

# Zentox Cooling Water Treatment Clean Streams™ Ozone Transfer Process

## Case Study: Dominion Virginia Power Corporate Office Building



### Situation:

In January of 1997, Zentox Corporation replaced a traditional chemical treatment program at a major utility corporate office building with an ozone water treatment system that centered on the Clean Streams™ Ozone Transfer Process. The cooling towers, located on the roof of a 22 story building, were experiencing fouling of the fill that restricted air flow and required quarterly cleaning to prevent reduced cooling efficiency.

The 22-story building has two 800-ton chillers for HVAC and one 600-ton chiller dedicated to the computers in the billing department. Two BAC cross flow towers and one Marley cross flow tower are connected via a common header. All towers were experiencing microbiological fouling.

### Microbiological Control:

Within 2 weeks of start-up of the Clean Streams™ process, the bottom of the tower sumps had become visible. By springtime the microbiological fouling was no longer visible. Quarterly cleanings were reduced to annual inspections.

### Water Conservation:

Building water usage was reduced 30-40% after the installation of the system and after cycles of concentration of the cooling tower were raised from 4 to 12, thus reducing blowdown and makeup water consumption.

### Improved Operation:

Before installation of the Zentox Clean Streams™ process, the building air conditioning system was forced to run at 100% during hot summer days, and building temperatures often could not be controlled on sunny afternoons. After installation of the Zentox unit, during the hottest August in many years, the building was able to maintain a comfortable temperature with the chiller operating at a maximum of 80%. In addition to increased tower heat rejection from clean tower fill, the removal of biofilm on the condenser heat transfer surfaces allowed the HVAC system to operate at design.

### Corrosion Control:

Corrosion rates stabilized with less than 3 mpy on mild steel and less than 1 mpy on copper. Non-destruct testing was performed after the first year of ozone treatment and indicated no detectable metal loss in piping or condenser tubes.

### Customer Response:

Second order to treat 3,500 tons at the Innsbrook Corporate Technical Center, which has had poor performance on traditional chemical treatment programs.