Air Quality Regulations: The Year in Review

MPCA Update
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Melissa Kuskie
A&WMA Conference on the Environment
November 19, 2014
Overview

• Federal Programs
  • NAAQS and SIPs
• Current State Initiatives
  • State Rulemakings
• Federal Rules
  • NSPS and NESHAPS
  • 111(d)
  • CSAPR
• Transformation Project: TEMPO
• Closing
NAAQS & SIPs

FEDERAL PROGRAMS
## Anticipated NAAQS Implementation Milestones (updated September 2014)

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Final NAAQS Date</th>
<th>Infrastructure SIP Due</th>
<th>Designations Effective</th>
<th>Attainment Plans Due</th>
<th>Attainment Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO$_{2}$ (2010) (primary)</td>
<td>Jan 2010</td>
<td>Jan 2013</td>
<td>Feb 2012</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>
Sulfur Dioxide ($SO_2$)

- EPA actions
  - Final designations technical assistance documents: December, 2013
    - Monitoring and modeling
  - Proposed $SO_2$ Data Requirements Rule: April 17, 2014
    - Final expected mid-2015
- MPCA continues to monitor/revise $SO_2$ SIP
  - Existing $SO_2$ maintenance areas
    - Current projects re-model using same protocols
Proposed SO$_2$ Data Requirements
Rule - Details

• Remaining designations based on *either* modeling or monitoring data

• January 15, 2016, States will be required to:
  • Identify list of “applicable sources” and method of analysis
    • Monitored sources:
      • Monitoring network plan due July 1, 2016; monitors running January 1, 2017
      • Designation recommendations due by May 1, 2020
    • Modeled sources:
      • State agency’s modeling protocol due January 15, 2016
      • Modeling/designation recommendations due January 13, 2017
Proposed Data Requirements Rule – “Applicable Sources”

- EPA’s Proposal:
  - Based on annual emissions
  - Population-based aspect to source-threshold concept
  - Presents 3 options:

<table>
<thead>
<tr>
<th>Option</th>
<th>Emissions threshold for sources inside CBSAs greater than 1M</th>
<th>Emissions threshold for sources outside CBSAs greater than 1M</th>
</tr>
</thead>
<tbody>
<tr>
<td>1*</td>
<td>1,000 TPY</td>
<td>2,000 TPY</td>
</tr>
<tr>
<td>2</td>
<td>2,000 TPY</td>
<td>5,000 TPY</td>
</tr>
<tr>
<td>3</td>
<td>3,000 TPY</td>
<td>10,000 TPY</td>
</tr>
</tbody>
</table>

* EPA’s preferred option
Proposed Data Requirements

Rule Designations Modeling

- EPA proposes modeling analyses be based on either:
  - Actual 1-hour SO\(_2\) emissions from the most recent 3 years, or
  - Federally enforceable allowable emissions
- Continued verification of attainment
  - For areas designated attainment based on monitoring data or modeling of allowable emissions, no new requirements
  - For areas designated attainment based on modeling of actual emissions
    - Annual emissions of modeled sources
    - Updated modeling every 3 years
Fine Particulate Matter (PM$_{2.5}$)

- January 15, 2013: EPA published final rule - PM$_{2.5}$ NAAQS
  - Annual standard: 12.0 micrograms per cubic meter
  - Retained 24-hour standard and PM$_{10}$ standards
- December 6, 2013: MPCA submitted designation recommendation for revised annual standard - all counties attaining
- August 19, 2014: EPA notifies Minnesota that it intends to designate entire state attainment/unclassifiable
- December 2014: EPA expected to finalize designations for 2012 NAAQS
Annual PM$_{2.5}$ Design Values

Final 2011-2013 Design Values

Federal Standard (12 µg/m$^3$)
Daily PM$_{2.5}$ Design Values

Final 2011-2013 Design Values

Federal Standard
(35 µg/m$^3$)

<table>
<thead>
<tr>
<th>Location</th>
<th>2011-2013</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apple Valley (470)</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>Blaine (6010)</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>Duluth (7550)</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>Marshall (4210)</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Minneapolis (963)</td>
<td>23</td>
<td>23</td>
</tr>
<tr>
<td>Rochester (5008)</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>Shakopee (505)</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>St. Cloud (3052)</td>
<td>23</td>
<td>23</td>
</tr>
<tr>
<td>St. Louis Park (250)</td>
<td>24</td>
<td>24</td>
</tr>
<tr>
<td>St. Paul (868)</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>St. Paul (871)</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>Virginia (1300)</td>
<td>16</td>
<td>16</td>
</tr>
</tbody>
</table>

Fine Particle Concentration (micrograms per cubic meter)
Ozone

• 2008 Standard: 75 ppb (primary standard)
  • Designations finalized July 2012
  • Minnesota designated attainment

