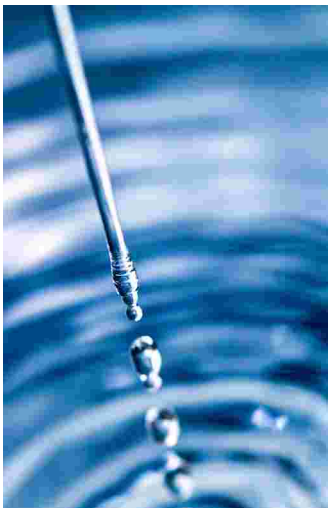


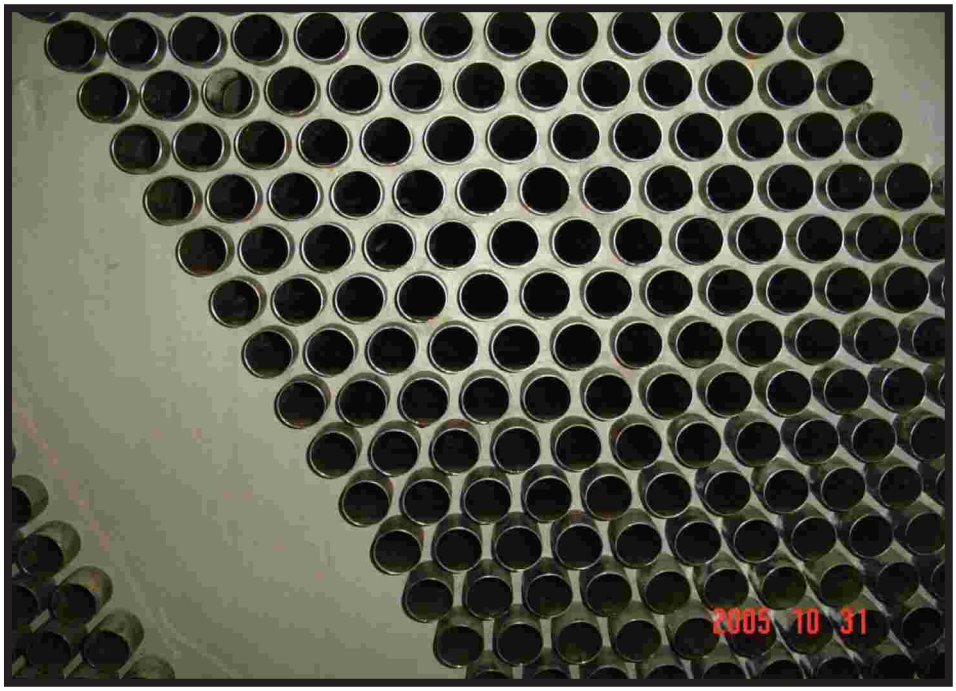
CASE HISTORY

#10-028

ChemTreat's Polymer & Scale Inhibitor Program Reduces Manganese Deposits

Plant 1:

A two-on-one 500-megawatt combined cycle plant in the Midwest uses reclaimed water as tower makeup. The condenser is 316 stainless steel. The plant originally used lime soda, which softened the tower makeup. Approximately eight years ago, we recommended the plant shut down the makeup water softener resulting in a chemical savings of several hundred thousand dollars annually. The makeup water contains 0.04 - 0.06 ppm of manganese cycled 8 - 10 times in the tower. Tower analyses show 0.3 - 0.5 ppm as manganese. The plant operated for eight years using our patented Quadrasperse® polymer with PBTC. The photograph shows the most recent condenser inspection. The plant has not observed any evidence of manganese deposition.



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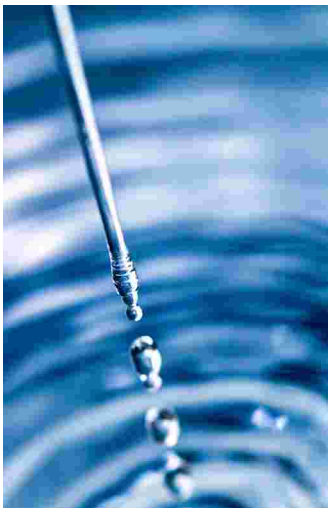

CASE HISTORY

#10-028

Plant 2:

The second plant is also a combined cycle plant with a stainless steel surface condenser. The plant is a four-on-two 1,150 megawatts in the Midwest. The plant uses river water treated with permanganate for manganese removal; however, the process is not consistent. Typical manganese levels in the makeup are 0.05 - 0.15 ppm cycled five times in the tower. We have treated the tower for eight years using a combination of PBTC & Quadrasperse® as a dispersant, along with a low level of orthophosphate for corrosion inhibition. A photograph of the last condenser inspection is below and shows no evidence of manganese deposition on the tubes.

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Actual results may vary.