CASE STUDY

Data Center Saves $1.7M in Annual Water and Energy Costs with ChemTreat Cooling Treatment Program

Background

ChemTreat's experienced service and technical teams are committed to helping data centers save water and energy, maintain reliability and availability, and improve efficiency with customized water treatment programs.

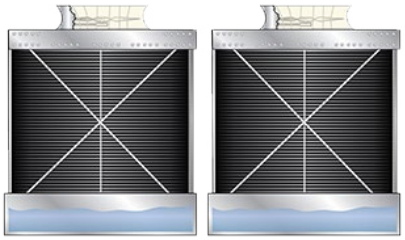
Our team conducted a thorough survey of a data center in Virginia to identify opportunities for water treatment program improvements that could reduce water usage (WUE) and energy consumption (PUE).

Solution

Based on the survey, the ChemTreat team identified water and energy savings that projected a minimum cost savings of $517,509 per year.

Working together with data center operators, ChemTreat made multiple improvements to the facility's water treatment program:

- Remedial cleanings were performed on the cooling tower systems, which were plagued with scale and microbiological problems that fouled heat exchangers and increased maintenance requirements for operations. The system was first disinfected with ChemTreat's CL427, immediately followed by an on-line cleaning with our proprietary CL5660 product. Unlike previous mechanical and chemical cleanings that required systems to be taken off-line, CL5660 works without impacting system availability or facility redundancy.
- All existing chemical control and feed equipment was upgraded. Double-wall Neat Delivery systems were installed, as well as CTSolutions® panels that connect to ChemTreat's intelligent water management program CTVista®+ to enable remote monitoring and control of the treatment program.
- CL8845, a combination of ChemTreat's FlexPro®, QuadDetect® polymer, and halogen-stable triazole technologies, was applied to inhibit scale and corrosion, allowing the facility to increase cycles of concentration without increasing the potential for scale formation. This program lowered water usage (reduced WUE) while maintaining clean heat exchanger surfaces (reduced PUE).
- A dual-biocide program was implemented and fed based off system volume at necessary rates to maintain clean heat transfer surfaces and reduce the potential for microbially-induced corrosion.



Results are examples only. They are not guaranteed. Actual results may vary.

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These upgrades resulted in:

- **1.6 increase in cycles of concentration**
- **19% reduction in blowdown**
- **4.8% reduction in makeup water used per chiller ton**
- **23% reduction in blowdown water per chiller ton**
- **6.7% reduction in chiller ton to MW**

Results

By implementing the ChemTreat program, the data center achieved significant energy, water, and chemical savings well beyond the original estimate of $517,507 per year.

- **10.2% reduction in power usage efficiency (PUE)**
- **7.72 million gallons of water**
- **4.86 million gallons of sewage**
- **11.6 million kW-h of energy**
- **$1.7 million per year, $2.8M over the first 20 months of program implementation**

The ChemTreat team meets regularly with personnel at the data center to discuss the current status of the water treatment program and on-going improvement projects to further help the facility save money and achieve their environmental goals.

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