Industrial Pretreatment Incentive Program

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Metropolitan Council Environmental Services
Industrial Waste & Pollution Prevention Manager

November 4, 2015

Industrial Waste Section Purpose

• Administer EPA Approved Pretreatment Program
• Protect 8 Wastewater Treatment Plants & Interceptor System
• Protect 3 Major Rivers
• Protect the Health and Safety of:
  – General Public
  – MCES Plant Operators and Interceptor Workers
  – City Collection System Workers
• Support the MCES Mission, Vision and Values

November 4, 2015
Metropolitan Council Environmental Services  
Strategic Visioning 2013 – 2015

Mission: Provide wastewater services and integrated planning to ensure sustainable water quality and water supply for the region.

Vision: Be a valued leader and partner in water sustainability.

IWPP Customers

• Twin Cities Region of 2.6 Million People

• 848 Total Active Permits
  – 178,964 Employees at Permitted Companies
  – 226 Significant Industrial Users
  – 102 General Industrial Permits
  – 84 Liquid Waste Haulers
  – 104 Groundwater and Leachate Discharge Permits

• 108 Communities
Industrial Rates

<table>
<thead>
<tr>
<th>Rate Type</th>
<th>Prelim. 2016</th>
<th>% Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strength Charge (excess lb TSS)</td>
<td>$0.204</td>
<td>7.4</td>
</tr>
<tr>
<td>Strength Charge (excess lb COD)</td>
<td>$0.102</td>
<td>7.4</td>
</tr>
<tr>
<td>Standard Load Charge (per 1000 gal.)</td>
<td>$58.80</td>
<td>4.4</td>
</tr>
<tr>
<td>Industrial Load Charge (excess lb TSS)</td>
<td>$0.409</td>
<td>5.4</td>
</tr>
<tr>
<td>Industrial Load Charge (excess lb COD)</td>
<td>$0.2045</td>
<td>5.4</td>
</tr>
<tr>
<td>Collar County Load Charge (per 1000 gal.)</td>
<td>$73.80</td>
<td>3.5</td>
</tr>
<tr>
<td>Portable Toilet Load Charge (per 1000 gal.)</td>
<td>$75.86</td>
<td>4.6</td>
</tr>
<tr>
<td>Annual Permit Fee</td>
<td>$925-$8,850</td>
<td>10.4</td>
</tr>
<tr>
<td></td>
<td>8.9-11.1</td>
<td></td>
</tr>
</tbody>
</table>

Debt Service Phase in now Included in Strength Charge Formula

- Formula had not included any debt service or PAYGO

- A 5-year phase in results in 3.5% annual increases in the Strength Charge in addition to any increases due to inflation or changing priorities.
National Rate Comparison

TSS rates ($ per excess pound)*

<table>
<thead>
<tr>
<th>City, State</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cleveland, OH</td>
<td>.081</td>
</tr>
<tr>
<td>Austin, TX</td>
<td>.109</td>
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<tr>
<td>St. Louis, MO</td>
<td>.116</td>
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<tr>
<td>Miami, FL</td>
<td>.140</td>
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<tr>
<td>Louisville, KY</td>
<td>.149</td>
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<tr>
<td>Milwaukee, WI</td>
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<tr>
<td>Chicago, IL</td>
<td>.165</td>
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<tr>
<td>Denver, CO</td>
<td>.169</td>
</tr>
<tr>
<td>Boston, MA</td>
<td>.170</td>
</tr>
<tr>
<td>MCES</td>
<td>.172</td>
</tr>
<tr>
<td>Kansas City, MO</td>
<td>.181</td>
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<tr>
<td>Virginia Beach, VA</td>
<td>.200</td>
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<tr>
<td>Duluth, MN</td>
<td>.268</td>
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<tr>
<td>Rochester, MN</td>
<td>.304</td>
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<tr>
<td>Columbus, OH</td>
<td>.310</td>
</tr>
<tr>
<td>Philadelphia, PA</td>
<td>.310</td>
</tr>
<tr>
<td>LA County, CA</td>
<td>.387</td>
</tr>
<tr>
<td>Phoenix, AZ</td>
<td>.388</td>
</tr>
<tr>
<td>Cincinnati, OH</td>
<td>.441</td>
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<tr>
<td>Rochester, NY</td>
<td>.505</td>
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<tr>
<td>Ames, IA</td>
<td>.560</td>
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<tr>
<td>Orange Co., CA</td>
<td>.650</td>
</tr>
<tr>
<td>San Antonio, TX</td>
<td>1.500</td>
</tr>
</tbody>
</table>

