FEDERAL CATEGORICAL PRETREATMENT STANDARDS

Categorical Standards 101
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Grace L. Scott
Pretreatment Coordinator
scottg@michigan.gov
Categorical Pretreatment Standards

- Technology-based
- CWA '307(b) and (c)
- CWA '304(m) “Plan”
Industry (IU) Categories Targeted

- 1976 EPA/NRDC agreement
- 56 categories to date
- 30 have Pretreatment Standards
- 40 CFR Parts 405-471
- Effluent Guidelines Plan (every 2 years)
From Proposal to Codification

Proposed Regulations

Proposed Development Document

Public Comment

Revisions

Promulgation of Final Regulations

Final Development Document

Code of Federal Regulations
Categorical Standards:

Subparts

• Manufacturing processes employed
• Raw materials used
• Types of items produced
• Characteristics of typical wastes generated
Categorical Standards: Existing vs. New Source

- New source, 40 CFR 403.3(m)
  - Construction
  - Total replacement
  - Substantially independent

- Compliance dates

- Many gray areas, esp. if replacement was gradual”
Categorical Standards:

General Provisions

- Applicability
- Definitions
- Monitoring and reporting requirements
- Compliance dates for PSES
- Other
Categorical Standards: 

*Elements of a Subpart*

- Applicability
- Specialized definitions
- Effluent limitations and standards, i.e.,
  - BPT, BAT, BCT, PSES, NSPS, and PSNS

YOU only have to be concerned with PSES & PSNS
Pretreatment Standards for Existing Sources and New Sources: (PSES and PSNS)

• Requires EPA to determine
  – Pass through
  – Pollutant by pollutant

• For removal of toxic pollutants
  – PSES are analogous to BAT
  – PSNS are analogous to NSPS
Industrial Categories Without PSES or PSNS (regs are “silent”…) (11 of ‘em)

- CFR 422 Phosphate Mfg
- CFR 432 Meat & Poultry Products
- CFR 434 Coal Mining
- CFR 436 Mineral Mining & Processing
- CFR 438 Metal Products & Machinery
- CFR 440 Ore Mining and Dressing
Industrial Categories Without PSES or PSNS (regs are "silent"...)

- CFR 445 Landfills
- CFR 454 Gum & Wood Chemical Mfg
- CFR 457 Explosives Mfg
- CFR 459 Photographic Processing
- CFR 460 Hospitals
Industrial Categories Without Specific PSES and/or PSNS

• 11 categories too

• For example:
  – "Any existing source subject to this subpart that introduces process wastewater pollutants in a POTW must comply with 40 CFR Part 403."
CATEGORIES THAT "MUST COMPLY WITH 40 CFR 403"

- CFR 405 Dairy Products
- CFR 406 Grain Mills (but, has a BOD$_5$ / TSS formula)
- CFR 407 Canned & Preserved Fruits
- CFR 408 Canned & Preserved Seafood
- CFR 409 Sugar Processing
CATEGORIES THAT SIMPLY “MUST COMPLY WITH 40 CFR 403”

- CFR 410 Textile Mills
- CFR 411 Cement Mfg
- CFR 424 Ferroalloy Mfg
- CFR 426 Glass Mfg
- CFR 427 Asbestos Mfg
- CFR 463 Plastics Molding & Forming
CATEGORIES WITH “NO DISCHARGE OF PROCESS WASTEWATER”
(just 4 of ‘em)

• CFR 435 Oil & Gas Extraction
• CFR 446 Paint Formulating
• CFR 447 Ink Formulating
• CFR 451 Concentrated Aquatic Animal Production
CATEGORIES WITH SOME SORT OF PRETREATMENT STANDARD

• “Standards” could be:
  – Concentration based (“easy” to apply)
  – Mass based (a little more difficult to apply but, not rocket science)
  – Production based (the most difficult to apply). YOU have to know A LOT MORE about this type IU’s processes including flows and production)
CATEGORIES WITH PSES and/or PSNS

- CFR 412 Confined Animal Feeding
- CFR 413 Electroplating
- CFR 414 Organic Chemicals, Plastics & Synthetic Fibers
- CFR 415 Inorganic Chems Mfg (weird....)
- CFR 417 Soap & Detergent Mfg (weird...)
- CFR 418 Fertilizer Mfg (weird...)
- CFR 419 Petroleum Refining
CATEGORIES WITH PSES and/or PSNS

• CFR 420 Iron & Steel Mfg
• CFR 421 Non-Ferrous Metals Mfg
• CFR 423 Steam Elect. Power Generating
• CFR 425 Leather Tanning
• CFR 426 Rubber Mfg
• CFR 429 Timber Products Processing
• CFR 430 Pulp, Paper & Paperboard
• CFR 433 Metal Finishing
• CFR 437 Centralized Waste Treatment
CATEGORIES WITH PSES and/or PSNS

