

Air Management Study Group Quarterly Meeting

Madison
August 25, 2016

DNR Comments on Federal Proposed Rules

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Recent WDNR Comments on Proposed EPA Rules

Recently submitted comments

Proposed EPA rule	Docket	Comment date
Rescission of Preconstruction Permits Issued under the Clean Air Act	EPA-HQ-OAR-2015-0782	Jul. 14, 2016
Revision to the Near-Road NO2 Monitoring Requirements	EPA-HQ-OAR-2015-0486	Jun. 30, 2016
Protection of Visibility: Amendments to Requirements for State Plans	EPA-HQ-OAR-2015-0531	Aug. 10, 2016
Removal of Title V Emergency Affirmative Defense Provisions	EPA-HQ-OAR-2016-0186	Aug. 15, 2016
Draft Guidance for the Second Implementation Period of the Regional Haze Rule	EPA-HQ-OAR-2016-0289	Aug. 22, 2016



EPA Proposed Rules out for Comment

Proposed EPA rule	Docket	Comment date
Clean Energy Incentive Program Design Details	EPA-HQ-OAR-2016-0033	Sep. 2, 2016

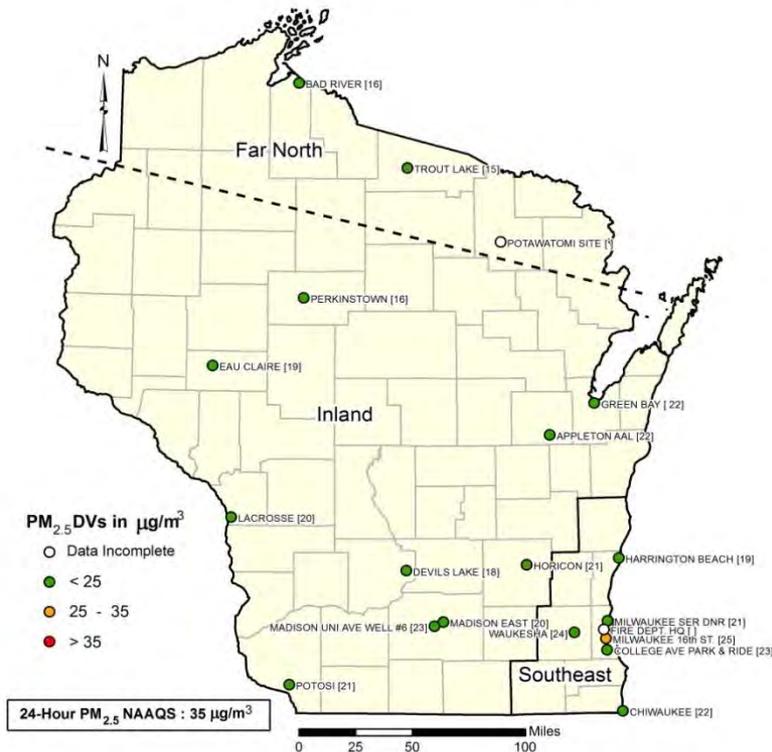
PM_{2.5} Monitoring Method Change

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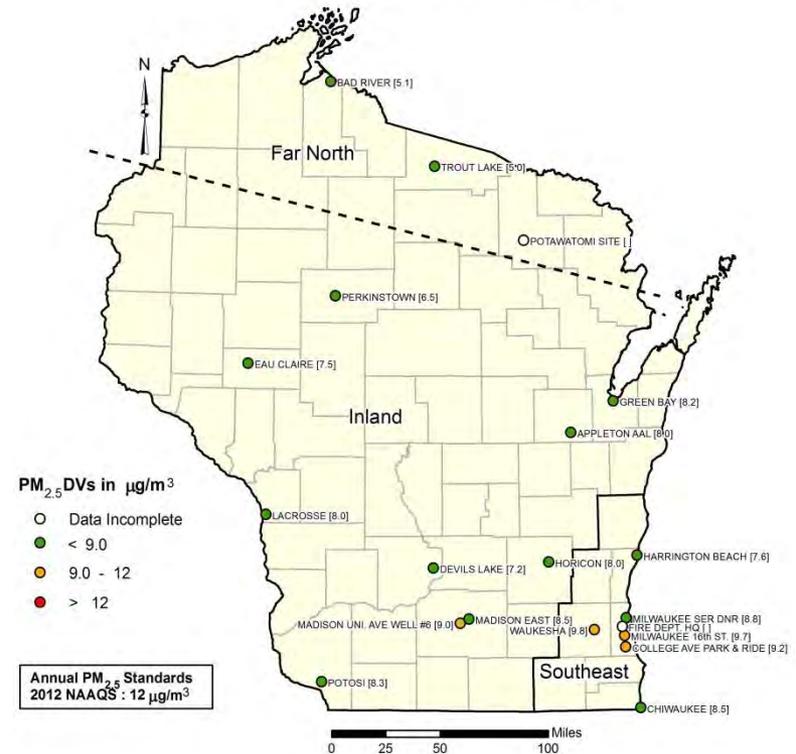
PM_{2.5} Attainment Status