• 2015 Standard: promulgation deadlines set by Court
  • Proposal: December 1, 2014
  • Final: October 1, 2015
  • Revised primary standard: likely between 60-70 ppb
  • Don’t forget secondary standard: likely W126 between 7-17 ppm-hours
Ozone Concentrations

Preliminary Ozone Design Values: 2012-2014
3-year average of the annual 4th high daily maximum 8-hour ozone concentration

Federal Standard (75 ppb)

<table>
<thead>
<tr>
<th>Location</th>
<th>Ozone Concentration (ppb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cedar Creek</td>
<td>67</td>
</tr>
<tr>
<td>Blaine</td>
<td>67</td>
</tr>
<tr>
<td>Marshall</td>
<td>65</td>
</tr>
<tr>
<td>Rochester</td>
<td>65</td>
</tr>
<tr>
<td>Shakopee</td>
<td>65</td>
</tr>
<tr>
<td>Stanton</td>
<td>63</td>
</tr>
<tr>
<td>St. Michael</td>
<td>63</td>
</tr>
<tr>
<td>Detroit Lakes</td>
<td>62</td>
</tr>
<tr>
<td>St. Cloud</td>
<td>62</td>
</tr>
<tr>
<td>Marine on St. Crox</td>
<td>62</td>
</tr>
<tr>
<td>Mpls. Near-Road*</td>
<td>61</td>
</tr>
<tr>
<td>Brainerd</td>
<td>60</td>
</tr>
<tr>
<td>Mille Lacs</td>
<td>59</td>
</tr>
<tr>
<td>Ely</td>
<td>58</td>
</tr>
<tr>
<td>Fond du Lac</td>
<td>57</td>
</tr>
<tr>
<td>Duluth</td>
<td>53</td>
</tr>
</tbody>
</table>
Voluntary Efforts for Ozone and PM

• EPA’s Ozone Advance and PM Advance – Annual report June 2014
  • 55 Clean Diesel and 14 Project Green Fleet retrofits, saving a total of 1.8 tons of particulates and 15 tons of NOX
  • Legislative funding of grants to small & mid-size businesses for VOC reduction projects with $320,000 available
  • Installation of 92 new electric vehicle charging stations

• Clean Air Minnesota – High priority project areas selected January 2014 include:
  • Education & outreach to reduce VOC emissions from small to mid-sized businesses
  • Incentives for Diesel Engine Retrofit/Power/Rebuild/Replace
  • Wood stove/fireplace change-outs; wood smoke reduction education/outreach
Regional Haze SIP

Establishes goals and strategies to reduce visibility-impacting pollutants

- Addresses visibility impairment in mandatory Class I areas

- Requirements:
  - National visibility goal by 2064
  - Best Available Retrofit Technology (BART) determinations
  - Reasonable Progress Goals, Long Term Strategy

- Minnesota’s SIP approved 2012 – except taconite BART
  - Five-Year Progress Report due December 2014

- Revisions to Regional Haze SIPs: July 2018
  - EPA considering extension of deadline
Five-Year Review: Voyageurs Visibility Progress

Measured progress toward meeting the 2018 RPG at Voyageurs for the 20% worst visibility days

![Chart showing decibels over time](chart)
Measured progress toward meeting the 2018 RPG at Boundary Waters for the 20% worst visibility days
STATE INITIATIVES

Non-Point Sources
State Rulemakings
TEMPO
Mercury Reduction and Inventory Rule—effective September 22, 2014

• Mercury Emission Inventory
• Mercury reduction plans
• Incorporated federal NESHAPs
• Define “mercury emissions source = actual emission gt 3 lbs/yr
• Statewide target = 789 lb/yr by 2025
Emission Inventory and Testing

• Report 2015 mercury emissions to inventory CEDR in 2016
  • Annual reports for “mercury emission source”
  • Smaller sources on 3-year cycle

• Baseline and periodic testing if “mercury emission source”
  • If no other requirement for test or CEMs
# Mercury Rule: Mercury reduction plans

<table>
<thead>
<tr>
<th>Industrial Sector</th>
<th>Reduction Required</th>
<th>Plan Due</th>
<th>Reduction Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ferrous Mining</td>
<td>72%</td>
<td>December 2018</td>
<td>2025</td>
</tr>
<tr>
<td>Metal Melting</td>
<td>*</td>
<td>June 2015</td>
<td>2016</td>
</tr>
<tr>
<td>Industrial Boilers</td>
<td>70%</td>
<td>June 2015</td>
<td>2018</td>
</tr>
<tr>
<td>Other Sources</td>
<td>70%</td>
<td>June 2015</td>
<td>2025</td>
</tr>
</tbody>
</table>

* Rule proposed an emissions rate of 35mg/ton of metal melted; comparable to a reduction of about 50% from today's emissions rate.
Omnibus Rulemaking: Deep-Clean Housekeeping Underway

