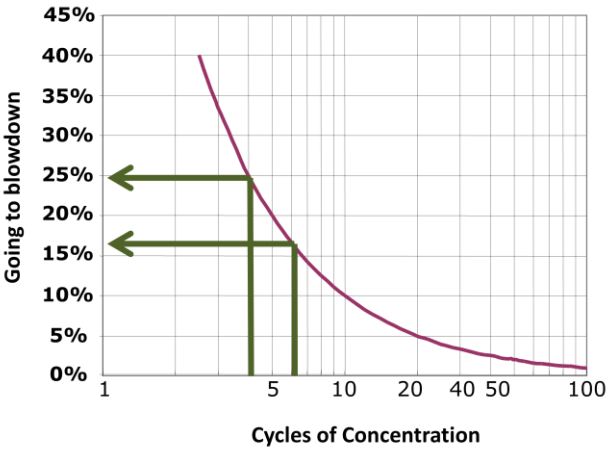
For GSK ONLY

Reducing Cooling Tower Water Costs at GSK Upper Merion

Annualised Environmental ROI (e^{ROI})

water	8.9 Million US Gallons of water saved each year	$40,200 per year saving

GSK Upper Merion had historically run its cooling tower at approximately 4 cycles of concentration to ensure that the system was not running at high cycles when conditions were stressed, such as when process temperatures were high.

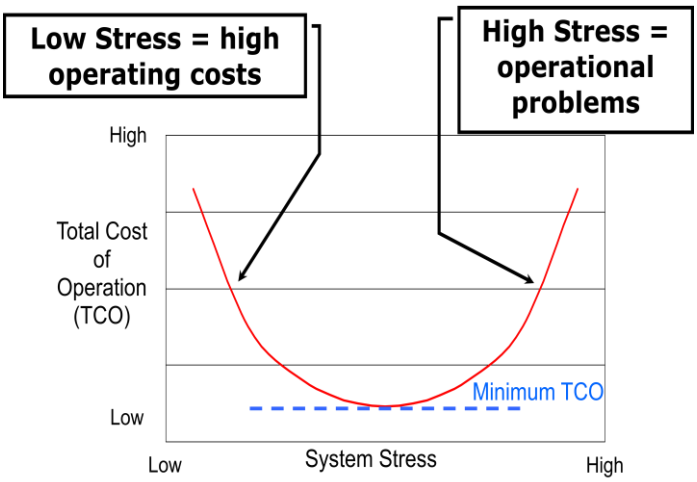


The site implemented Nalco 3D TRASAR® technology to allow cycles of concentration to increase when system stress is low to save water. This allowed cycles of concentration to increase from 4 up to 6 typically.

This saved 8.9 million US gallons of make-up water and blowdown water per year, reducing the site's annual fresh water and waste water bill by $40,200.

Background

Cooling systems are dynamic systems that have fluctuating conditions of water quality, process temperatures etc. that causes the risk of scaling to fluctuate. This is particularly true of pharmaceutical cooling towers that cool variable loads like reactor jackets, chillers and air compressors. And yet historically they have been controlled as if they are steady state systems with a single conductivity set point and single scale inhibitor concentration chosen to try and control all eventualities.



Choose this set point too conservatively and the system suffers few problems but consumes excessive water and chemicals. Choose the set point too aggressively and scaling or other operational problems occur.

A further difficulty is that traditional techniques only control how much antiscalant chemical is being added to the system without knowing how much active treatment is being consumed by the system.

Nalco 3D TRASAR®

Nalco 3D TRASAR® technology overcomes this difficulty by monitoring both the level of antiscalant that has been added to the system and the level of active antiscalant remaining. As well as ensuring that the correct level of active antiscalant is maintained no matter how much is being consumed in the system, the 3D TRASAR® technology algorithms track how these two measurements are changing to calculate the Nalco Scale Index and decide whether it is safe to raise the conductivity set point to reduce the blowdown and save water or to lower it because the system stresses are increasing.

The result is that cooling towers use water more efficiently lowering costs and improving sustainability.

Nalco Water, an Ecolab Company
North America: 1601 West Diehl Road • Naperville, Illinois 60563 • USA
Europe: Richtistrasse 7 • 8304 Wallisellen • Switzerland
Asia Pacific: 2 International Business Park • #02-20 The Strategy Tower 2 • Singapore 609930
Greater China: 18G • Lane 168 • Da Du He Road • Shanghai China • 200062
Latin America: Av. Francisco Matarazzo • nº 1350 • Sao Paulo – SP Brazil • CEP: 05001-100
ecolab.com/nalco-water