MACT Enforcement Case Study in Maryland

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MACT Sources in Maryland

• About 650 MACT Sources in Maryland
• About 600 drycleaners
• 50 Other MACT sources including:
  – 10 Chrome Platers
  – 8 Degreasers
  – 5 Commercial Sterilizers (Ethylene Oxide)
  – Some sources subject to more than one MACT
MACT Enforcement Case - Facility Description

• Large Primary and Secondary Aluminum Production facility located in Maryland

• Started operation in 1970 in the middle of dairy country

• Yearly capacity is 210,000 tons of pure aluminum
Primary Aluminum Process

• Receive raw alumina powder by ship in Baltimore
  – moved 50 miles by rail to plant

• Alumina fed into Potlines
  – 2 Potlines with 240 pots apiece
  – Cryolite bath (source of Fluoride)
  – Electricity applied
  – Anodes made from Pitch/Coke (made in anode bake oven)

• Liquid aluminum is tapped and cast
Air Pollution Controls

• Dry Scrubber – Baghouses (4) on the Potline Hoods (alumina and fluoride recycled back to Potlines)

• Wet scrubbers control excess fugitive Potline emissions at the roof monitors

• Pitch Fume Scrubber on coke/pitch mixer for Anode production process
## Annual Emissions (tons/yr)

<table>
<thead>
<tr>
<th>Compound</th>
<th>Emission</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluoride</td>
<td>105</td>
</tr>
<tr>
<td>Particulate</td>
<td>444</td>
</tr>
<tr>
<td>VOC</td>
<td>76</td>
</tr>
<tr>
<td>NOx</td>
<td>90</td>
</tr>
<tr>
<td>SOx</td>
<td>3238</td>
</tr>
<tr>
<td>CO</td>
<td>21,914</td>
</tr>
<tr>
<td>Lead</td>
<td>1.0</td>
</tr>
<tr>
<td>Sulfuric Acid</td>
<td>7.0</td>
</tr>
</tbody>
</table>
Relevant Air Pollution Requirements

- **MACT:** Subpart LL for Primary Aluminum Reduction Operations

- **STATE:** Control of Sources of Fluoride Emissions
State Fluoride Regulation

• Regulation developed by state air agency in 1970 when plant was built

• Plant located in dairy country, concern over fluoride impact on cattle (teeth and bones)

• Establishes ambient air quality standard for F, as well as specific vegetative content limitations

• Also establishes testing and monitoring requirements
Violations

1. MACT – Failed to comply with Start-up, Shutdown, Malfunction Plan (the Plan) for pitch fume scrubber (Polycyclic Organic Matter)

2. MACT – Exceeded Total Fluoride emission limitation (monthly average)

3. State – Exceeded vegetative Fluoride standard
Violation 1

- MACT: Pitch Fume Scrubber Plan

- Violation determined by semi-annual Excess Emission Report

- The Plan established 90 amps as lower operational limit for pitch fume scrubber fan
Violation 1 (cont)

• On 6 separate days the Plan was violated by:
  – Failing to comply with 90 amp parametric limit contained in the Plan
  – Failing to initiate corrective action within one hour to remedy each violation of the 90 amp limit
  – Did not report the violation within the required 2 day period; did not submit letter within 7 days
Violation 2

• MACT: violation of Total Fluoride emission standard (monthly average)

• Monthly average based on testing of “B” Potline was 2.1 pounds of TF per ton of aluminum produced, which exceeded the MACT standard of 1.9
Violation 3

• State rule requires compliance with State Ambient Air Quality Standard (AAQS) for fluoride

• Compliance with AAQS is determined by vegetative sampling or direct air sampling. Standards established for field crops, forage, fruit trees, deciduous trees/shrubs, evergreens, grasses, ornamentals

• Compliance generally determined by vegetative sampling plan
Violation 3 (cont)

• Violation determined by field crop sample taken from a nearby farm (corn)

• Sample showed F level of 39 micrograms F per gram dry tissue, exceeding the allowable standard of 35
Case - Process

- State determines to proceed with Civil Case, issues “Opportunity to Settle Air Pollution Case” letter

- Civil Penalty Authority in Maryland = $25,000/day/violation

- State lists Company with EPA as High Priority Violator
  - Major for Fluoride
  - Monitoring, Reporting, Emissions violations
  - Use of EPA’s Clean Air Penalty Policy as guidance
Settlement

• Settlement discussions proceed

• Parties reach consensus on settlement agreement

• Case Settled by Consent Order
  – Injunctive Relief
  – $125,000 Penalty
Injunctive Relief Required by Consent Order

• Required for the pitch fume scrubber:
  – Changed control program for scrubber fan amps
  – Training provided for scrubber personnel
  – Maintain training records
Consent Order (cont)

• Required updated job descriptions and operator training program on the Potlines:
  – Proper Potline operation to reduce F emissions
  – Procedures to identify and prevent excess fugitive emissions from leaking pots
  – Proper dry scrubber-baghouse operation
Consent Order (cont)

• Required improvement to vegetative sampling program
  – Quicker sample turnaround
  – Repeat sampling for problem areas
  – Quarterly report must be submitted in a more timely fashion (45 days)
Summary

• Very large visible source – sensitive location

• “Major” Source under CAA definition

• Multiple toxics violations (MACT and State)
Summary (cont)

• High Priority Violator

• Case resulted in reduced emissions through training and improved operating practices

• No violations in 2 years since settlement