



CASE STUDY

How ProMoss™ Transformed a Fouled Cooling Tower:

Eliminating Scale While Reducing Water
Usage by **40%**

EXECUTIVE SUMMARY

This case study demonstrates the effectiveness of Creative Water Solutions' ProMoss™ green sustainable treatment in addressing severe fouling and scaling issues in cooling tower systems. The study compares ProMoss™ performance on both a heavily fouled existing tower and a clean newly installed tower, providing insights into optimal implementation strategies.

Problem: Commercial building's cooling tower was severely fouled and scaled due to conventional chemical treatment, causing high water usage and poor efficiency.

Solution: Implemented Creative Water Solutions' ProMoss™ green sustainable treatment program.

KEY RESULTS:

- ✓ Eliminated existing fouling and scaling issues
- ✓ Increased cycles of concentration (reduced water usage)
- ✓ Improved microbiological control (99%+ compliance)
- ✓ Clean towers showed immediate results; fouled towers improved over time
- ✓ Environmentally sustainable solution

Bottom Line: ProMoss™ successfully transformed a problematic cooling tower system into an efficient, sustainable operation with measurable water savings and superior performance.

BACKGROUND AND CHALLENGE

A commercial building in the southeastern United States was experiencing significant operational challenges with their cooling tower system. The facility had been using a competitor's conventional chemical treatment program, which resulted in:

- ➔ Severe scaling conditions
- ➔ Fouled cooling tower fill
- ➔ Reduced system efficiency
- ➔ High water consumption due to limited cycles of concentration

The building management team recognized the need for a more sustainable approach that could simultaneously clean the existing fouled system, increase cycles of concentration, minimize water usage, and control microbial activity.



SOLUTION IMPLEMENTATION

Creative Water Solutions, working in partnership with their Authorized Dealer, implemented ProMoss™ as a comprehensive green sustainable cooling tower treatment program. ProMoss™ was specifically selected for its ability to:

- ✓ Address existing fouling and scaling issues
- ✓ Improve water efficiency through increased cycles of concentration
- ✓ Eliminate scaling potential and biological growth
- ✓ Provide environmentally sustainable treatment

IMPLEMENTATION PROCESS

The implementation involved comprehensive wet chemistry testing throughout the application phase. All test results were systematically recorded and shared with the customer to ensure transparency and demonstrate measurable results.

RESULTS AND ANALYSIS

CHEMICAL PERFORMANCE

Upon application, ProMoss™ demonstrated immediate positive system response by effectively cleaning existing deposits. The treatment works through a unique chemical mechanism where ProMoss™ facilitates the exchange of positively charged ions, resulting in the release of hydrogen ions. This process:

