Our Signature Brands
Water Uses in Manufacture: The Dye Process

- **Pre-Dyed**
  - Solution Dyed
  - Yarn Dyed
    - Space Dye
    - Solid Color Dye
      - Skein
      - Stock
      - Pad
      - Jet

- **Post-Dyed**
  - Beck Dye
  - Printing
  - Continuous Dye
Broadloom Tufting- The midpoint of carpet manufacturing
Resources

The two most valuable commodities in the very near future?

Oil and ....
WATER!!!
The Low Hanging Fruit
Leaks and Drips

- Running Water
- Bad Seals
  - The Easy Stuff
Design for the Environment

- Increased use of Solution Dyed Yarns
- Reengineering cooling systems to allow reuse
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<tbody>
<tr>
<td>Estimated Capital Investment (mm$)</td>
<td>6.2 Annual Average</td>
<td>4.5</td>
<td>40.1</td>
<td>22.8</td>
<td>31.7</td>
<td>8.3</td>
<td>23.2</td>
<td>27.1</td>
<td>41.7</td>
<td>16.2</td>
<td>21.2</td>
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<tr>
<td>Average Water Demand (MGD) – Total / Industrial</td>
<td>36.1 / 18.6</td>
<td>36.5 / 16.4</td>
<td>38.5 / 16.7</td>
<td>34.9 / 14.9</td>
<td>34.4 / 13.7</td>
<td>37.5 / 16.3</td>
<td>37.6 / 16.4</td>
<td>38.1 / 16.2</td>
<td>38.4 / 15.7</td>
<td>38.5 / 16.8</td>
<td>33.3 / 13.9</td>
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<td>Estimated Population Served</td>
<td>64,975</td>
<td>68,300</td>
<td>73,522</td>
<td>78,190</td>
<td>80,942</td>
<td>80,015</td>
<td>80,646</td>
<td>86,757</td>
<td>89,360</td>
<td>92,262</td>
<td>93,212</td>
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<tr>
<td>Estimated Gallons Water per Square Yard of Carpet</td>
<td>15.6</td>
<td>9.3</td>
<td>9.6</td>
<td>9.3</td>
<td>9</td>
<td>7.7</td>
<td>9.3</td>
<td>7.1</td>
<td>6.9</td>
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Know Your Equipment

- Pump seals and their cooling needs
- Dyeing and finishing
- Boiler blowdowns- can be limited with the installation of ozonation systems- saves water AND energy
Water Audits - You Need to Be Doing This!

Will be required by State
Real / Apparent Losses
Water Meters
Influent vs Effluent Flows
Measuring consumptive use
Local Utilities or P2AD assistance
Points of Significant Interest in Carpet Manufacturing

- Cooling tower management
- Reduced blowdown
- Reduced backwash
- Process cooling modulation
- Drought contingency plan
- Employee education
Water Usage Policies

- When should vehicles be washed?
- Should toilet facilities be upgraded to low or no flow apparatus?
- Landscaping?
- Should stormwater collection systems be incorporated?
- Training!
Improved Processes

- Several members are using “foam-on” applications for dyes and post production topical treatments
  - Allows use to exhaustion
  - Requires less water
  - More easily controlled process
Improved Processes

- Shaw Industries partnered with Dalton Utilities to develop new technologies that reduced water consumption in the beck dye process by over 50%
It Works!

- Mohawk Industries, realized a savings of 38,740 gallons per month by installing low/no flow fixtures at their Bartow Co. facilities.
- At another small facility, testing and experimentation resulted in a 25,000 gallon per month reduction with no loss in efficiency, quality, or output.
One Success Story

- Interface - a recognized world leader in sustainable processes, uses more water to flush toilets than to make carpet.
Partnerships

- You need friends!
  - P2AD
  - Watershed groups such as The Conasauga River Alliance and The Coosa River Alliance
  - Industry Trade Associations
  - TIP (formerly CCACTI)
  - Georgia State, UGA, and GT outreach programs
  - Your local utilities provider
You Must Measure

- You can’t fix it if you don’t know what’s broken
- You can’t manage what you don’t measure
What Else is the Carpet Industry Concerned With?

- Storm Water Management
- Assimilative Capacity
- Consumptive Use
Storm Water Collection Systems
The Bottom Line?

Water Conservation and Protection Will Not Provide Economic or Environmental Benefit Without Involvement by the Top Leaders of an Organization