The Clean Water Community Perspective

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What is the Clean Water Community?

- Over 16,000 WWTPs (aka POTWs, clean water utilities)
- NACWA’s Membership
- Large range in sizes – Chicago (5 million+) to Lockport, IL (24,000)
- Comprised of municipal (city and county) departments and special districts, often chartered by the state
- Vast majority are publicly owned, some privately operated under contract
The Clean Water Act Success Story
National Pretreatment Program

- Clean Water Act success due in large part to industrial pretreatment programs
- Provides the Clean Water Community with the authority to regulate industrial and commercial discharges to address pollutants that:
  - May pass through the treatment plant or
  - Interfere with the treatment process
- No authority to regulate residential discharges
Trace Organics

• Mid 1990s...
  – Conventional and toxic pollutants largely addressed or on the decline
  – Improving analytical capabilities...allowing us to detect the trace organics and pharmaceuticals that have been there for decades
  – “Our Stolen Future” Theo Colbourn - 1996
  – First report of synthetic estrogen in U.S. surface waters - 1999
Trace Organics - Pharmaceuticals

- Principal contributors of pharmaceuticals to wastewater – hospitals, extended-care facilities, and private households – via excretion or disposal
  - Relative contributions (excretion v. disposal) are debated

- Even if pharmaceutical waste is sent to landfill...leachate from landfill is often sent to the wastewater utility for treatment

- Clean water community perspective on human health and ecological impacts
So What Do We Do?

- Treatment?
- More Research?
- Source Control?
- Drug Use/Toxics Policy Reform?
- All of the Above
Table B-5. Summary of Removal Efficiencies in Wastewater Treatment Plant Operations

<table>
<thead>
<tr>
<th>TOC Category</th>
<th>Occurrence</th>
<th>Feed in Municipal Wastewater Treatment Processes</th>
<th>Chemical Oxidation</th>
<th>Removal in WWTP (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharmaceuticals</td>
<td>155</td>
<td>30.5</td>
<td>15</td>
<td>0</td>
</tr>
<tr>
<td>Personal Care Products</td>
<td>6</td>
<td>0.5</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Polymers</td>
<td>183</td>
<td>20.5</td>
<td>34</td>
<td>0</td>
</tr>
<tr>
<td>Plastics (polyurethane, polyethylene, polystyrene, polycarbonate, polypropylene, polystyrene, polystyrene, polystyrene, polystyrene)</td>
<td>200</td>
<td>13.4</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>Indole alkaloids (polo)</td>
<td>48</td>
<td>6.1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Aromatics, alcohols, ketones, and acids</td>
<td>25</td>
<td>0.5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Sulfur compounds</td>
<td>45</td>
<td>6.0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

*Note: TOC = total organic carbon; MN = molecular number; WWTP = wastewater treatment plant.*
Treatment Considerations

• Wastewater vs. Drinking Water
• DW treatment presents some of the same challenges
  – Conventional treatment is ineffective
  – Depends on form of pharmaceutical
  – Some produce byproducts/residuals that still must be managed/treated
• Nutrient removal (from WWTPs) may mean increased trace organic removal
Implications for the Water Sector

- CCL 3 and contaminant monitoring lists
- Water quality criteria, permit limits
- Other challenges...nutrients, aging infrastructure, overflows
Conclusion

• Success of take back/collection programs is critical
• Any solution must be holistic and include a rigorous source control component – treatment is not the silver bullet
• Regulatory action not warranted at this time