

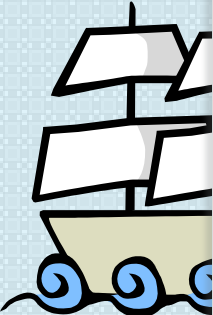
AIR REGULATORY UPDATE: TEEMING WITH A LOT OF NEWS

By “Model Modern Regulators”

Anne Jackson
Catherine Neuschler

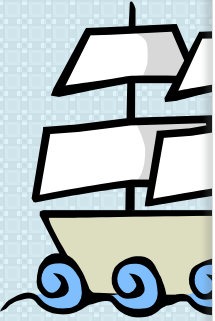
November 9, 2011





Outline

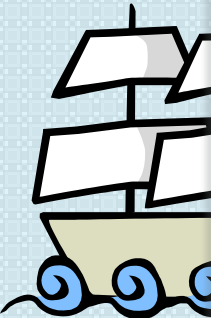
- Matters Mathematical
 - Emission Inventory Redesign
- Precisely what is meant by the Clean Air Act?
 - NAAQS and SIPs
 - CSAPR
- Standards Gone Astray
 - Federal Activity
 - State
- A Boatload of Orphans



MATTERS MATHEMATICAL

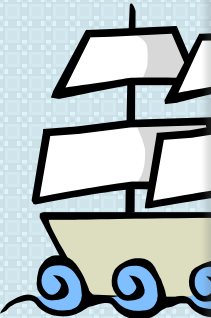
Emission Inventory Redesign: CEDR understands equations both the simple and quadratical.

$$x + \frac{b}{2a} = \pm \sqrt{\frac{b^2 - 4ac}{4a^2}}$$
$$x + \frac{b}{2a} = \frac{\pm \sqrt{b^2 - 4ac}}{2a}$$
$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$



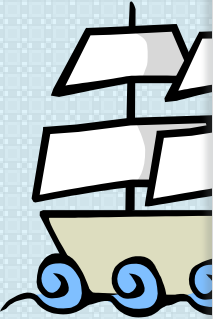
Air Emission Inventory Redesign

- Consolidated Emissions Data Repository (CEDR)
 - Multiple source categories: point, non-point, mobile
 - Multiple pollutants: criteria, toxics, greenhouse gases
- Functions/Benefits
 - Electronic reporting, with manual entry or data upload
 - Electronic signature
 - Improved data quality



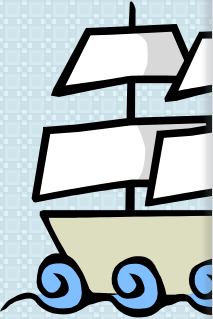
Key Feature: Electronic Reporting

- Went well for large facilities this past year
 - 70% rated the online experience as good/excellent
 - 2011 is an air toxics reporting year
 - Report site-specific toxics emissions with criteria emissions at same website
- Expanding to Option C and Option D facilities
 - 2012 reporting of 2011 emissions
- Future expansion to Option B and non-metallic permit holders
 - 2013 reporting of 2012 emissions



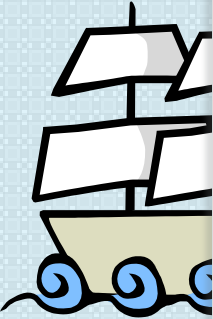
Updates to Criteria Pollutant Reporting

- Large Facilities EI Report will include:
 - Ammonia
 - PM emissions separated into filterable and condensable (EPA requirement)
 - Each fraction will be calculated separately
 - PM emissions using default emission factors will automatically do this calculation
 - Facilities with specific PM emission factors will need to split the emission factor
 - Viewing of Emission Totals before submittal, by Preparer and Responsible Official



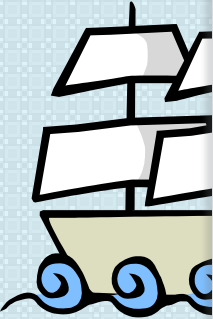
Things to Do

- Review previous year's emissions
 - Permittees received a letter in October
 - Due November 29, 2011
- Review contact information
 - Option C and Option D
 - Ensure updates about electronic submittal system
 - Please provide an email address
 - Electronic correspondence moving forward
 - Option B, general
 - Not as pressing, but will need to update eventually



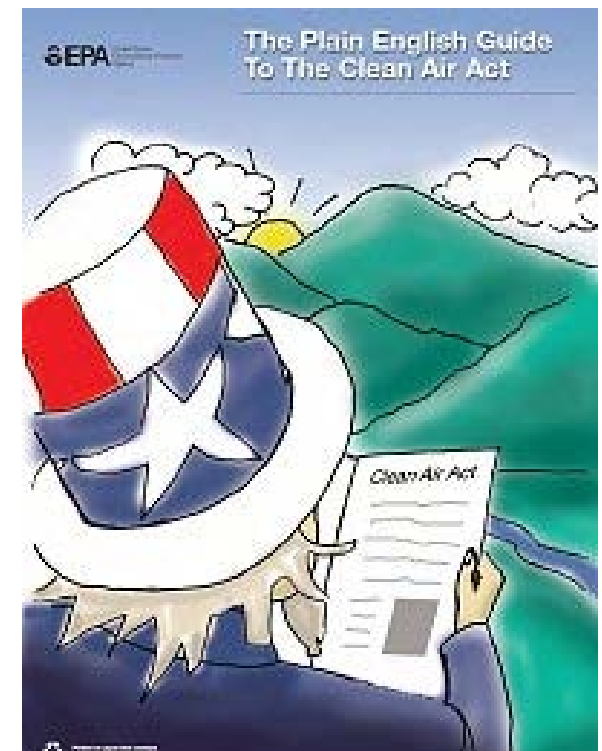
Stay informed

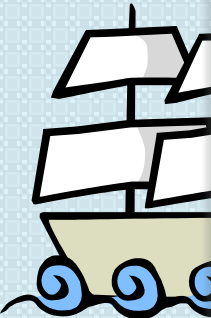
- Visit the project website
 - <http://www.pca.state.mn.us/0agx437>
- Sign up for Air Regulatory and Technical Information email updates
 - Through MPCA's GovDelivery service
 - Sidebar on above page
 - <https://public.govdelivery.com/accounts/MNPCA/subscriber/topics>
 - Must enter your email address first



