

FlexPro[®] and Quadrasperse[®] Technologies Combine to Save Gulf Coast Chemical Manufacturer Over \$2M

Background

The chemical industry is constantly evolving with challenges of increased operational efficiencies and throughput capacity. Many times, these objectives intertwine with corporate sustainability objectives or even new state discharge requirements, which is exactly the situation for our new client operating in the Gulf Coast. At the end of a recent RFQ cycle, ChemTreat was awarded the plant water treatment. There were very clear expectations associated with delivering results on the findings uncovered during the plant audit.

Among the top priorities were cleaning the tower and preventing mineral scale deposition in the critical condensers, while also eliminating phosphate discharge issues to comply with the state permit regulations. The possibility of evaluating an on-line cleaning was also very important as an upcoming outage could be delayed, allowing time for filling critical customer orders.

Solution

With a thorough audit conducted, the next steps included utilizing ChemTreat's analytical services to determine the exact type of mineral scale that had deposited and the profile for the elemental water chemistry. This testing included full cation and anion loading for the makeup and recirculating waters to allow for accurate solubility calculations.

All of the analytical testing was collected and completed within a five-day period; from that point, ChemTreat was able to provide the plant options for on-line cleaning methods as well as alternatives for eliminating the recurring deposition, without the need to feed acid.

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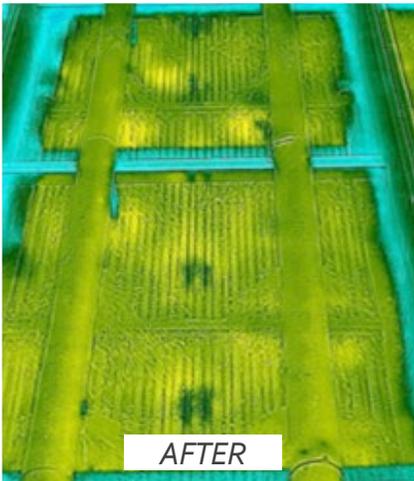
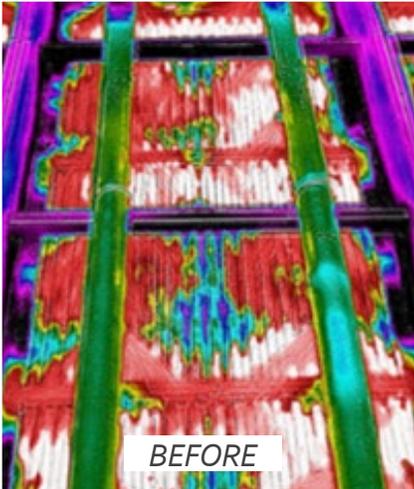
TARGETED IMPROVEMENT	CHEMTREAT ADVANTAGE	ANNUAL ECONOMIC IMPACT
Cooling tower cycles of concentration increase saved over 20M gallons of water/year	 WATER	Water and sewer costs reduced by \$60,000
Recirculation pumps and fan motor reductions saved 10% of energy required	 ENERGY	Energy requirement for five fully-loaded 100 Hp motors dropped by \$25,000
PO ₄ and Zn limits under control	 WASTE	Discharge permit fine avoidance of \$40,000
Cooling tower drift problems eliminated	 AIR	Avoidance of tower outage saved \$85,000
Overall plant capacity increased	 PRODUCTION	Increased plant profit to over \$2,000,000



Solution

With dezincification occurring in the wet dry areas of the cooling tower and mineral deposition in the hottest skin temperature areas, a solution incorporating ChemTreat's Quadrasperse® and FlexPro® technologies became the obvious choice. During the solution development period, ChemTreat also deployed monitoring and measuring equipment to ensure full understanding of the plant operating conditions and development of an accurate assessment of the root cause.

A key element in this strategy was deploying video and thermal imaging technology, allowing ChemTreat to easily verify the magnitude of the known issues and uncover some unknown system constraints.

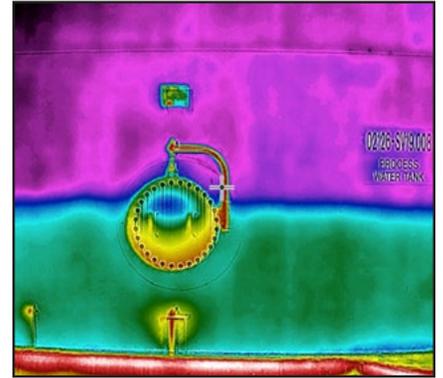


One of the most important unknown findings was associated with the cooling water storage/expansion tank that had over three feet of sludge in the bottom and an uncalibrated level transmitter. This sludge served as a source of solids and a nest for microbiological growth.



Delivered Results

With the known conditions in hand, ChemTreat immediately deployed an on-line cleaning and passivation of the surface condenser using Quadrasperse® and FlexPro® technologies. Within four weeks, the condenser was within 90 percent of design operating efficiency and the upcoming outage was successfully delayed. The plant estimated the outage work to cost \$85,000, not including the lost production time. With the system operating efficiency restored, plant production capacity could be increased to design rates. This was certainly the largest impact for our customer as they conservatively estimated the increased production to generate over \$2M in increased profit for the site.



Once the cleaning was complete, ChemTreat started focusing on the water usage and environmental objectives. With the proper program in place and the deposition problem solved, the cooling tower cycles of concentration were safely increased. This delivered the plant water savings objective and saved \$60,000 in water and discharge costs.

ChemTreat's program will also allow the plant to meet the zinc and phosphate requirements that had plagued the plant for so long. FlexPro® technology not only provided the pathway for meeting the phosphate requirements, but also far exceeded corrosion control expectations, providing proper protection for the cooling tower and eliminating zinc as a concern in the discharge.

Contact your local ChemTreat representative to find out how we can help reduce your plant's operating costs.
800-442-8292

Results are examples only. They are not guaranteed. Actual results may vary.



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