Water Conservation at Thomson Reuters

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Company Background

History
- 1872-Founded as West Publishing in St. Paul, MN
- 1992-Moved to Eagan, MN
- 1996-Thomson acquired West Publishing
- 2008-Thomson acquired Reuters

Products
- Hardbound, softbound, loose-leaf, and side-stitched books
- Legal, educational, culinary, tax, and accounting clientele

Fun facts
- 5,500 employees on campus
- 2.7 million sq.ft.
- 18 million books/year
- 10 petabytes of data
Project Overview

Incentives to change
• Pride taken in environmental initiatives and waste reduction
• Largest water user in Eagan

Focus
• Holistic examination (A, B, C, & D buildings)
• Industrial focus
Project Overview cont.

Industrial water map
Approach

• Received multiple tours and explored
• Conducted rough water balance
• Held conversations with varied employees
• Investigated major water uses
  • RO Unit
  • Water softeners
  • Cooling tower/boiler blowdown
  • C & D bldg. cafeteria
  • Single pass cooling – Primary recommendation
Recommendation

Single pass cooling used for Laminator heat exchanger

- Softened water @ 5 gpm for 15 hrs/day
  - Used 1,170,000 gal/year
  - Thermostat that should control this has malfunctioned

- Replace thermostat and clean scale
- Establish preventive maintenance
- Install solenoid valves on water lines
- Eliminate single-pass cooling?
Cost/Benefit Analysis

Net savings (per year)
• 1,072,500 gallons of water
• $7,000

Costs
• Thermostat and replacement labor – $1,400
• Annual inspection and cleaning - $500/year
• Solenoid valve retrofit - $1,000
• Simple payback: 5 months
## Recommendations

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Waste / energy reduced (per year)</th>
<th>Implementation cost</th>
<th>Net savings (per year)</th>
<th>Payback period</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Decrease D dishroom trough rinser water volume</td>
<td>7,883,000 gallons water</td>
<td>$200</td>
<td>$54,000</td>
<td>Immediate</td>
<td>In progress</td>
</tr>
<tr>
<td>2. Replace dishroom Troughveyor solenoid valve</td>
<td>1,175,000 gallons water 5,500 therms</td>
<td>$200</td>
<td>$10,000</td>
<td>1 week</td>
<td>In progress</td>
</tr>
<tr>
<td>3. Limit Troughveyor operation</td>
<td>300,000 gallons water 2,500 therms 2,000 kWh electricity</td>
<td>$3,000</td>
<td>$2,500</td>
<td>1.2 years</td>
<td>Recommended</td>
</tr>
<tr>
<td>4. Decrease C dishroom trough rinser water volume</td>
<td>15,000 gallons water 100 therms</td>
<td>$0</td>
<td>$150</td>
<td>Immediate</td>
<td>In progress</td>
</tr>
<tr>
<td>5. Replace, maintain laminator heat exchanger thermostat</td>
<td>1,072,000 gallons water</td>
<td>$3,000</td>
<td>$7,000</td>
<td>5 months</td>
<td>In progress</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td>10,500,000 gallons water 8,000 therms 2,000 kWh electricity</td>
<td><strong>$6,400</strong></td>
<td><strong>$73,500</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Takeaways

• Challenges in gathering data
• Organizational complexity of large corporations
• Uncertainty/risk involved in all engineering decisions
• Importance of first-hand knowledge
Thank you!