WHEN I KNOW PRECISELY WHAT IS MEANT IN THE CLEAN AIR ACT

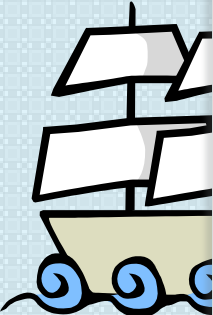
SIPs and Rules





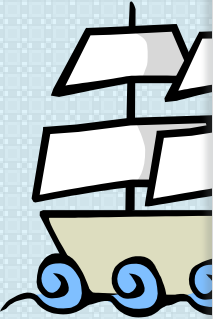
EPA's NAAQS Implementation Milestones

Pollutant	NAAQS Promulgation Date	Designation s Effective	110(a) SIP Due	Attainment SIP Due	Attainment Date
Ozone	March 2008	2012	March 2011?	2015	2015 - 2032
Lead	October 2008	December 2010	October 2011	June 2012	December 2015
NO ₂	January 2010	February 2012	January 2013	August 2013	February 2017
SO ₂	June 2010	July 2012	June 2013	January 2014	July 2017
PM_{2.5}	2012	2014	2015	2017	2019/2024
Ozone	July 2014	2016	July 2017	2019/2020	2019 - 2036
NO ₂ /SO ₂ Secondary	March 2012	TBD	March 2015	TBD	N/A



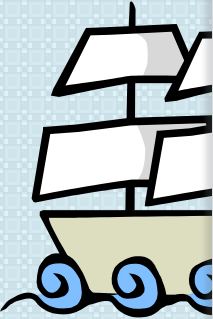
110(a) “Infrastructure” SIPs

- What are they?
 - SIPs that indicate that a state has the ability to ensure a new standard can be met
 - Regardless of attainment status or designation
 - CAA Section 110(a)(1): “Each State shall, after reasonable notice and public hearings, adopt and submit to the Administrator, within 3 years...after the promulgation of a national primary ambient air quality standard (or any revision thereof)...a plan which provides for implementation, maintenance, and enforcement of such primary standard in each air quality control region (or portion thereof) within such State.”



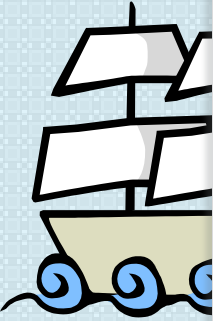
110(a) “Infrastructure” SIPs

- Section 110(a)(2) lays out requirements
 - e.g. air monitoring, enforcement program, construction permitting, etc.
 - Document a correlation between the required elements and a state statute or rule
 - State may simply certify that the existing SIP is adequate
 - Still requires a public notice from now forward
- Will see SIPs for attainment areas
 - Also specific infrastructure requirements mentioned in nonattainment SIPs



