

# Case Study

Fortune 100 Headquarters  
LEED Gold Building

Houston, Texas



## Cooling Tower Water Program

- 50% water savings
- 75% chemical reduction
- Real-Time Data Monitoring

## Key Success Factors

- Prevent scale and biofouling accumulation in the tower and chillers
- Install make-up & blowdown meters, pH and conductivity sensors for cloud-based data analysis
- 50% water reduction with cost savings that offset the monthly program cost
- Optimize chemical program effectiveness and change to eco-friendly chemistry
- Extend service life of equipment, fill and piping
- Reduce energy costs and maintenance expenses

## Results

- All key success factors were met within a few months
- Existing chiller scale removed during first 6 months
- 2.6 Million Gallons Conserved Annually per 1,000 Ton Cooling Tower

# A "Total Water Management" Service

## Delivers Cost Savings and Cooling System Efficiencies

A Fortune 100 LEED Gold certified headquarters in Houston, Texas, identified the need to improve water conservation in the cooling system to reduce cost, save energy and reduce chemicals. HydroTech Solutions initiated the Total Water Management program in April, 2016, that continues as a monthly service. It's important to note that it took a few months to remove existing deposits and stabilize the system, to allow significant cost savings.

### The Challenge

Each of the two headquarter buildings has a 1,000-ton cooling tower on the rooftop and two chillers in the basement. The water consumption for each building exceeded 500,000 gallons per month during the summer.

The Facility Manager sought to safely reduce consumption, along with scale and algae reduction, that the existing chemical program wasn't controlling.

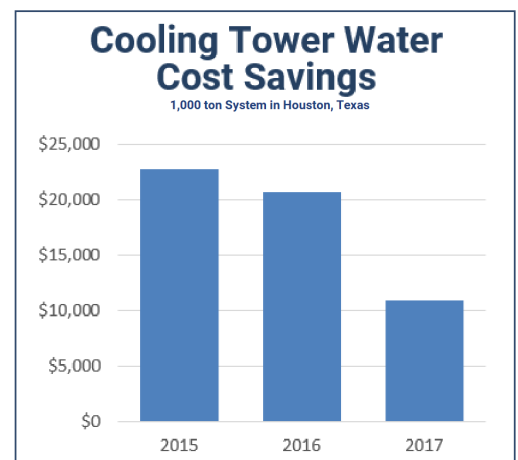


### The Total Water Management Service Includes

- HydroFLOW physical water conditioners, which provide eco-friendly scale, bacteria and corrosion control
- Minimal amounts of ecological chemistry
- IoT (Internet of Things) Sensors and meters which continually monitor flow rates, temperatures, water quality and other real-time data
- Cloud based platform which securely analyzes and displays data
- Side stream filtration systems to remove suspended solids from the water
- Monthly site visits to inspect equipment, water quality and operations
- Monthly reports with data, photographs and field notes

### Water Conservation and Monthly Cost Savings

	Period	Make up Water Cost	Blowdown Water Cost	Annual Water Cost
2015	Q1	\$1,931	\$597	\$22,754
	Q2	\$6,470	\$1,438	
	Q3	\$5,314	\$2,100	
	Q4	\$3,588	\$1,317	
2016	Q1	\$2,864	\$951	\$20,717
	Q2	\$3,660	\$1,282	
	Q3	\$5,373	\$2,254	
	Q4	\$3,212	\$1,121	
2017	Q1	\$1,488	\$50	\$10,964
	Q2	\$3,186	\$100	
	Q3	\$4,210	\$142	
	Q4	\$1,729	\$61	



2017 was the first year the Total Water Management system was fully operational

## Total Water Management Results

The Total Water Management program continues to deliver water, chemical and energy cost savings monthly.

Data is accessible by the customer 24/7 and the analytics tools improve operations efficiencies at reduced cost.

Each building conserves over 2 million gallons of water per year.

The comparison of scale and biological accumulation on equipment before and after the implementation of the Total Water Management program is conclusive; no scale or biological accumulation at 7 cycles of concentration.

## Validated Cost Savings with IoT Sensors

The customer's goal of maintaining the cooling system within industry standards, while reducing chemical and blowdown water usage, was validated by IoT water meters and sensors that provide real-time operating data for analysis that validates performance and cost savings.

## Total Water Management Benefits Include

- Water consumption reduced over 50% while using 75% less chemicals
- ROI of under 12 months, from reduced water and chemical consumption
- Data viewed securely on mobile devices, desktops and BMS
- Improves water and energy operations
- Water and energy conservation goals are achieved
- Reduces maintenance and repairs: Extended Asset Life
- Eco-friendly chemistry that eliminates hazardous storage
- Beneficial for the community; reduced chemical and municipal wastewater impact

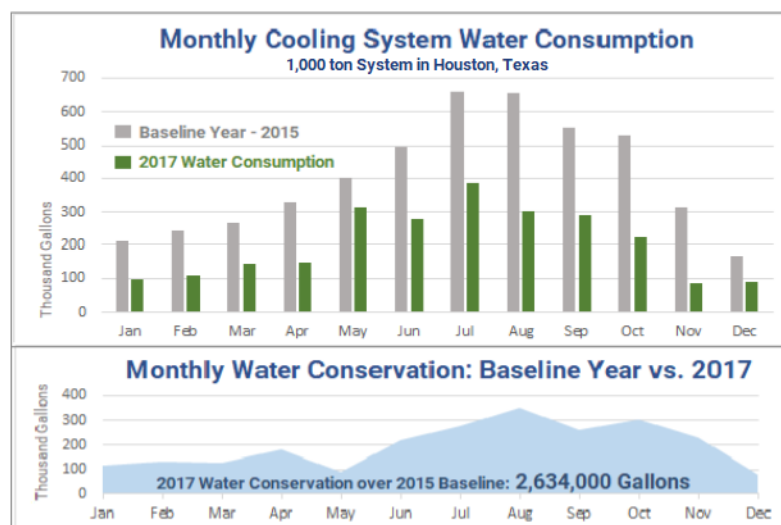
*"HydroFLOW significantly improved the operation of our cooling system, in terms of cost and maintenance.*

*The technology pays for itself with the monthly savings it achieves."*

*Fortune 100 Headquarters  
Facilities Manager*



**The monthly Total Water Management service fee pays for itself on water savings alone!**



HydroTech Solutions

(855) 984-1453

www.hydrotech.solutions

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