This is Xylem

- A leading global water technology provider
- $7 billion market cap and $4 billion in revenues
- 12,500 global employees
- 360 global locations
- 155 countries
- Corporate HQ: Rye Brook, NY
- North America HQ: Charlotte, NC

Focused on solving the most important water challenges
Xylem – Encompassing the Entire Cycle of Water

Transport → Treat → Test → Reuse: Enabling & Optimizing Water Use
## Industry-Leading Treatment Brands

<table>
<thead>
<tr>
<th>Sanitaire</th>
<th>Flygt</th>
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</thead>
</table>
| Biological Wastewater Treatment  
  Diffused Aeration  
  Sequencing Batch Reactor  
  Oxidation Ditches  
  Process Controls | Dry and Submersible Pumps  
  Mixers  
  Mechanical Aeration |
| Leopold | Wedeco |
| Gravity Media Filtration  
  Clarification  
  Dissolved Air Flotation  
  Ozone-enhanced Biologically Active Filtration | Ultraviolet Disinfection  
  Ozone Oxidation  
  Advanced Oxidation Process |
Xylem’s Approach to Reuse

Xylem’s process integration expertise
- Evaluate the entire wastewater process
- Integrate best technologies tailored to local use needs and regulations
- Modular design for current requirements and ability to expand to meet future needs

Achieve lowest possible life-cycle costs
- Energy consumption, consumables, pumping, and residuals

Unmatched process guarantee
- TotalCare Legendary Customer Service

Urban Use  Industrial Use  Groundwater Recharge  Agricultural Use  Discharge to Sensitive Waters  Surface Water Augmentation
### Xylem’s Contribution to Reuse Research

<table>
<thead>
<tr>
<th>Project</th>
<th>Goal</th>
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<tbody>
<tr>
<td><strong>WRRF 11-01</strong> Monitoring for Reliability and Process Control of Potable Reuse Applications</td>
<td>Improve real-time monitoring and control to ensure compliance</td>
</tr>
<tr>
<td><strong>WRRF 11-02</strong>: Equivalency of Advanced Treatment Trains for Potable Reuse (Ozone, UV, AOP, and BAF pilots)</td>
<td>Evaluate and optimize multiple barrier treatment trains for DPR</td>
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<tr>
<td><strong>WRRF 12-12</strong>: Comparison of SAT efficacy for two disinfection alternatives: Chlorine &amp; Ozone</td>
<td>Evaluate two disinfecting process for ability to attenuate organics, CECs, DBPs, Microorganisms</td>
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<td><strong>WRRF 13-09</strong>: Indirect Potable Reuse Investigation (in-kind contribution of AOP pilot)</td>
<td>Evaluate treatment of groundwater from soil aquifer treatment</td>
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<tr>
<td><strong>City of Hollywood Florida</strong> Reuse Study (Ozone and UV AOP Pilot)</td>
<td>Evaluate alternative treatment for Ocean Outfall Discharge Rule</td>
</tr>
<tr>
<td><strong>Terminal Island Indirect Potable Reuse AOP Evaluation (AOP Pilot)</strong></td>
<td>Compared multiple AOPs including UV/H2O2 to UV/Chlorine</td>
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<tr>
<td><strong>SCVWD Silicon Valley Purification Center</strong> (UV-AOP, Ozone-BAC pilot)</td>
<td>Examine multiple treatment technologies for IPR expansion</td>
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- Member of Research Advisory Committee

- Corporate sponsor

- Active members, event sponsors
<table>
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<tr>
<th>Project</th>
<th>Technology</th>
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<tbody>
<tr>
<td><strong>Silicon Valley Advanced Water Purification Center</strong>, Santa Clara Valley Water District</td>
<td>10 MGD Title 22 Facility – 12 x LBX closed vessel UV reactors</td>
</tr>
<tr>
<td><strong>City of San Diego</strong> Advanced Water Purification Facility Demonstration Plant (full-scale 1.5 MGD O3-BAF system)</td>
<td>Evaluating O3-BAF as an engineered barrier for advanced treatment train</td>
</tr>
<tr>
<td><strong>Apple Valley, Hesperia, Victor Valley Reclamation Plants</strong>, Victor Valley Water Reclamation Authority</td>
<td>Open channel and closed vessel UV for three Title 22 facilities</td>
</tr>
<tr>
<td><strong>Beneficial Reuse Project</strong>, University Area Joint Authority, State College, PA</td>
<td>Ozone pretreatment for Reverse Osmosis to control fouling</td>
</tr>
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</table>
Xylem’s Treatability Testing Program

- Xylem has a fleet of pilot equipment
  - Ozone, UV, and AOP Systems (WEDECO)
  - Filtration Systems (Leopold)
  - Dissolved Air Flotation Systems (Leopold)
  - Biological Systems (Sanitaire)
  - Analytics (YSI and more)

- Xylem’s philosophy: to partner closely with our consultants and our customers and work collaboratively to solve water
  - Leverage expertise from past projects
  - Closely assist with developing testing protocol
  - Hands-on support through the duration

Photo Credit: Presentation by Roshanak Aflaki, WEFTEC, 2014
Importance of Bench- and Pilot-Scale Testing

Bench-Scale Testing

- Quick and inexpensive, great screening and preliminary design tool
- Snapshot-in-time, but useful if water sample is representative of design conditions
- UV Collimated Beam testing
- Ozone demand-decay testing
- Dose-response curves
- AOP testing
- Jar testing

Pilot-Scale Testing

- Optimize process under a range of real-life conditions
- Optimize equipment sizing variables
- Scale-up tool for full-scale design and performance guarantee
WEDECO MiPRO UV, Ozone, and AOP Pilot System
What Xylem brings to the table:

- A **partner** from treatability testing to installation and aftermarket.

- Deep **application expertise** and installed database.

- Simplifying the solution by providing **single source support**.

- Providing **Performance Guarantees** and **TotalCare** Aftermarket Service Support.

*Xylem Offers Sustainable Reuse Solutions, Products, and Services to Help You Meet Your Goals*
The End of Our Presentation

Thank You!

Questions?

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