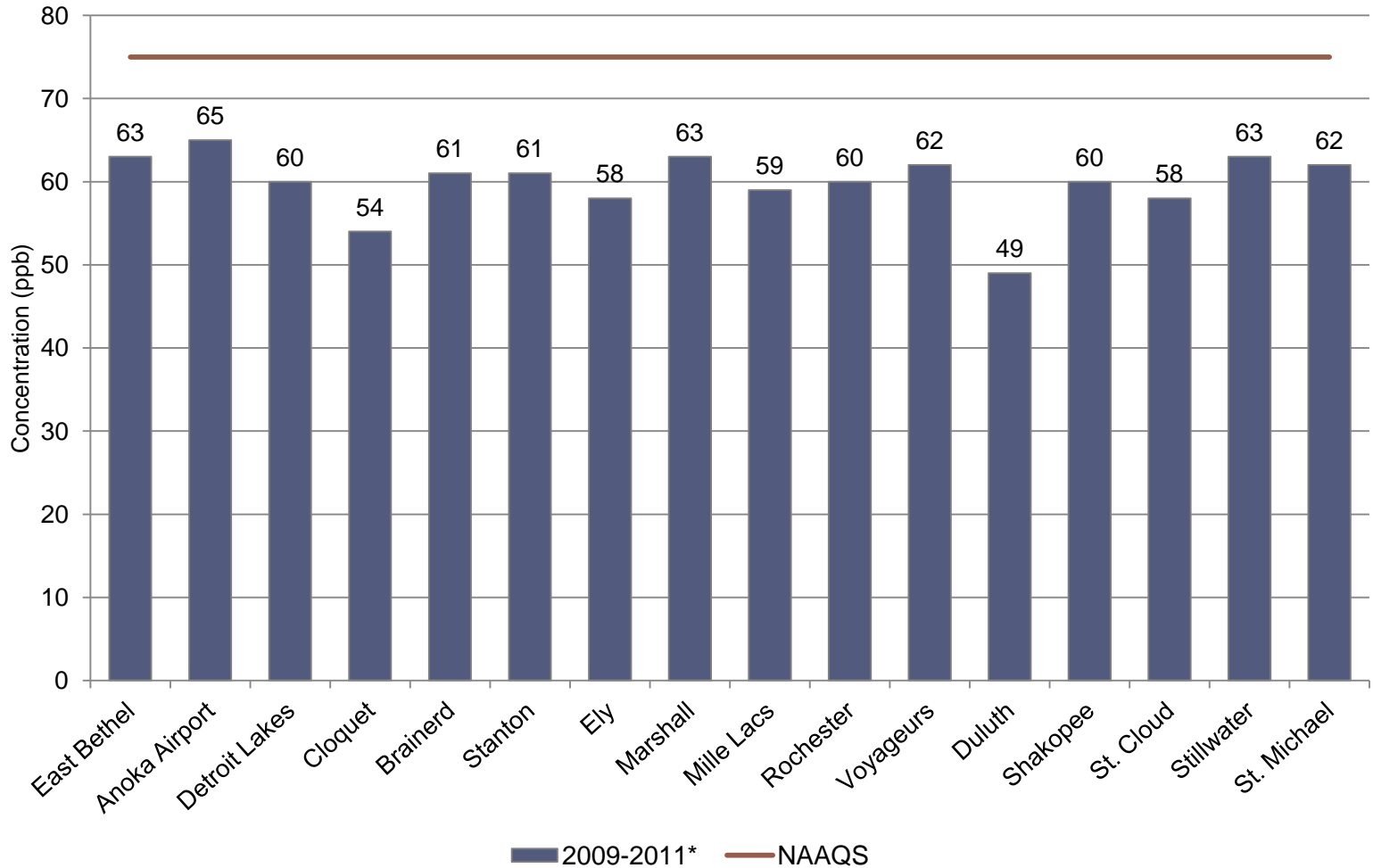
Ozone NAAQS

- EPA will implement the 75 ppb standard
 - Reminder: it is still under legal challenge
 - Designations
 - States made recommendations in 2009
 - EPA will review all certified air quality data
 - This fall will issue proposed changes to the state recommendations
 - Via letter to the states
 - 2008 – 2010 data shows 52 areas exceeding the standard
 - Expecting implementation rule

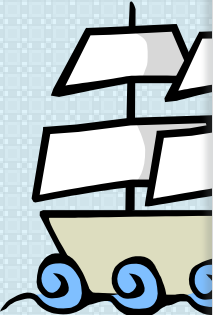


Ozone NAAQS: Minnesota

Preliminary Ozone NAAQS Design Values, 2009-2011

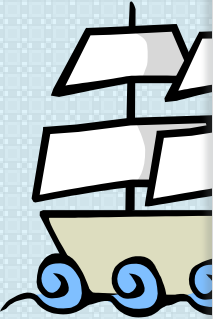


Includes all data through 2011 ozone season, but July – October data is preliminary



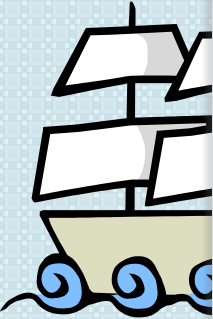
Lead NAAQS

- Minnesota has a nonattainment area in Eagan, surrounding Gopher Resources
 - Area once exceeded the old standard
 - Gopher has undertaken controls to move toward new standard
 - SIP due in June 2012
- Monitors installed around three other facilities
 - Data is showing compliance with the standard



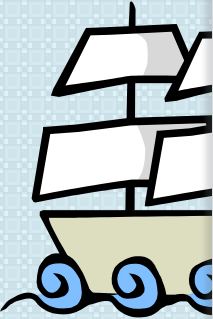
NAAQS for NO₂

- EPA plans to promulgate designations EARLIER than the statutory date of February 2012
 - All areas nationally will be unclassifiable/attainment
- Current work is addition of near roadway monitors
 - Monitoring network rolling out in phases nationally
 - 2013 for Minnesota monitor
 - Targeting downtown Minneapolis, not far from Metrodome
- Next designation phase is post-2016
 - Attainment status will depend on monitors
 - Standard may be revised before then



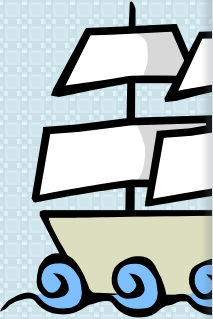
NAAQS for SO₂

- New standard on August 23, 2010
 - 75 ppb, one hour average
 - 85% lower than Minnesota's current one-hour standard (500 ppb)
- Designations submitted June 2011
 - MPCA recommended:
 - Attainment for counties with no large sources
 - Unclassifiable for all others
 - MPCA did not conduct modeling
- Designations expected June 2012
 - All areas likely to be unclassifiable



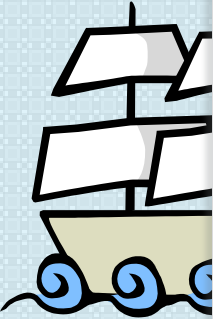
NAAQS for SO₂: Implementation

- Draft SIP Guidance released Sept 22, 2011
 - For “robust” 110(a) SIP due June 2013
 - Hybrid modeling/monitoring approach
 - Not necessarily transferrable to other pollutants
 - Focus on sources > 100 tpy
 - Offers states discretion on other sources to consider
 - Enforceable requirements needed just as for nonattainment areas (by June 2013)
 - Attainment by August 2017
 - Comments due December 2
- EPA will follow with rulemaking



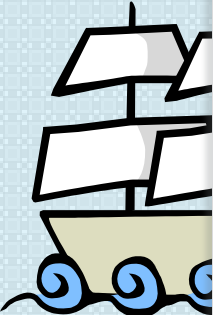
NAAQS for SO₂: Implementation

- MPCA Approach
 - Collected modeling parameter information from 65 larger sources
 - Currently building model input files
 - Will start modeling isolated sources, move to groups of sources
 - Plan to notify sources of modeled exceedances in first quarter 2012
 - MPCA will provide you with modeling files, etc.
 - Facilities with exceedances will need to submit a plan for how to resolve them and modeling



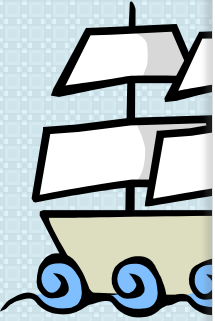
PM_{2.5} NAAQS: 2011/2012?

