



3D TRASAR™ Cooling Water Technology increases cycles of concentration and helps chemical plant save over \$116,000/year through reduced water discharge



BACKGROUND

A polyester resins and fibers plant has two cooling towers running at 6 cycles of concentration. The cycles of concentration are limited by high levels of silica present in the makeup water. The cooling towers discharge their cooling tower blowdown to a wetlands/swamp.

SITUATION

An update to the plant's discharge permit guidelines declared that during low rainfall periods, the wetlands were considered a non-flowing water source resulting in severe restrictions on the plant's blowdown discharge limits. The levels of copper in the blowdown no longer allowed it to be discharged to the environment.

Subsequently, the customer started to send the blowdown to a municipal wastewater treatment plant, at cost of \$4.00/1,000 gallons. Reducing the amount of blowdown sent to the city is critical to controlling the customer's overall cost of operations.

SOLUTION

Nalco Water was in the process of introducing a new line of cooling water treatment products containing Performance Polymer. Nalco Water's Cooling Water Optimizer modeling program was used to simulate both current and new products in the customer's cooling system. The Optimizer predicted that using the new product with Performance Polymer would allow operation at higher cycles without the threat of silica deposition that existed with the current product. As a result, Nalco Water recommended changing the program to incorporate the new product.

CUSTOMER IMPACT

Saved 29 million gals/yr of water

Fewer handling operations due to lower chemical product consumption



ECONOMIC RESULTS



\$116,000 +/-yr



Lower injury risks due to less frequent chemical product exposure

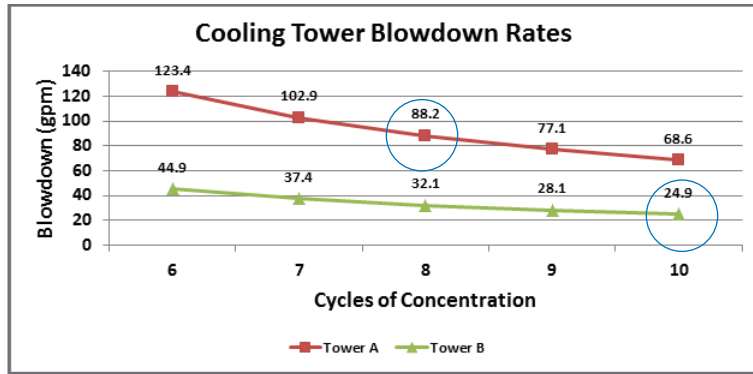
eROI is our exponential value: the combined outcomes of improved performance, operational efficiency and sustainable impact delivered through our services and programs.

RESULTS

The plant changed to the new product. Cycles of concentration increased from 6 to 8 in one tower and 6 to 10 in the other tower. This eliminated 29 million gallons per year of blowdown to the city's wastewater plant. The plant realized a cost savings of \$116,000/yr. This increase in cycles of concentration also reduced the amount of treatment chemicals required and improved safety from reducing chemical handling

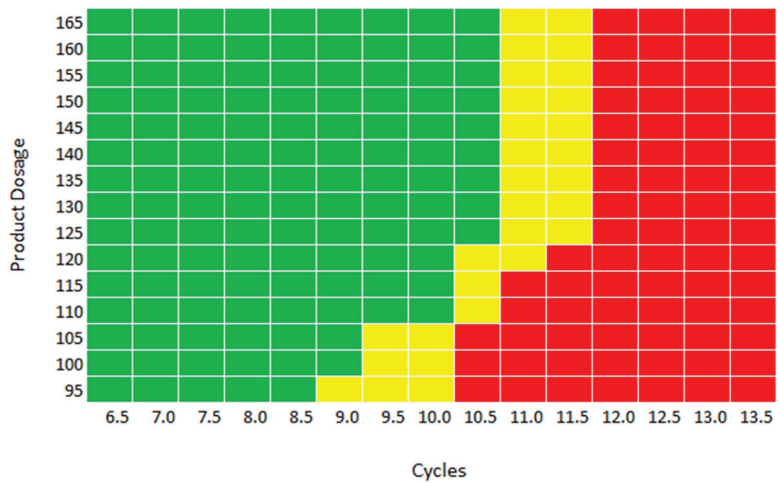
CONCLUSION

3D TRASAR Technology for Cooling Water with new Performance Polymer enabled the plant to increase cycles of concentration without being constrained by silica deposition. 3D TRASAR Technology helped reduce this plant's total cost of operation and support sustainability objectives while improving worker safety.



By increasing cycles of concentration with new Performance Polymer product, the plant saved 29 million gals water/yr through reduced blowdown.

Cooling Water Optimizer Results



Nalco Water's Optimizer modeling tool displays the range of cycles of concentration attainable with varying product dosages. Results show that Tower B can operate at 10 cycles with the new Performance Polymer product while providing a safety margin to 10.5 cycles.

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