- CFR 439 Pharmaceutical Mfg
- CFR 442 Transportation Equipment Cleaning
- CFR 443 Paving & Roofing Mtrls (Tars & Asphalt) (100 mg/l O&G)
- CFR 444 Waste Combustors
- CFR 455 Pesticide Chems
- CFR 458 Carbon Black Mfg (100 mg/l O&G)
- CFR 461 Battery Mfg
• CFR 464 Metal Molding & Casting
• CFR 465 Coil Coating
• CFR 466 Porcelain Enameling
• CFR 467 Aluminum Forming
• CFR 468 Copper Forming
• CFR 469 Electrical & Electronic Components
• CFR 471 Non-Ferrous Metals Forming & Metal Powders
Pretreatment Standards

• Concentration-based
  – *Direct approach*
  – *Mass based approach*

• Production-based
  – *Direct approach*
  – *Imposition of equivalent limits*
## CFR 433 Metal Finish Standards - PSES ("easy to apply")

<table>
<thead>
<tr>
<th>Substance</th>
<th>Daily Max</th>
<th>Monthly Avg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cadmium (T)</td>
<td>0.69</td>
<td>0.26</td>
</tr>
<tr>
<td>Chromium (T)</td>
<td>2.77</td>
<td>1.71</td>
</tr>
<tr>
<td>Copper (T)</td>
<td>3.38</td>
<td>2.07</td>
</tr>
<tr>
<td>Lead (T)</td>
<td>0.69</td>
<td>0.43</td>
</tr>
<tr>
<td>Nickel (T)</td>
<td>3.98</td>
<td>2.38</td>
</tr>
<tr>
<td>Silver (T)</td>
<td>0.43</td>
<td>0.24</td>
</tr>
<tr>
<td>Zinc (T)</td>
<td>2.61</td>
<td>1.48</td>
</tr>
<tr>
<td>Cyanide (T)</td>
<td>1.20</td>
<td>0.65</td>
</tr>
<tr>
<td>TTO</td>
<td>2.13</td>
<td></td>
</tr>
</tbody>
</table>
**CFR 414 Organic Chemicals, Plastics & Synthetic Fibers – PSES**

(a little harder to apply)

Must achieve discharges not exceeding the quantity (mass) determined by multiplying the process wastewater flow subject to this subpart times the concentration listed in the following table.

<table>
<thead>
<tr>
<th>Substance</th>
<th>Daily Max</th>
<th>Monthly Avg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acenaphthene</td>
<td>47</td>
<td>19</td>
</tr>
<tr>
<td>Anthracene</td>
<td>47</td>
<td>19</td>
</tr>
<tr>
<td>Benzene</td>
<td>134</td>
<td>57</td>
</tr>
<tr>
<td>Bis(2-ethylhexyl) phthalate</td>
<td>258</td>
<td>95</td>
</tr>
<tr>
<td>Carbon Tetrachloride</td>
<td>380</td>
<td>142</td>
</tr>
<tr>
<td>Chlorobenzene</td>
<td>380</td>
<td>142</td>
</tr>
</tbody>
</table>
PRODUCTION BASED INDUSTRY

Aluminum Forming PSNS
Subpart A, Casting Cleaning Subcategory

mg/off-kg (pounds/per million off pounds) of aluminum cleaned or etched
THE DREADED COMBINED WASTESTREAM FORMULA (CWF)

\[ C_T = \text{alt. conc. limit} \]

\[ C_i = \text{conc. limit for reg’ld stream} \]

\[ F_i = \text{avg flow for reg’ld stream} \]

\[ F_D = \text{avg flow for dilution streams} \]

\[ C_T = \left( \frac{\sum_{i=1}^{N} C_i F_i}{\sum_{i=1}^{N} F_i} \right) \left( \frac{F_T - F_D}{F_T} \right) \]
Similar CWF for Mass based alternative

\[
M_T = \left( \sum_{i=1}^{N} M_i \right) \left( \frac{F_T - F_D}{\sum_{i=1}^{N} F_i} \right)
\]
Types of Standards

- Daily maximum
- Long term averages
  - 4-day
  - 30-day
  - Monthly
- Values with no duration
Certifications, Alternative Monitoring, and Estimates

• Certifications
  – Compounds not used/generated
  – Pollutants managed in accordance w/plan

• Alternative monitoring

• Calculated estimates
Other Considerations...

- **Removal credits** - *credit for POTW’s ability to remove pollutant.*
  
  - [40 CFR 403.7]

- **Fundamentally different factors** - *adjust for unique industry.*
  
  - [40 CFR 403.13]

- **Net/Gross calculation** - *adjust for pollutants in intake source.*
  
  - [40 CFR 403.15]
Questions??