- Five year review, new standard likely to be proposed
 - Current standard: 15 $\mu\text{g}/\text{m}^3$ (annual) 35 $\mu\text{g}/\text{m}^3$ (daily/24-hour)
 - New daily standard likely to depend on annual standard
 - Annual standard range: 11 – 13 $\mu\text{g}/\text{m}^3$
 - Daily standard range: 30 – 35 $\mu\text{g}/\text{m}^3$
 - Likely pairing: 11 with 35, 13 with 30 (or so)
- EPA appears to no longer be considering changes to PM₁₀ daily standard

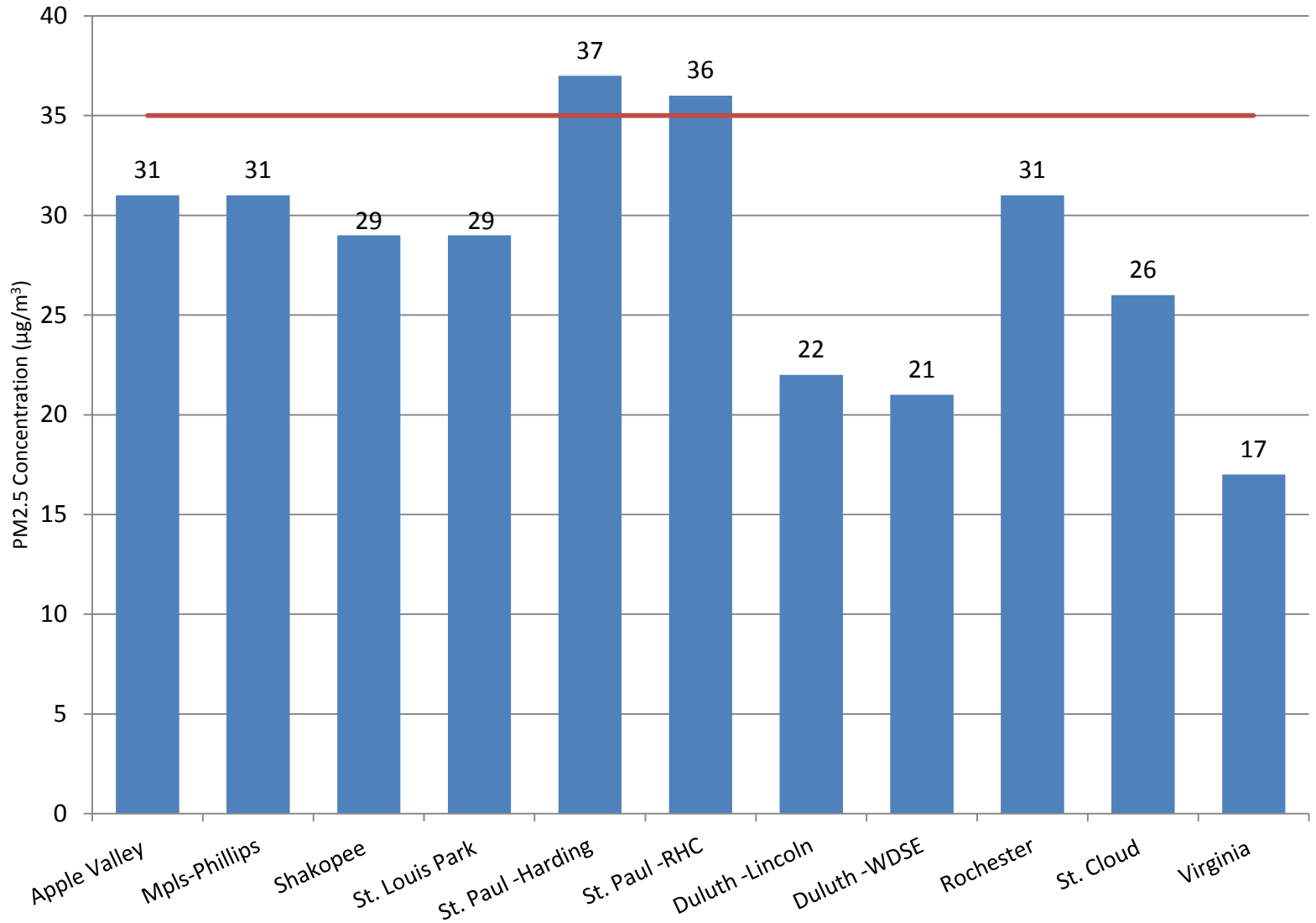


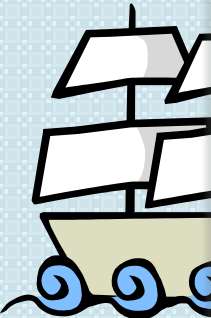
PM_{2.5} NAAQS: 2011/2012?

