

Oversight of a Non-chemical Water Treatment System

A Northeast commercial facility installed a new galvanized cooling tower and installed a non-chemical water treatment system, Electrochem™, to control deposition on the chiller heat transfer surfaces. The facility manager outsourced the commissioning and monitoring of this tower to MarTech.

New galvanized cooling towers (Figure 1) require chemical passivation to maintain system reliability. The passivation process creates an adherent calcium-phosphate-zinc carbonate layer on the metal surfaces that contact water, preventing corrosion.



Figure 1 – New galvanized cooling tower

Following the completion of a three-month passivation treatment, the facility manager commissioned the electrostatic water treatment device (Figure 2), a side-stream filter, on-line pH and conductivity meters and an automated blowdown system.



Figure 2 – Electrostatic probe

Monthly measurements of water quality and quarterly analysis of corrosion coupons confirm conformance to industry standards for corrosion.

Annual inspection of the chiller tubesheet (Figure 3) and system efficiency measurements indicate good deposit control.



Figure 3 – Chiller tubesheet

A non-toxic steel corrosion inhibitor and a standard copper corrosion inhibitor fed immediately prior to draining the tower minimize corrosion during winter storage.

MarTech personnel have monitored this system for four years and confirmed conformance to industry standards for system reliability and efficiency.

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