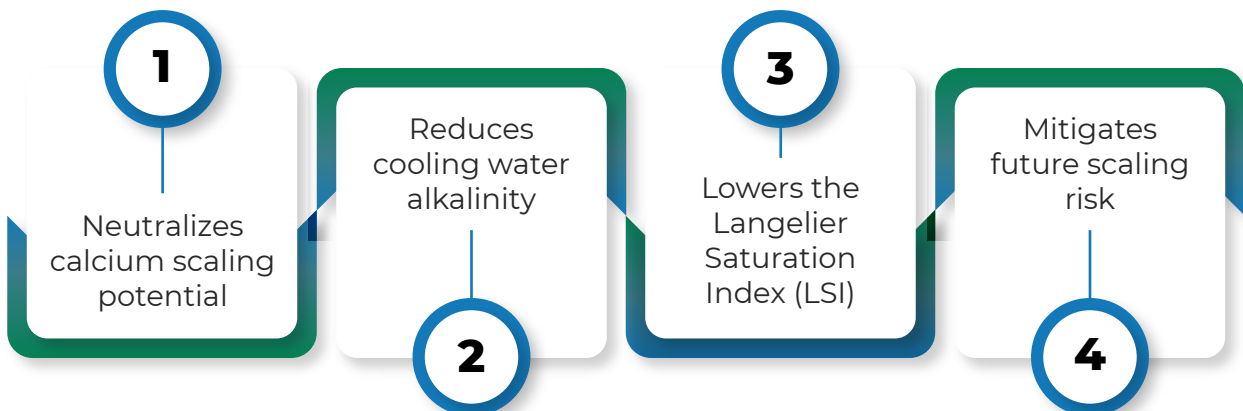
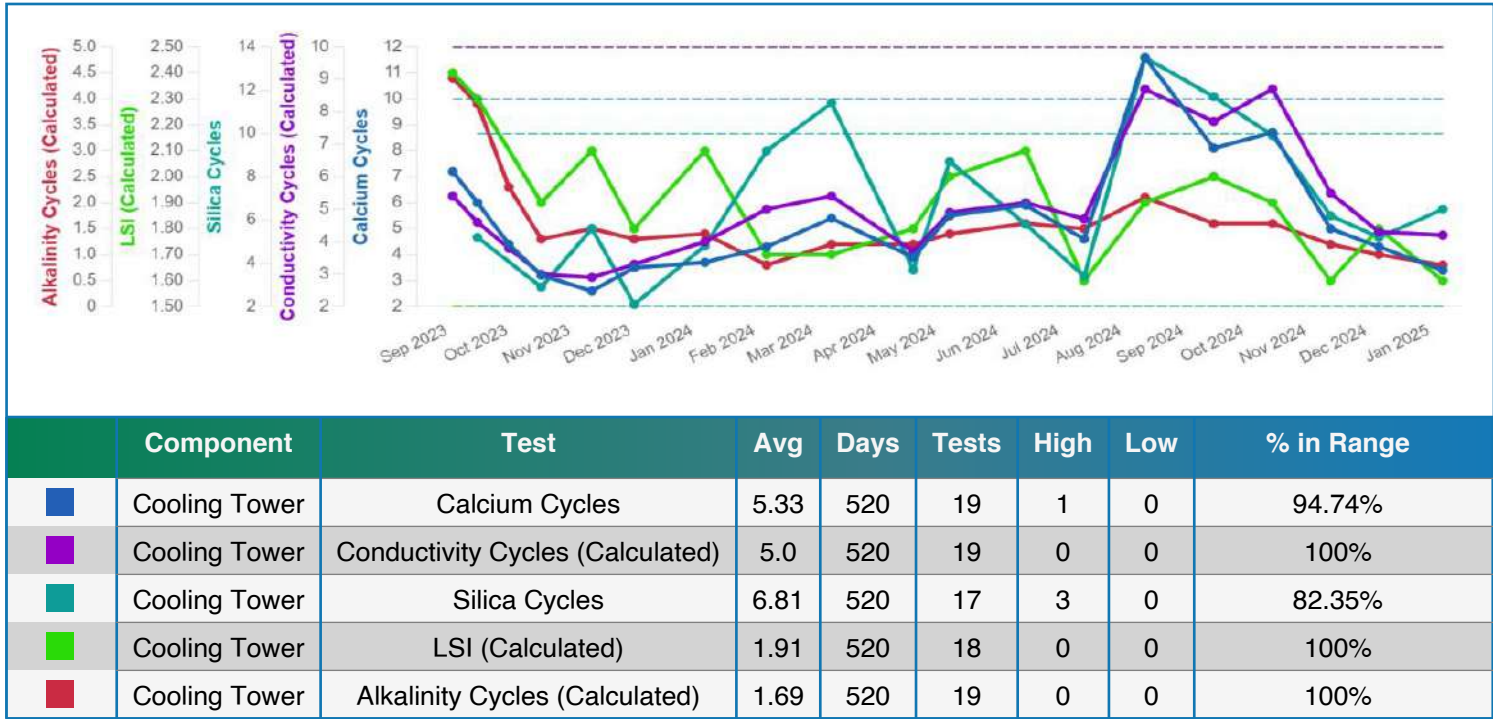


Figure 1 illustrates ProMoss's™ ability to increase cycles through conductivity while maintaining steady alkalinity levels. This mechanism reduces scaling potential while simultaneously removing existing deposits.

