NOT YOUR TYPICAL DISCHARGER: 
CASE STUDIES FOR LOCAL LIMITS

Carolyn Fiore
Director, Toxic Reduction and Control
May 16, 2013
Massachusetts Water Resources Authority

Deer Island Treatment Plant
ODOR AND CORROSION CONTROL PROJECT
FRAMINGHAM EXTENSION SEWER
• MWRA study included:
  – Sampling of all industries discharging to FES
  – Study of shutdown period at Sulfate Discharger (July 2000)
  – Sampling in similarly-configured sewers (North Metropolitan and Randolph Trunk Sewers)
• MWRA consultant’s report submitted in January 2001
## Limits for BOD, Sulfate and Sulfide

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Limit (mg/l)</th>
<th>Estimated reduction in the FES (lbs/day)</th>
<th>Resultant concentration in the FES (mg/l)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOD</td>
<td>2000</td>
<td>5,876</td>
<td>219-247</td>
</tr>
<tr>
<td>Sulfate</td>
<td>500</td>
<td>6,308</td>
<td>28-41</td>
</tr>
<tr>
<td>Sulfide</td>
<td>0.3 (Permit Specific)</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>
Fire Preventative Materials Co.

- Avg. Flow: 40,000 gpd
- Treatment: pH adjustment with acid/caustic addition
- Designated High Strength User
- BOD and/or TSS > 400 mg/L
- Flow > 25,000 gpd
- Permitted SIU with a Sulfate limit of 500 mg/l
“Filamentous Bulking” of Activated Sludge
(Secondary sludge under microscope)
FIGURE 3
Average BOD Concentration by Year for each Sample Location
2000 through 2012

[Bar chart showing the average BOD concentration by year for each sample location from 2000 to 2012. The chart includes a desired range for BOD concentration.]
FIGURE 2
Average Sulfate Concentration by Year for each Sample Location
2000 through 2012

This # is actually 810

Desired Range
FIGURE 4
Average Sulfide Concentration by Year for each Sample Location
2000 through 2012

Desired Range


Concentration (mg/L)
Massachusetts Water Resources Authority