

# Vortex CHC

MAKING CAVITATION WORK FOR YOU

## Vortex CHC Case Study

**Customer / Project:**

**Appleton Medical Center**

**Website:**

<https://www.thedacare.org>

**Location:**

**Appleton, Wisconsin**

**Industry:**

**Healthcare**

**Challenges:**

**High bacterial load**

**Biofilm formation**

**Solution:**

**125-GPM unit**

**1,000-GPM centrifugal separator**

**Results:**

**Elimination of high bacterial load**

**Elimination of biofilm**

**Water savings: 900,000 gal/yr**

**Vortex CHC**

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### The Challenge:

A medical center uses cooling water for the operation of two centrifugal chillers. The cooling water system includes an inside cold well sump and a three cell evaporative tower with a total cooling capacity of 2,100 tons. The total system water volume is 9,000 gallons. A chemical program was applied to treat the cooling water. However, microbiological control was not consistent. Water in the cold well sump had a strong odor due to high bacterial activities and the development of biofilm. In addition, maintenance did not want to handle the hazardous chemicals used for treatment.

### The Solution:

A CHC system was installed in April 2004 to replace the chemical treatment program. The CHC system consisted of a 125-GPM CHC unit and a 1,000-GPM autopurging centrifugal separator. A conductivity controller and a corrosion coupon rack were also installed.

Once the CHC program was initiated, significant improvement in water quality was noticed within three weeks. The odor was gradually eliminated. The system has been monitored closely for scale, corrosion, and microbiological activity. Chillers were opened after eight months of CHC treatment and no evidence of scale or corrosion was observed. Coupon test results indicate good corrosion control. Monthly bacteria analysis shows very low bacterial activity with average bacteria counts < 4,000 CFU/ml.

The cycles of concentration were increased to 6.5 with CHC treatment, as compared to 4.5 during chemical treatment. This equates to a reduction in blowdown of over 35%. The estimated annual water saving is over 900,000 gallons, and there are no chemicals to handle for this area of the Medical Center.