

# Zentox Cooling Water Treatment Clean Streams™ Ozone Transfer Process

## Case Study: Loudoun County Public Schools – Loudoun County Virginia



### Situation:

Beginning in early 2000, Loudoun County Public Schools began testing an alternate to the traditional chemical treatment programs on their cooling towers on new construction of Elementary and Middle schools. Zentox Corporation Model CS-400 Clean Streams™ Ozone Cooling Water Treatment Program was installed first on the tower at Smarts Mill Middle School, and then on six successive schools as they were built. The decision to evaluate the Clean Streams Program was based on the potential for:

1. Safety- no need for toxic chemicals on site as ozone is generated on site thus removing the possibility of chemical exposure to students
2. Potential water and energy conservation.
3. System pay-back in under 36 months.

### Side by Side Comparison:

After the first seven units were installed, a comparison was made in the operational efficiency of the schools with the Clean Streams™ versus similar schools employing traditional chemical treatment. All the Ozone treated schools out-performed the schools using chemicals. Additionally, maintenance per school was also found to be reduced.

### Water Conservation:

School water usage was reduced over 20% after the installation of the Clean Streams™ process, leading to an annual water saving conservatively estimated at around 250,000 gallons of water per facility. It is estimated that in the first ten years of the county's use of these systems on their schools that they have saved more than 25 million gallons of water. With 25 plus systems presently installed around the county, LCPS conserves more than 6 million gallons of water annually.

### Energy Savings:

A customer can achieve savings of 4-10% from increased chiller efficiency. Removal of biofilm is the key. As little as 1 mm of biofilm can reduce chiller efficiency by 10% or more. Through a study on a university chiller plant we were able to show 4% increase in heat transfer efficiency in clean chillers.

### Service of the Cooling Water Treatment System:

As part of the service offered by Zentox Corporation, a full service contract has been in effect since the start up date. This contract includes monthly preventive maintenance, condenser water analysis, and any parts or equipment upgrades necessary to maintain optimum system operation.