Lafayette College  
Department of Civil and Environmental Engineering  

CE 321: Environmental Engineering and Science  
Fall  

**Key Differences Between WTP and WWTP**

<table>
<thead>
<tr>
<th></th>
<th>Water Treatment (WTP)</th>
<th>vs. Wastewater Treatment (WWTP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treat</td>
<td>Inorganic</td>
<td>Organic</td>
</tr>
<tr>
<td>Process</td>
<td>Chemical</td>
<td>Biological</td>
</tr>
<tr>
<td>Source</td>
<td>River/Ground Water</td>
<td>Residential and Industry</td>
</tr>
<tr>
<td>Gas</td>
<td>None Produced</td>
<td>CO₂ and Methane (CH₄)</td>
</tr>
<tr>
<td>Drink</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>Solids</td>
<td>No nutrient value</td>
<td>Nitrate, phosphate and more</td>
</tr>
<tr>
<td>Disinfection (Cl₂)</td>
<td>YES</td>
<td>YES</td>
</tr>
</tbody>
</table>

### Water Treatment Plant

1. **Reservoir**
2. **Coagulant Added**
3. **Floculation Tank**
4. **Sludge Collector**
5. **Filtration**
6. **Sedimentation Basin**
7. **Sludge Thickener**
8. **Disinfection**
9. **Distribution**
10. **Wastewater Treatment Plant**

### Wastewater Treatment Plant

1. **Primary Treatment**
2. **Secondary Treatment**
3. **Biological Nitrogen Removal (BNR)**
4. **Composting**
5. **Activated Sludge System**
6. **Activated Sludge Return**