Modular ABMet* Introduction
Why is selenium a concern?

Increasingly stringent NPDES limits with new EPA fish-tissue guidelines expected in early 2011 and EPA technology-based Steam-Electric Effluent Limitation Guideline expected in next 2-3 years
Why ABMet biological treatment for Se?

• Simple and efficient
• Removes both selenate and selenite
• Produces minimal sludge
• Low operating and maintenance costs
• Proven at scale
• Guaranteed performance
ABMet modular approach
Why Modular?

• Reduce project execution cycle time by 50%+
  • Reduce up-front engineering time
  • Reduce BOP engineering time and scope
  • Reduce construction and installation time

• Reduce total project cost by 10-20%
  • Reduce project costs
  • Provide a rapid execution offering for clients based on GE standards
  • Provide optimized starting point for projects with customization
### Design parameters (Modular)

<table>
<thead>
<tr>
<th>Constituent</th>
<th>Influent value</th>
<th>Effluent value</th>
</tr>
</thead>
<tbody>
<tr>
<td>TDS</td>
<td>&lt; 8,000 ppm</td>
<td>&lt; 8,000 ppm</td>
</tr>
<tr>
<td>TSS</td>
<td>&lt; 200 ppm</td>
<td>&lt; 20 ppm</td>
</tr>
<tr>
<td>pH</td>
<td>6-9</td>
<td>6-9</td>
</tr>
<tr>
<td>Temperature</td>
<td>40-105 °F</td>
<td></td>
</tr>
<tr>
<td>Nitrate</td>
<td>&lt; 250 ppm</td>
<td>ND &lt; 1 ppm</td>
</tr>
<tr>
<td>Mercury</td>
<td>&lt; 5 ppb</td>
<td>&lt; 0.012*</td>
</tr>
<tr>
<td>Other metals</td>
<td>&lt; 10 ppm</td>
<td>&lt; 0.01 ppm</td>
</tr>
<tr>
<td>Selenium</td>
<td>&lt; 10 ppm</td>
<td>&lt; 0.005 ppm</td>
</tr>
</tbody>
</table>

*With additional treatment process, depending on specific water chemistry

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**Total denitrification**

**Ultra-low selenium effluent concentration**
The modular approach

- 8 Feed Pump Skids
- 3 Bioreactors
- 8 Second-Stage Pump Skids
- 2 Backwash Pump Skids
- 2 Effluent Tanks
- 2 Backwash Waste Tanks
- 5 Nutrient Skids
- PLC Panel with Field I/O

Plus integration, pre/post-treatment, specification modifications
400 GPM, 1-stage, 4-train, 4 hour

45’ x 86’ x 40’ high
Thank You!

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http://www.gewater.com/ABMeted.jsp