- Timeframe
 - Fall/winter 2011 proposal
 - 2012 promulgation
 - 2013 state designation recommendation
 - 2010 – 2012 data
 - 2014 designation
 - EPA likely to look at 2011 – 2013 data
 - 2017 due date for nonattainment SIPs

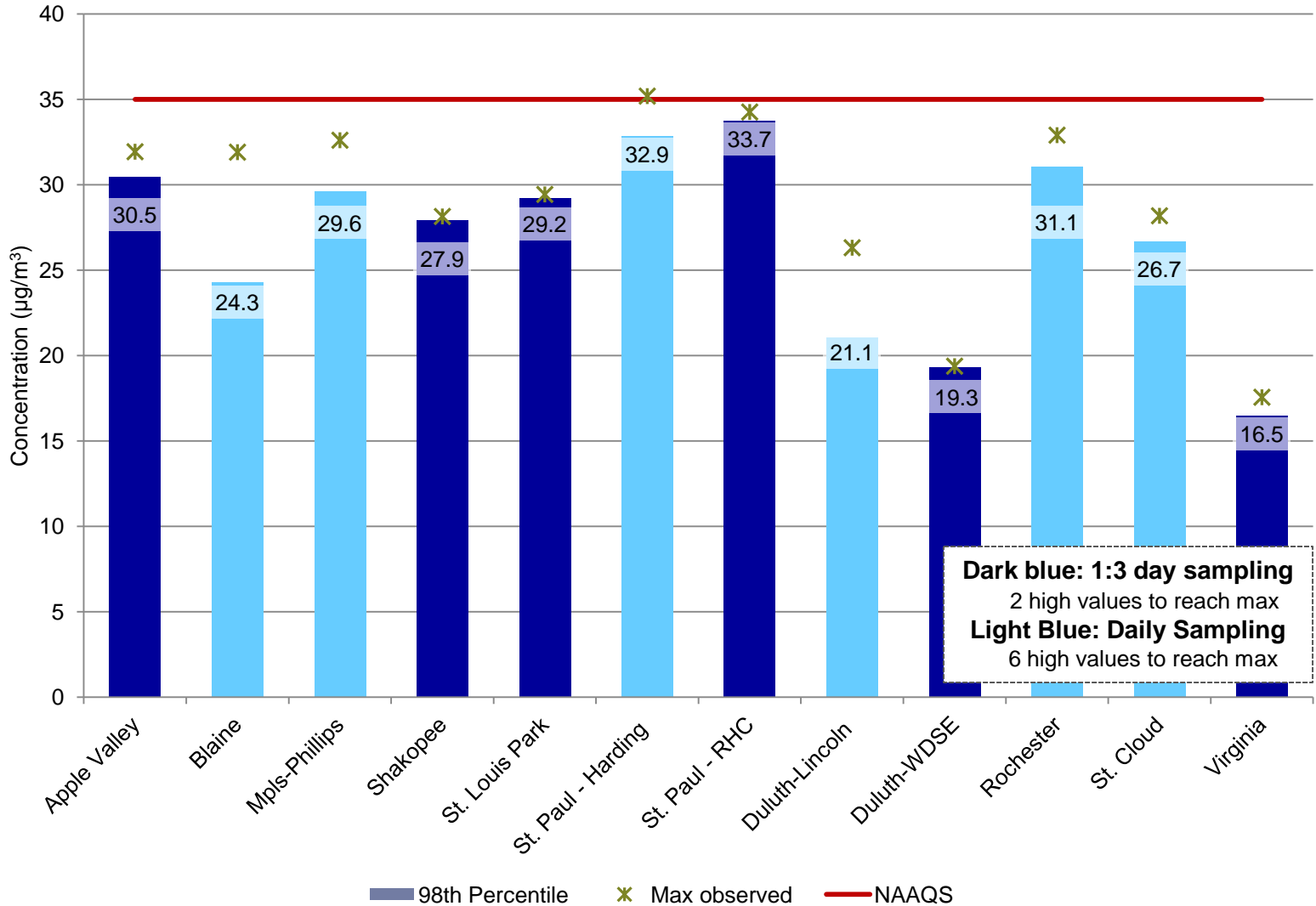


Daily PM_{2.5} NAAQS Design Values 2008-2010

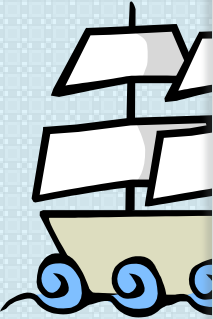




Estimated Daily PM_{2.5} NAAQS Design Values 2009-2011*

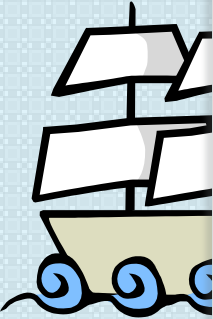


* Through September 30, 2011. Preliminary and subject to change.



