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## *Midwest Data Center Case Study*

**Situation:** A recently opened Midwest Data Center was not going to be able to operate below the discharge volume regulated by the city wastewater treatment authority. The main contributor was the amount of cooling water blow down that would be released. The Data Center had already installed a top of the line acid based chemical treatment program. The Data Center has 15,000 tons of cooling capacity and a maximum evaporation rate of 375 gpm. The cooling system was designed to utilize multiple individual condenser water sections as opposed to one common integrated condenser water loop.

**Solution:** Many options were reviewed; such as alternative chemical programs, major capital and operating costs for an on-site tower blowdown waste treatment plant, as well as non- traditional water treatment. After thorough evaluation the decision was made to convert to High Efficiency Softeners (HES). The main benefits from HES were a reduced blow down and elimination of all potentially hazardous chemicals such as acid, biocides, and corrosion inhibitors. Further benefits included a **12 month ROI on the equipment investment**, improved corrosion rates, ability to claim more LEED points, and significant overall water savings.

**Results:** Discharge rates from the site **were reduced from 120,000 gallons per day to less than 6,000 gallons per day**, which is well below the City discharge limitation, thus solving the operational restriction. Corrosion rates for the HES system were even better than what was being attained via the chemical program. Overall system monitoring and control was much simpler than before, and there is no on site storage of hazardous chemicals.

**Cost Savings:** With the increased cycles of concentration the annual water savings at full utilization will be over **40 million gallons!** Overall cost savings will be in excess of **\$200,000** annually! Cost avoidance of \$Millions in capital and operating costs for a site operated tower blow down waste treatment plant.