* 2013 rates from 2014 NACWA survey

Industrial Pretreatment Incentive Program - IPIP

- A public/private partnership that could be a win-win-win for Council ($), Industry ($) and the environment:
  - Council:
    - Delays need for wastewater facility expansion
    - Avoids some operating costs
  - Industry:
    - Reduces or eliminates strength charges paid to Council
    - Return on investment
  - Environment:
    - Reduces energy at wastewater plants
    - Possibly increases energy recovery at industries
Pretreatment Incentives

- Existing incentive for pre-treatment
  1) Avoids rising MCES strength charges (for strength > domestic wastewater)
- IPIP incentives for pre-treatment
  2) Low cost public financing (General Obligation & AAA credit)
  3) Annual discount (up to 30% of annual lease payments depending on strength concentration reductions)

Process Highlights

- MCES reviews and ranks applications
- Staff to determine incentives
  - Council tax-supported financing (up to $20M)
  - Discount reduction (if private $ benefits exceed public)
  - Rankings if needed to fit within $50M budget
  - Design commitment
- Issuance of taxable bonds or use of reserves
- Applicant designs facility, but design cost guarantee provided
- Standard contract signed
- Funds dispersed by third party after due diligence
- Measurements to determine Annual Discount
- Applicant takes ownership after 10 years
Process Timeline

- Council Approval of Program – January 14, 2015
- Applications solicited from industries – March 12, 2015
- Commitment Offer Letter Sent – November 30, 2015
- Design(s) submitted, reviewed and contracts executed - 2016

Application Information

  - Proposed technology cost and results
  - Information on energy recovery or conservation component
  - Letter of support from host community
  - List of contract deviations requested
  - Identify portion of waste not normally sent to metro system
  - Financial assurance (e.g. a parent company guarantee)
Costs and Benefits to Council

Costs:
- Eliminates strength charge revenue
- Payment of up to 30% of debt service

Benefits:
- Avoidance or delay of capital costs to expand plant(s)
- Operating cost savings (mostly energy savings)
- Possible energy rebates from electric utility
- Advancement of Thrive MSP outcomes

Costs and Benefits to Industry

Costs:
- Payment of 70-100% of debt service via capital lease payments
- Operating and maintenance costs

Benefits:
- Financial net benefit (ROI)
- Possible energy generation
- Enhanced sustainable image
Societal Benefits

- Stronger industries
- Enhanced jobs and tax base
- Environmental Benefits (energy, water reuse and emissions)

Possible IPIP Participants

- Food Producers
  - Potato
  - Cheese
  - Meat
- Paper Products
- Industrial Laundry
Actual IPIP Applicants

• Food Producers
  • Potato Products @ Blue Lake
  • Potato Products @ Metro
  • Cheese Products @ Empire

Possible IPIP Treatment Technologies

- Filtration
- Dissolved Air Floatation - DAF
- Anaerobic Digestion
- Reverse Osmosis
Actual IPIP Treatment Technologies

Ultra Filtration / Membrane Filtration

Dissolved Air Floatation - DAF

Anaerobic Digestion

Reverse Osmosis

Applicant #1

- Potato Products @ Blue Lake
  - Membrane Filtration
  - TSS reduction
    - 7,500 – 10,000 lbs / day to <1,000 lbs / day
  - COD reduction
    - 35,000 – 50,000 lbs / day to <10,000 lbs / day
  - Phosphorus reduction
    - 400 – 600 lbs / day to <175 lbs / day
  - Added Benefit
    - Allows for reuse of water
Blue Lake Benefits

- Loading Reducations from Design
  - TSS – 7%
  - COD – 20%
  - Phosphorus – 12%
- Better Control of pH and large solids on bar screens

Applicant #2

- Cheese Products @ Empire
  - Reverse Osmosis
    - Following Existing Ultra Filtration
    - Concentrate now discharged to Empire WWTP
      - 149,000 gallons/week
      - COD of 53,600 mg/L = 6,644 lbs / week
      - Or 950 lbs / day
    - Install R/O to treat concentrate
    - Filtrate to Empire WWTP
    - R/O Reject hauled off site
Empire Benefits

• Loading Reductions from Actual (Sept. 2015)
  • COD – 2.3%
• Better Control of pH and COD spikes.

Applicant #3

• Potato Products @ Metro
  • Centrifuge or DAF
  • TSS reduction (to below strength charge)
    • 1,529 lbs / day to 548 lbs / day
  • COD reduction (incidental of about 1,000 mg/L)
    • 9,522 lbs / day to 7,328 lbs / day
Metro Benefits

- Loading Reductions
  - TSS and COD – slight
- Better control of solids in the collection system.

IPIP Risks

- System Downtime
- Expansions
- Concentration of Nutrients & Metals
- Spills and Slug Discharges
IPIP Future

- Second Round?
- Small Scale Projects?
- Nutrient Reduction?
  - Phosphorus?
  - Nitrogen?
- Water Conservation or Reuse?
- Compliance Issues?

Thank You

Metropolitan Council
Environmental Services

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