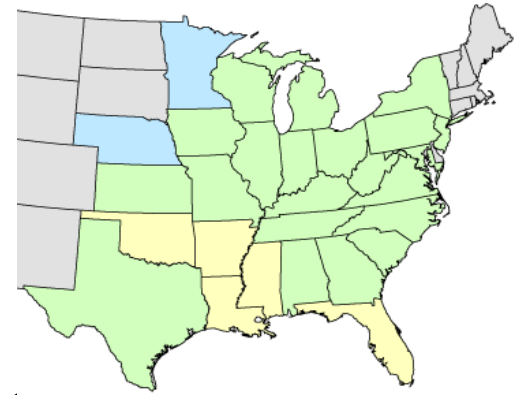
Cross State Air Pollution Rule

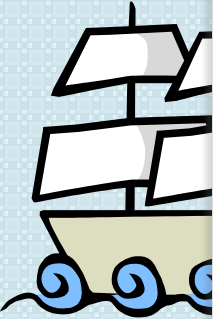
- Ozone and PM_{2.5} are impacted by transport of pollutants
 - Clean Air Act has a “Good Neighbor” provision
 - State SIPs must prevent emissions that interfere with attainment or maintenance of NAAQS in other states
- EPA has been working on a national solution
 - 2005: Clean Air Interstate Rule (CAIR)
 - Court ruled it did not adequately address transport
 - Rule remanded to EPA
 - 2010: Proposed Clean Air Transport Rule (CATR)
 - 2011: Finalized rule as Cross State Air Pollution Rule (CSAPR)



CSAPR

- Covers 27 Eastern States
 - To eliminate contribution to NAAQS concerns in other states
 - For 1997 ozone and 2006 PM_{2.5} NAAQS
 - Rule likely updated as NAAQS are revised
 - Unclear if EPA will do an update to address 2008 ozone standard
 - Power plant SO₂ and NO_x allowance trading
 - Four entirely new allowance systems
 - Group 1 SO₂ Trading
 - Group 2 SO₂ Trading (Minnesota)
 - Annual NO_x Trading (Minnesota)
 - Ozone Season Trading



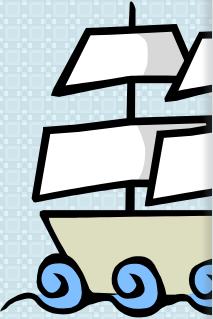


CSAPR: Minnesota

- States included if impact downwind is at least 1% of the NAAQS
 - Minnesota impacts Milwaukee for daily

NAAQS	EPA Threshold	Largest MN Contribution	Receptors Impacted by MN
Daily PM _{2.5} – Nonattainment	0.35 µg/m ³	0.61 µg/m ³	Milwaukee, WI
Daily PM _{2.5} – Maintenance	0.35 µg/m ³	1.01 µg/m ³	Milwaukee, WI (2 locations)

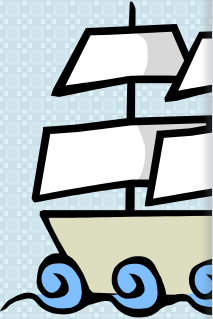
- Sets a statewide budget to eliminate significant contribution to nonattainment/ maintenance



CSAPR: Budgets

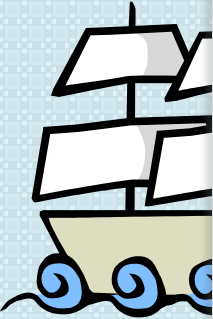
- State emissions cannot exceed the budget + an 18% variability limit
 - Known as the “assurance level”
 - Limits importation of allowances into the state
 - Proposed to begin for 2014 compliance year
 - Penalties (allowance forfeiture) for going over the assurance

Minnesota Budget Under CSAPR	
NO _x	
Existing Facilities	28,977
Variability Limit	5,323
New Facilities	594
SO ₂	
Existing Facilities	41,139
Variability Limit	7,557
New Facilities	842



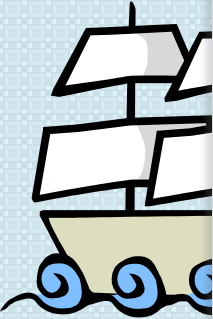
CSAPR: Allocations

- Known covered units receive an allocation of NO_x and SO₂ allowances
 - Based on:
 - Heat input from 2006 – 2010 (average of three highest years)
 - “Capped” by:
 - Annual maximum historic baseline emissions from 2003 – 2010 (highest year)
 - Consent decrees with annual tonnage limits (at least for initial distribution)
- New units (after 1/1/2010) will receive an allocation from the new unit set-aside
 - Will get allowances to cover first year of operation
- 2012 allocations distributed October 18
- 2013 allocations distributed October 26



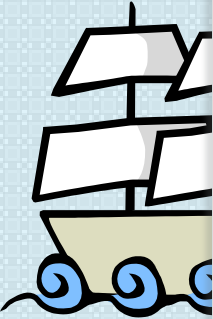
Other SIPs

- Regional Haze
 - Submitted to EPA in December 2009
 - Supplemental SIP Submittal in early 2012
 - To include enforceable documents (Orders) implementing Best Available Retrofit Technology
- Ongoing SIP updates
 - Modifications for facilities with SIP AOs or “Title I Condition: SIP for <NAAQS>” in permits



POOR WANDERING ONES: STANDARDS GONE ASTRAY

Federal and State Standard Setting



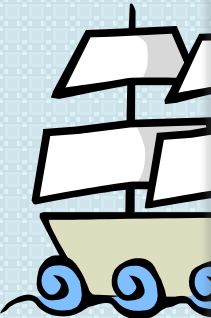
Industrial Boiler NESHAPs

- Major Source Standards
 - Promulgated 3/21/11
 - Concurrently announced reconsideration of major source NESHAP— proposed now due **NOV 2011**
 - Stay the effective date
 - EPA will publish in FR new effective date “once delay longer necessary”



Remaining Issues:

- Revisions to proposed subcategories in major source boilers rule
- Establish fuel specs for gases that are not natural gas so that boilers can be considered Gas 1 units
- Work practice standards for limited use boilers
- GACT for biomass and oil-fired area source boilers
- Revision of the proposed subcategory for energy recovery units for CISWI units
- Establish limits on fuel switching for CISWI
- Define CISWI to exclude cyclonic burn barrels.
- Provide affirmative defense for malfunction events for major and area source boilers and CISWI
- Revisions to CO monitoring requirements for CISWI
- Revision to CISWI dioxin limit
- Establishing a full-load CO test with cont. O2 monitors for major boilers and CISWI
- Defining “homogenous waste” in CISWI
- GACT PM standards for oil-fired area boilers
- Certain findings regarding the applicability of Title V permitting requirements for area source boilers.



