Company Overview

- Industrial laundry
Motivations for Change

Trends in Consumer Prices (CPI) for Utilities

- Water
- Natural gas
- CPI
- Electricity

Minnesota Technical Assistance Program
www.mntap.umn.edu

University of Minnesota
Driven to Discover
Reasons for MnTAP Assistance

• Find a water recycling solution
  – Recycle 50% of wastewater
  – Has high return on investment
  – Implement at other locations easily

• Identify energy saving possibilities
  – Conduct compressed air study
  – Conduct steam trap audit
Approach

- Learn about current system
- Conduct chemical study
- Research water treatment
Approach

• Contact and work with vendors
• Complete pilot testing
• Make recommendations
Water Recycle System

• Objective:
  – Recycle 50% wastewater
  – Implement after existing treatment (DAF)
  – Payback in less than 2 years
Water Recycle System

• Problem:
Water Recycle System

• Solution:
  – Oxidization system
  – Ultrafiltration
  – Holding tank
Compressed Air

• Background:
  – Use compressed air system
  – Know leaks exist
  – Unable to allocate resources to fix/upgrade
Compressed Air

• Solution:
  – Sign up for compressed air audit
  – Fix 75% of leaks to qualify for rebate from Xcel Energy
  – Evaluate upgrading air compressor
Steam Traps

- Located throughout the plant process
- Leaks can be expensive
- No leaks found presently
- Database for leak costs
# Process Changes

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Environmental Savings</th>
<th>Initial Cost</th>
<th>Annual Savings</th>
<th>Payback Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post DAF ultrafiltration system</td>
<td>17,000,000 gallons water annually</td>
<td>$500,000</td>
<td>$81,000-$118,000</td>
<td>4-6 years</td>
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<tr>
<td>Compressed air leak audit and fix 75% of leaks</td>
<td>29,806 kWh</td>
<td>~$1,000</td>
<td>$2,660</td>
<td>5 months</td>
</tr>
<tr>
<td>Turn off small air compressor</td>
<td>22,316 kWh</td>
<td>$0</td>
<td>$1,982</td>
<td>Immediate</td>
</tr>
</tbody>
</table>
Personal Benefits

• Became knowledgeable about laundry wastewater and effective treatment
• Improved communication skills
• Understood more about steam traps and compressed air systems
• Was hired
Questions?