FIGURE 1: COOLING TOWER CYCLES



COMPARATIVE ANALYSIS: FOULED VS. CLEAN TOWER

A significant finding emerged from comparing ProMoss™ performance on the fouled tower versus a newly installed clean tower. The clean tower showed immediate and dramatic results, while the fouled tower required additional time to achieve optimal performance. This difference was attributed to ProMoss™ working progressively to eliminate existing scale deposits on the fouled tower, which initially limited alkalinity reduction and cycle improvements.

Figure 2 demonstrates the impact of implementing ProMoss™ treatment on the new clean cooling tower beginning in March 2024. The results show:

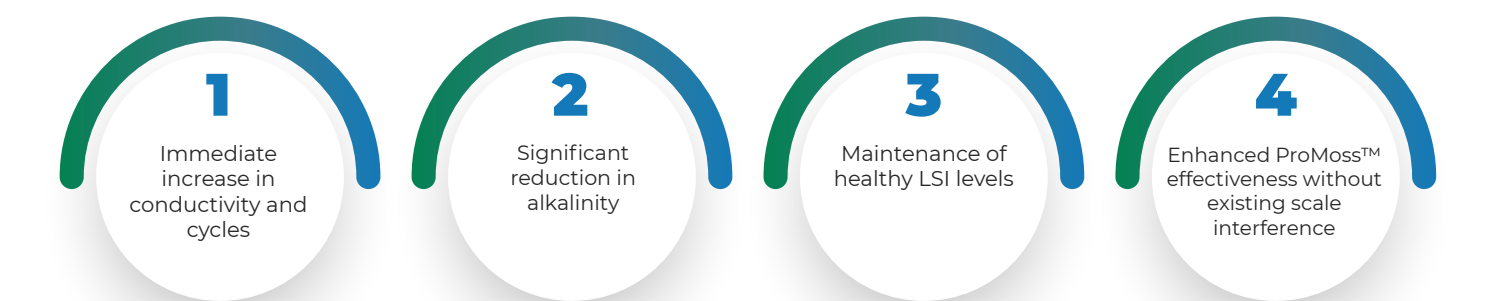
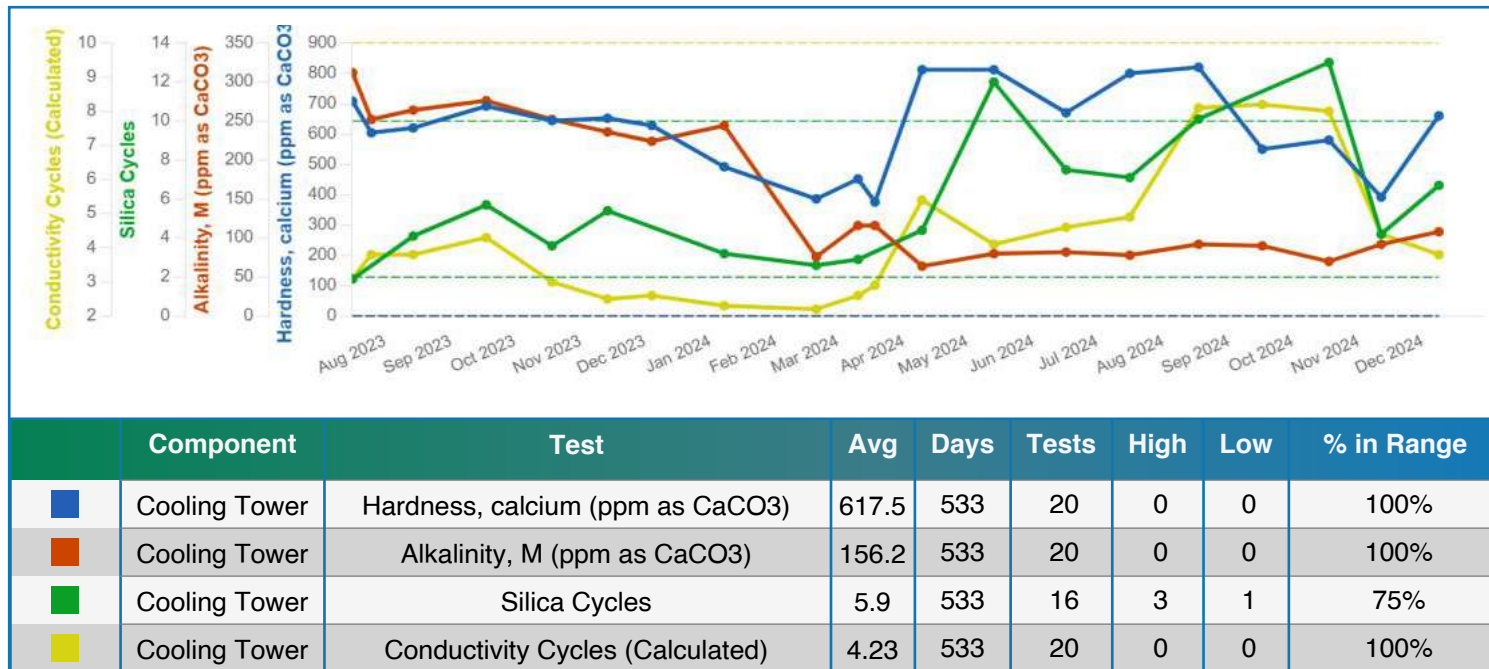