Definition of Non Hazardous 2ndary Byproducts: 40 CFR Part 241 Subp. B; adopted 3/21/11

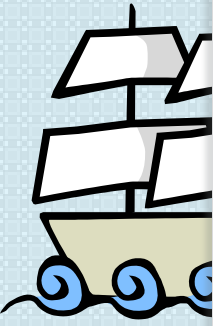
- What is it? a secondary material that, when discarded, would not be identified as hazardous waste under Part 261
- **Fuel** : remains within the control of the generator (whether at the site of generation or another site the generator has control over) **and** it meets the legitimacy criteria; defined:
 - scrap tires managed under established tire collection programs;
 - resinated wood residuals;
- OR material has been sufficiently processed to produce a fuel or ingredient product that meets the legitimacy criteria;
- OR case-by-case petition process to EPA to not have been discarded and to be indistinguishable in all relevant aspects from a fuel product.
- Legitimacy criteria:
 - Managed as a valuable commodity (factors: reasonable storage period, managed as analogous fuels or contained to prevent enviro harm)
 - Meaningful heat value in a unit with heat recovery
 - Contaminants in a level comparable to those in traditional fuels in which combustion unit is designed to burn.



ICI Boilers—Area Source

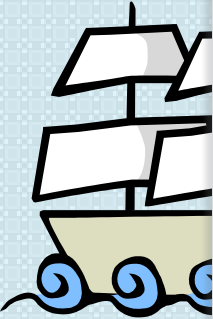
NESHAP

www.epa.gov/boilercompliance



Boiler Size	Fuel Type	Summary of Requirements
All Gas-fired Boilers	Gas (all types)	•None
Other New and Existing small boilers	Coal, biomass and oil	•Tune-up every other year
Existing Boilers (construction before June 4, 2010)		
Existing Large Boilers (>= 10 mmbtu/hr)	Coal	•Emission limits for Hg and CO •One-time energy assessment
	Biomass and oil	•Tune-up every other year •One-time energy assessment
New Boilers (switch from gas to solid fuel or construction on or after June 4, 2010)		
New large boilers (>= 10 mmbtu/hr)	Coal	•Emission limits for Hg, CO and PM
	Biomass and Oil	•Emission limit for PM •Tune-up every other year

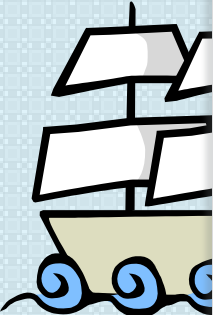
MPCA has delegation of Area Source NESHAP for Part 70 permits



Electric Generating Utility MACT

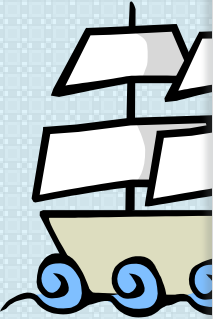
- Final Utility Mercury and Air Toxics, aka “MATS” due 12/16/11
- Any coal or oil-fired electric generating unit >25 MW
- Compliance 3 yrs post-promulgation

CAA HAP	Regulated Pollutant	Monitor
HCl, HF	HCl or SO ₂	HCl or SO ₂ CEM
Mercury	Hg	Hg CEM or sorbent trap or LEE testing
Non-Hg Metal HAPs	Total PM or Total non-Hg metal HAPs or individual metal HAPs	PM test; PM monitor



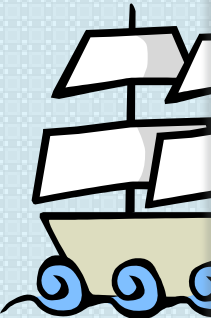
Regulatory Development and Retrospective Rule

- EPA is reviewing existing regulations to determine if any requirements are “outmoded, ineffective, insufficient, or excessively burdensome, and to modify, streamline, expand, or repeal them...”
- EPA’s website for tracking no longer “Gateway” but “Reg DaRRT”
- EPA ANPR: approaches to assessing NSPS
 - CAA requires NSPS review every 8 years
 - ANPR suggests procedure of assessing and announcing NSPS revisions
 - Comments due Nov 23, 2011