• Permitting Rule Changes:
  • related to EPA’s 2009 flexible permitting rule
  • to ensure consistency with Part 70 rules and other federal requirements
  • to clarify where there has been confusion
  • allows MPCA to meet new statutory requirements for completeness and issuance

• Ambient Air Standards incorporated

• Evaluating Standards of Performance
  • Incorporate ULSD where possible

• Modifications to Performance Testing Rules

TinyURL: www.pca.state.mn.us/enzq146d
Silica Sand Mining, Processing and Transportation in Minnesota

The 2013 Minnesota Legislature passed and Governor Mark Dayton signed new legislation to address silica sand mining, processing and transportation operations in Minnesota. The legislation directs state agencies to provide local units of government with technical assistance on regulation and permitting. In addition, the legislation sets new thresholds for environmental review of silica sand-related operations and requires development of a number of new regulations. Several state agencies will be involved in implementing this legislation. This website will highlight each agency’s progress; follow links below.

- Minnesota Environmental Quality Board
- Minnesota Pollution Control Agency
- Minnesota Department of Natural Resources
- Minnesota Department of Transportation
- Minnesota Department of Health
- Minnesota Department of Agriculture

The Rulemaking Process

The legislation directs the Department of Natural Resources, Pollution Control Agency, and Environmental Quality Board to develop new state rules on silica sand (often called “frac sand” or “frac sand”). Rulemaking in Minnesota follows procedures outlined in the Minnesota Administrative Procedures Act (Minn. Stat., Ch. 14).

Mechanisms for soliciting public input on new rules are outlined in the APA; sIgn participation in silica sand rulemaking will be noticed on this page. Interested pa individual agencies to be notified of significant developments. The agencies have rulemaking; for updates, check this page or visit the agency links above. A new rt and two years to develop.
NSPS & NESHAPS
111(d)

FEDERAL RULES
Cross-State Air Pollution Rule (CSAPR)

- It’s baaaaaaaaack
  - April 29, 2014: Upheld by U.S. Supreme Court and remanded to Circuit Court for remaining issues
  - October 23, 2014: Circuit Court lifted stay of the rule and set schedule to address outstanding issues
    - EPA sought 3 year extension of deadlines when it requested the stay be lifted
    - EPA intends to complete administrative action to finalize implementation of the rule (beginning 2015)
  - Regulates SO2, NOx from fossil fuel power plants to address PM2.5 and ozone
  - Minnesota is included due to contributions to PM2.5 problems in Milwaukee
Federal Rulemaking 2014

• NESHAPs—
  • Continues Residual Risk rulemaking
  • When conducting rulemaking, address startup, shutdown provisions.

• Clean Power Plan for existing electricity generating units (EGUs)—proposed June 2014
  • 30% national reduction in CO2 by 2030
  • States to submit a plan one or two years after final promulgation

• NSPS Proposed—
  • Revise Wood Heaters (Part 60 Subp AAA)
  • New Standard for Residential Hydronic Heaters and Furnaces (Part 60 Subp QQQQ)
  • New standard for Residential Masonry Heaters (Part 60 Subp RRRR)
MN Air Emissions Sources

- Permitted sources (point) 26%
- Non-permitted sources (residential and commercial) 26%
- Onroad vehicles 28%
- Off-road vehicles & equipment 20%

Point sources are becoming a smaller part of the air quality problems in Minnesota.

MN 2008 Emissions Inventory: \( NO_x, SO_x, PM_{2.5}, VOCs \)
The scale of sources...

- MN survey suggests there might be 30,000 OWB operating in the heating season.
- Each OWB emits about 0.5 ton of PM during that period.
- \(30,000 \times 0.5 = 15,000\) tons of filterable PM.
- Xcel Sherburne county plant burned 5.2 million tons of coal in 2013. It emitted 1,461 tons of PM.
Comparison of growth areas and emissions in Minnesota

- Real gross state product
- Vehicle miles traveled
- Energy consumption
- Population
- Aggregate emissions (NOx, SO2, VOC, PM2.5)
- Greenhouse gases (tons of CO2e)
MPCA e-services (TEMPO)

- New data and information management system
- More online services
- Improve data quality
- Grand Online Opening: February 2015
  - Reissuance of Air Quality Title V permits
  - Air Quality permit administrative amendments
In this issue:

- Regulatory updates
- Upcoming event: Keeping Healthy Skies
- MPCA begins pilot to improve Minneapolis air quality
- New asthma maps available
- Opportunities for reducing volatile organic compounds at your business
- Another successful year for air quality at the State Fair EcoExperience
- MPCA releases Winona air monitoring report
- Community Air Monitoring Project update

Sign up today!

http://www.pca.state.mn.us/6xa9cq3
Questions?