

OPPORTUNITY

Why is GSA interested in alternative water treatments (AWT)?

UP TO 50% COOLING WATER IS FLUSHED TO MINIMIZE SCALE BUILD-UP¹

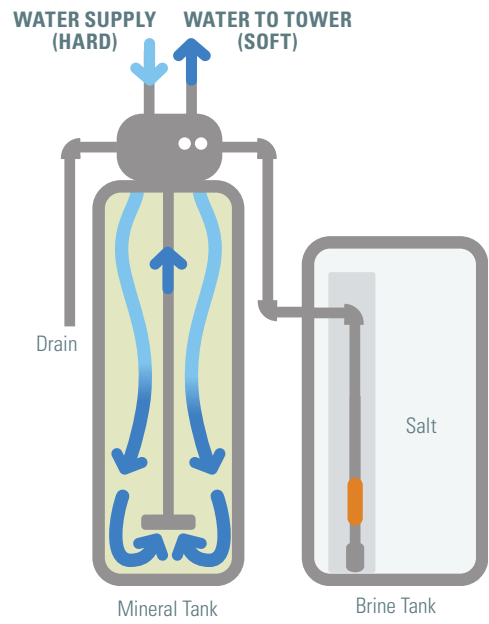
TECHNOLOGY

How does the continuous monitoring and partial water softening system work?

PARTIAL SOFTENING INCREASES BLOWDOWN SETPOINT

SYSTEM DETERMINES OPTIMAL BLOWDOWN TO SATISFY WATER CHEMISTRY TARGETS; SIDESTREAM FILTRATION FILTERS DEBRIS

Real-time monitoring sends system alarms via built-in display or integrated with building management system



M&V

Where did Measurement and Verification occur?

NATIONAL RENEWABLE ENERGY LABORATORY (NREL) assessed a continuous monitoring and partial-water softening system provided by Aqualogix in three cooling towers at the Lloyd D. George Courthouse in Las Vegas, Nevada

RESULTS

How did the monitoring and partial-softening system perform in M&V?

15%
WATER SAVINGS

52% reduction in blowdown²

MET
GSA WATER STANDARDS

Monitors performance and sends alarms⁴

O&M
UNCHANGED

Works alongside traditional chemical treatment³

3
YEAR PAYBACK

@ GSA avg. water/sewer \$16.76/kgal⁵

Monitoring and Partial-Softening Return-On-Investment

@ 3-million ton target load and GSA average water/sewer cost of \$16.76/kgal

	Monitoring & Partial Softening
Installed Equipment (200-1000 ton load)*	\$38,371
Annual Maintenance*	\$783
Annual Energy Increase (7,735 kWh/yr @\$0.11/kWh)	\$851
Water Savings (938,273 kgal @\$16.76 kgal/yr)	\$14,846
GSA Average Payback (yrs)**	2.6
GSA Average Savings-to-Investment Ratio	5.8

*GSA discounted pricing **\$250 for annual calibration, \$533 for salt ***Payback assumes target load of 3-million ton hours and GSA utility rates. Payback at the testbed was 7.5 years based on the measured 1.6 million ton hour load and utility rate of \$12.59 kgal

DEPLOYMENT

Where does the study recommend deploying the AWT system?

CONSIDER FOR ALL COOLING TOWERS

Continues standard and familiar water treatment practices and may offer an easier and more failsafe deployment opportunity for GSA facilities

¹Continuous Monitoring and Partial Water Softening for Cooling Tower Water Treatment, Gregg Tomberlin, Jesse Dean, Michael Deru (NREL), October 2020, p.1 ²Ibid, p.17 ³Ibid, p.20,21 ⁴Ibid, p.17 ⁵Ibid, p.20