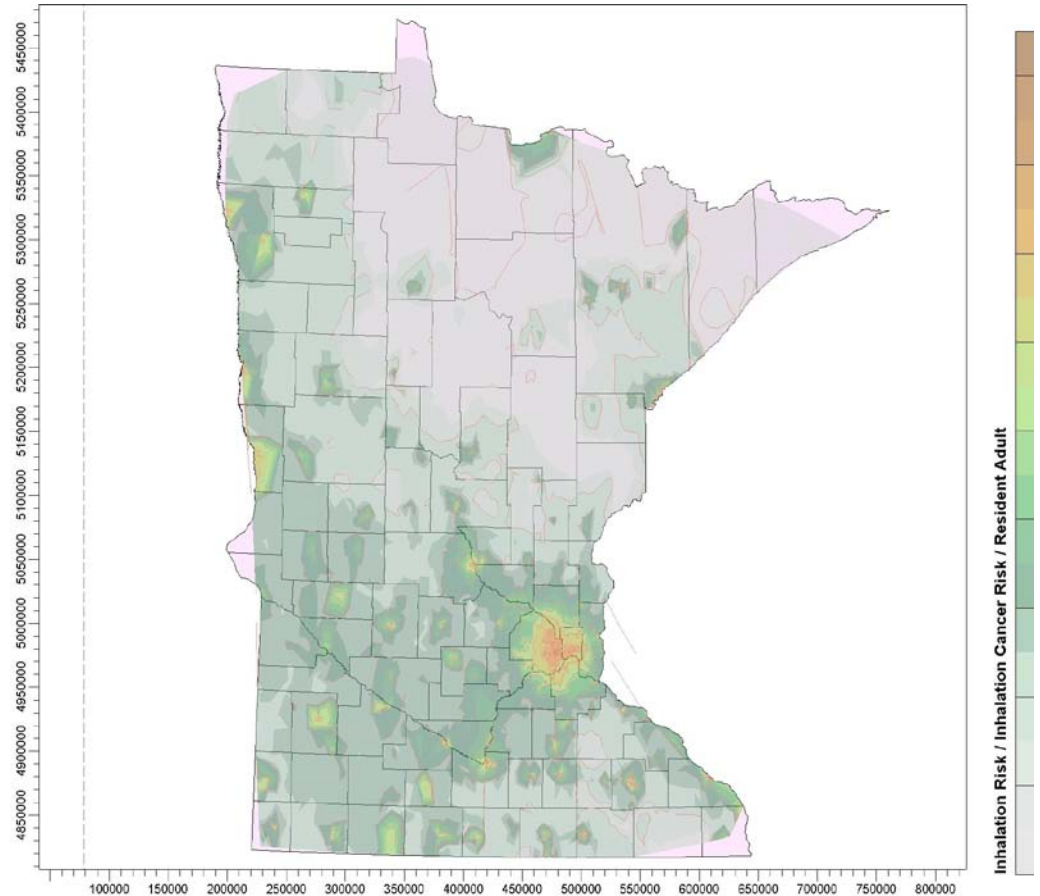
A BOATLOAD OF ORPHANS

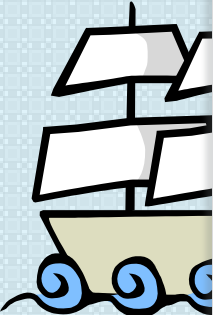
Or, how to select deserving sources for
“apprenticeship” to the MPCA’s loving care...



Pollutants affecting many people – determined from monitoring and modeling data

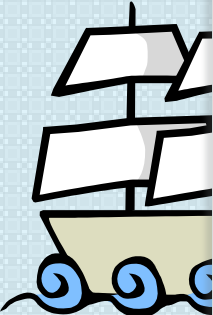
- Acrolein
- Diesel PM
- Dioxins/Furans
- Formaldehyde
- PAHs
- PM_{2.5}





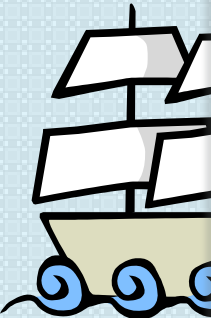
Why these pollutants?

- Modeled risk drivers (all but PM2.5)
- Monitored levels of concern (acrolein, formaldehyde, PM2.5)
- Multipathway concerns (dioxins, PAHs)
- Secondary formation important (acrolein, formaldehyde, PM2.5)
- Mortality potential (PM2.5)
- Possible nonattainment – current & as NAAQS becomes more stringent (PM2.5)



Source Selection Process

- Health impacts
- Co-benefits (e.g. multi pollutants, GHG, O₃)
- Ease of implementation
- Absence of regulatory or other actions that could likely impact pollutant levels



Sources selected

Mobile Sources:

Diesel

- On-road: semi-trailers, delivery trucks, buses, etc
- Off-road: construction & mining equipment

Gasoline - light duty vehicles & trucks

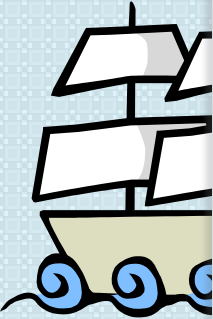
Residential Wood Combustion

Residential garbage burning & land clearing debris combustion

Stationary Internal Combustion

Engines:

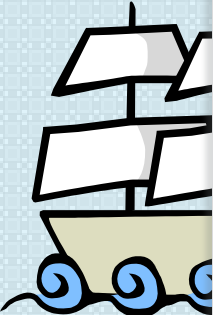
- Commercial/Institutional not affected by NESHAP
- Emergency engines



Silica Sand Mining in MN

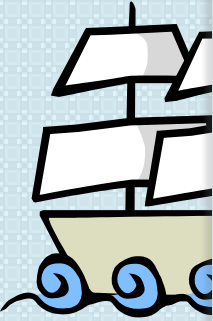
- Air Quality – silica, PM, diesel
 - General permit
 - Registration permit
 - Individual permit
- Water Quality – high capacity wells
- Noise – equipment, traffic
- Land - land values, landscape, conflicting land uses)
- Wisconsin Report:
<http://dnr.wi.gov/air/pdf/finalsilicareport.pdf>





Minnesota AQ Rulemaking

- GHG Permanent Tailoring Rule
- Mercury Control and Inventory Rule
- Remainder are generally on hold until resources allow
 - Updating rules to match federal changes
 - Emergency episode rules, significant harm levels (7009.1000), ambient standards
 - Omnibus rulemaking
 - May begin to consider rules for attainment SIPs



Questions?