FIGURE 2: NEW TOWER START UP



This comparison illustrates how starting with a clean system allows ProMoss™ to work optimally with existing tower water chemistry while maximizing cycles of concentration and minimizing blowdown to sewer.

MICROBIOLOGICAL CONTROL

In addition to superior scaling control, ProMoss™ demonstrated excellent microbiological performance. Both test towers maintained microbiological growth within acceptable ranges nearly 100% of the trial duration, as measured through ATP sampling and testing.

Figures 3 and 4 show the overall reduction in microbial (RLU) and Total ATP bio counts, demonstrating measurable improvements in microbiological control. The data reveals a direct correlation between scale removal and microbiological reductions.

FIGURE 3: MICROBIOLOGICAL

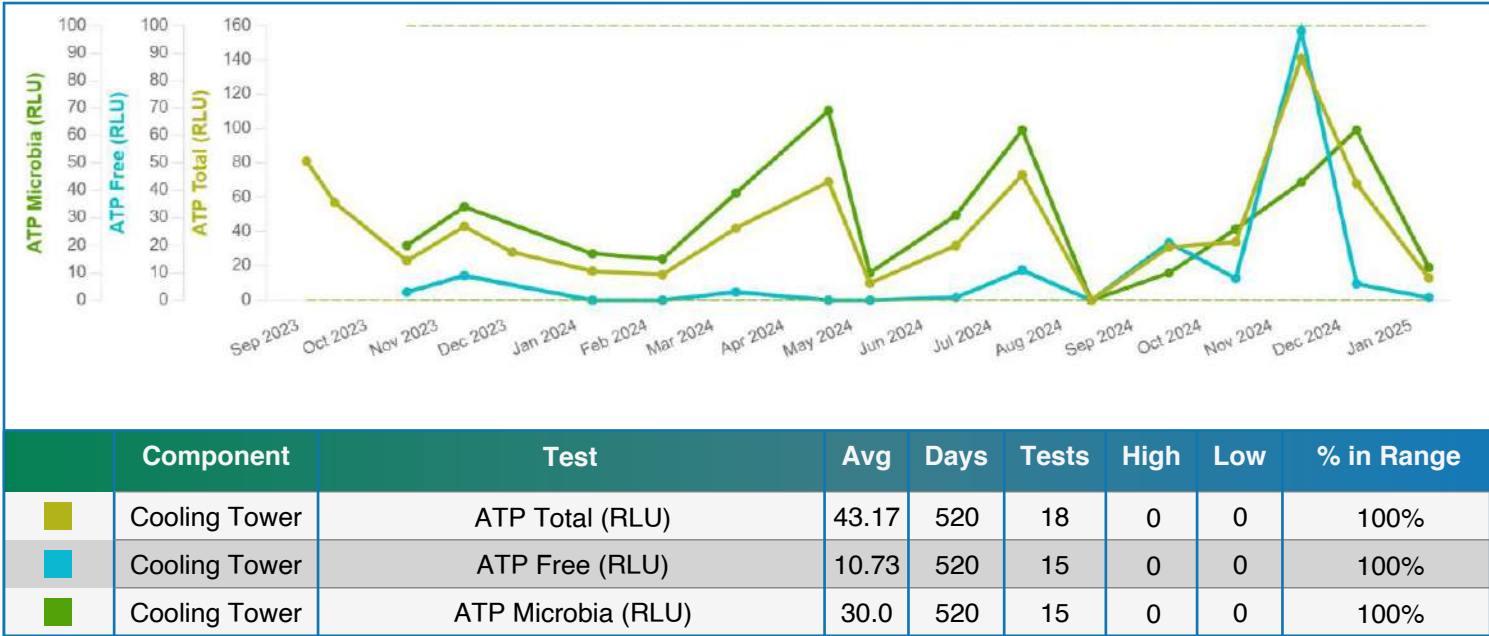
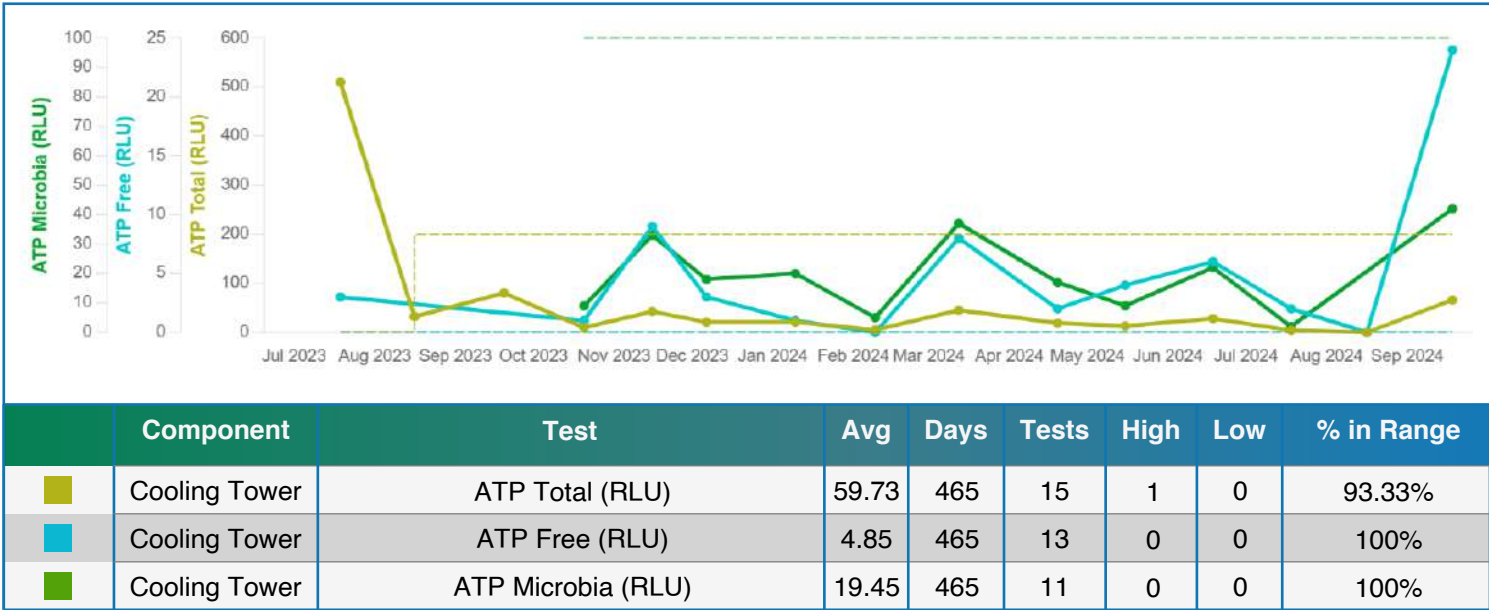


