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

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

Where did Measurement and Verification occur?

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

Monitoring and Partial-Softening Return-On-Investment

Where does the assessment recommend deploying this AWT system?

The GPG program enables GSA to make sound investment decisions in next-generation building technologies based on their real-world performance.

www.gsa.gov/gpg

PARTIAL SOFTENING INCREASES BLOWDOWN SETPOINT

SUPPLEMENTAL TREATMENT 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

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

MET

GSA WATER STANDARDS

Monitors performance and sends alarms

O&M UNCHANGED

Works alongside traditional chemical treatment

3 YEAR PAYBACK

@ GSA avg. water/sewer $16.76/kgal

Monitoring & Partial Softening Return-On-Investment

Monitoring and Partial-Softening Return-On-Investment

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

<table>
<thead>
<tr>
<th>Monitoring &amp; Partial Softening</th>
<th>$38,371</th>
</tr>
</thead>
<tbody>
<tr>
<td>Installed Equipment (200–1000 ton load)*</td>
<td>$38,371</td>
</tr>
<tr>
<td>Annual Maintenance*</td>
<td>$783</td>
</tr>
<tr>
<td>Annual Energy Increase (7,765 kWh/yr @0.11/kWh)</td>
<td>$851</td>
</tr>
<tr>
<td>Water Savings (938,273 kgal @ $16.76 kgal/yr)</td>
<td>$16,480</td>
</tr>
<tr>
<td>GSA Average Payback (yrs)**</td>
<td>2.6</td>
</tr>
<tr>
<td>GSA Average Savings-to-Investment Ratio</td>
<td>5.8</td>
</tr>
</tbody>
</table>

*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

CONSIDER FOR ALL COOLING TOWERS

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


TECHNOLOGY

15% WATER SAVINGS

52% reduction in blowdown

100% WATER TO TOWER

52% reduction in blowdown

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

RESULTS

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

WHERE DID MEASUREMENT AND VERIFICATION OCCUR?

OCTOBER 2020

OPPORTUNITY

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

TECHNOLOGY

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

M&V

Where did Measurement and Verification occur?

RESULTS

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

DEPLOYMENT

Where does the assessment recommend deploying this AWT system?

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