

# Zentox Cooling Water Treatment Clean Streams™ Ozone Transfer Process

## Case Study: Vehicle Assembly Building, Kennedy Space Center



### Situation:

In January of 2000, Zentox Corporation replaced the existing ozone treatment system on the Vehicle Assembly Building (VAB) and Launch Control Center (LCC) cooling towers with a state-of-the-art ozone water treatment system that is centered on the Clean Streams™ Ozone Transfer Process. The cooling towers, a launch critical system located adjacent to the VAB, had been on ozone treatment since 1992, but the old ozone system had not performed to KSC standards for many years.

The VAB has chillers with a total of 10,000-tons capacity for HVAC. The system has a volume of 240,000 gallons and is composed of four cells, each with a flow of 7,500 gpm. The condenser system has an average annual loading of 36%.

### Microbiological Control:

The new Zentox ozone cooling water treatment system was powered up in April of 2000. Following start-up, the towers are free of microbiological fouling, even with an increase in cycles of concentration and a decrease in city makeup water.

### Water Conservation:

Cycles of concentration of the cooling tower were raised from 4 to 12, thus reducing blowdown and makeup water consumption. Building water usage was reduced from 65,000 to 10,000 gallons per day after the installation of the Zentox system, a reduction of 85%.

### Improved Operation:

After the upgrade to the Zentox Clean Streams™ process, the building air conditioning system was able to run at 36% average annual loading, with launch critical facilities adequately cooled.

### Corrosion Control:

Corrosion coupons were installed in the system and corrosion rates began dropping as microbiological cleanup occurred. Corrosion rates are continuing to stabilize and are currently at less than 4 mpy on mild steel and less than 1 mpy on copper.

### Customer Response:

Primary contractor for this project at Kennedy Space Center is actively promoting the conversion of other towers on the facility to ozone treatment. Zentox has been invited to evaluate follow-on projects.