FIGURE 3: MICROBIOLOGICAL

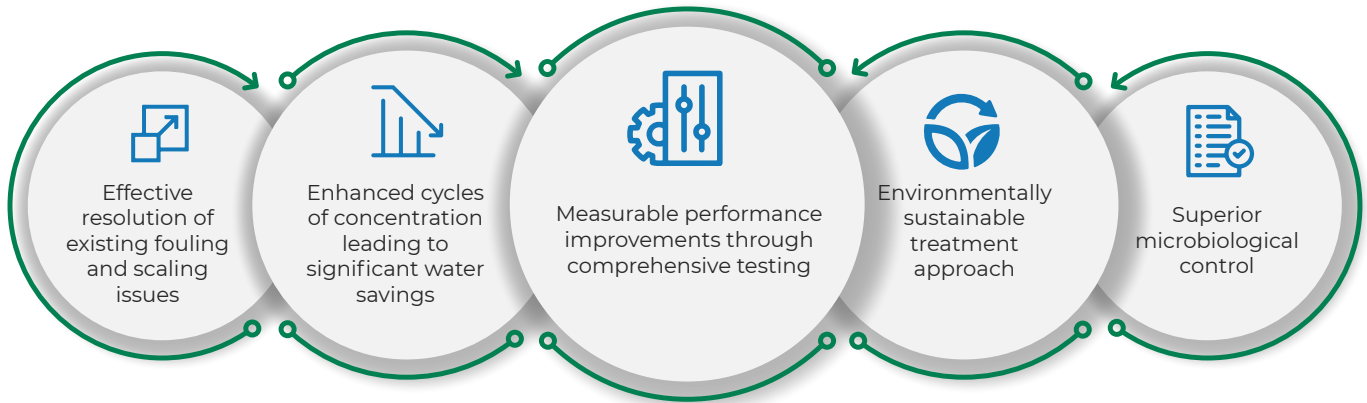


OPTIMIZATION STRATEGY

Based on these findings, Creative Water Solutions' dealers recommend a light acid wash prior to ProMoss™ application for moderately scaled systems. This pre-treatment ensures maximum water savings and optimal system performance from the start.

CONCLUSIONS AND RECOMMENDATIONS

The successful implementation of ProMoss™ presents a compelling case for adopting green sustainable treatment solutions in cooling tower applications. Key benefits demonstrated include:

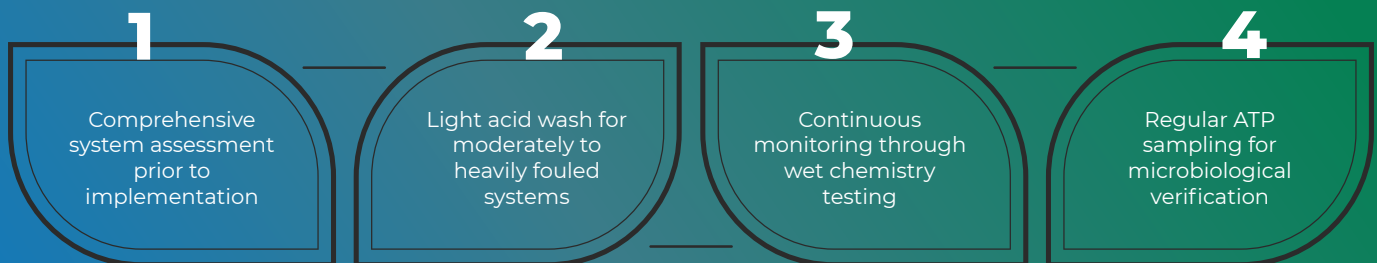


This case study establishes ProMoss™ as a transformative solution and provides valuable insights for developing future treatment strategies tailored to specific cooling system conditions.



OPTIMIZATION STRATEGY

For optimal results, Creative Water Solutions recommends:





Multiple Delivery Options Allow Easy Integration into Existing Water Systems

Creative Water Solutions has contact chambers for every application and system setup. Open cage submersible chambers are used when there is an open body of water to be treated. The offline contact chambers are uniquely designed to create a tumbling action, that creates a maximal moss and water interface.



ProMoss™

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