- Wisconsin is currently attaining the annual and daily PM_{2.5} NAAQS

24-Hour PM_{2.5} Design Values: 2013-2015

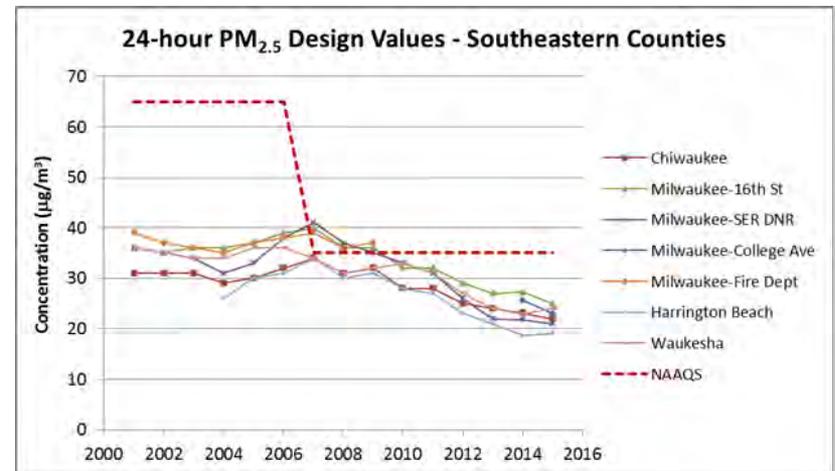
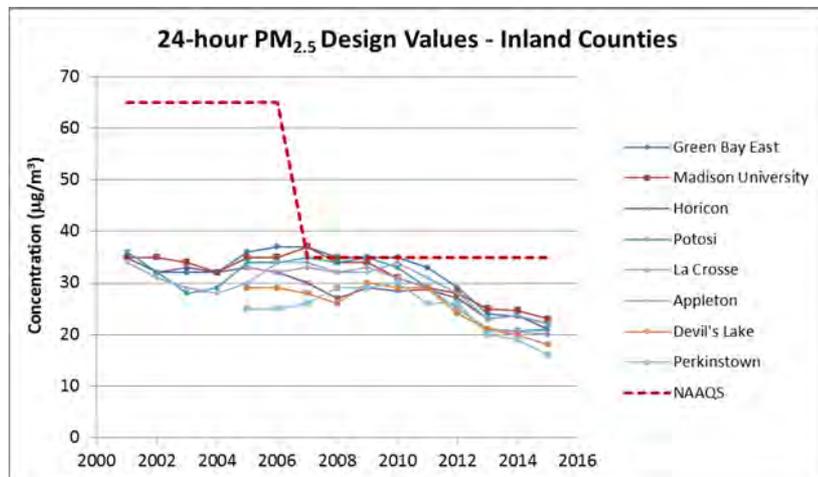


Annual PM_{2.5} Design Values: 2013-2015



Wisconsin PM_{2.5} Design Value Trends

- Trending down in relation to the 24-Hour and Annual Standard



PM_{2.5} FRM Filter Based Sampler



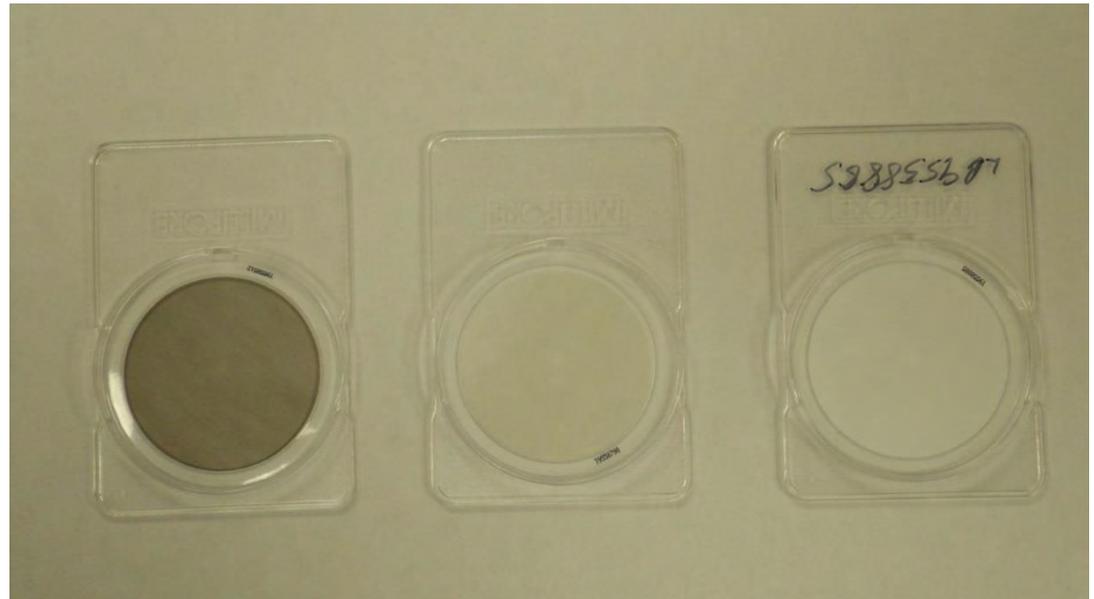
Federal Reference Method (FRM) Thermo 2025i

Concerns

Cost to Operate

Filters physically collected weekly

Filters processed in Lab



PM_{2.5} FEM Continuous BAM



Federal Equivalent Method (FEM) Beta Attenuation Monitor (BAM) 1020

FEM SLAMS means data may be used for comparison to NAAQS by EPA

Advantages

Monthly visits to check sampler

No lab analysis

Real time data to the public



Method Change

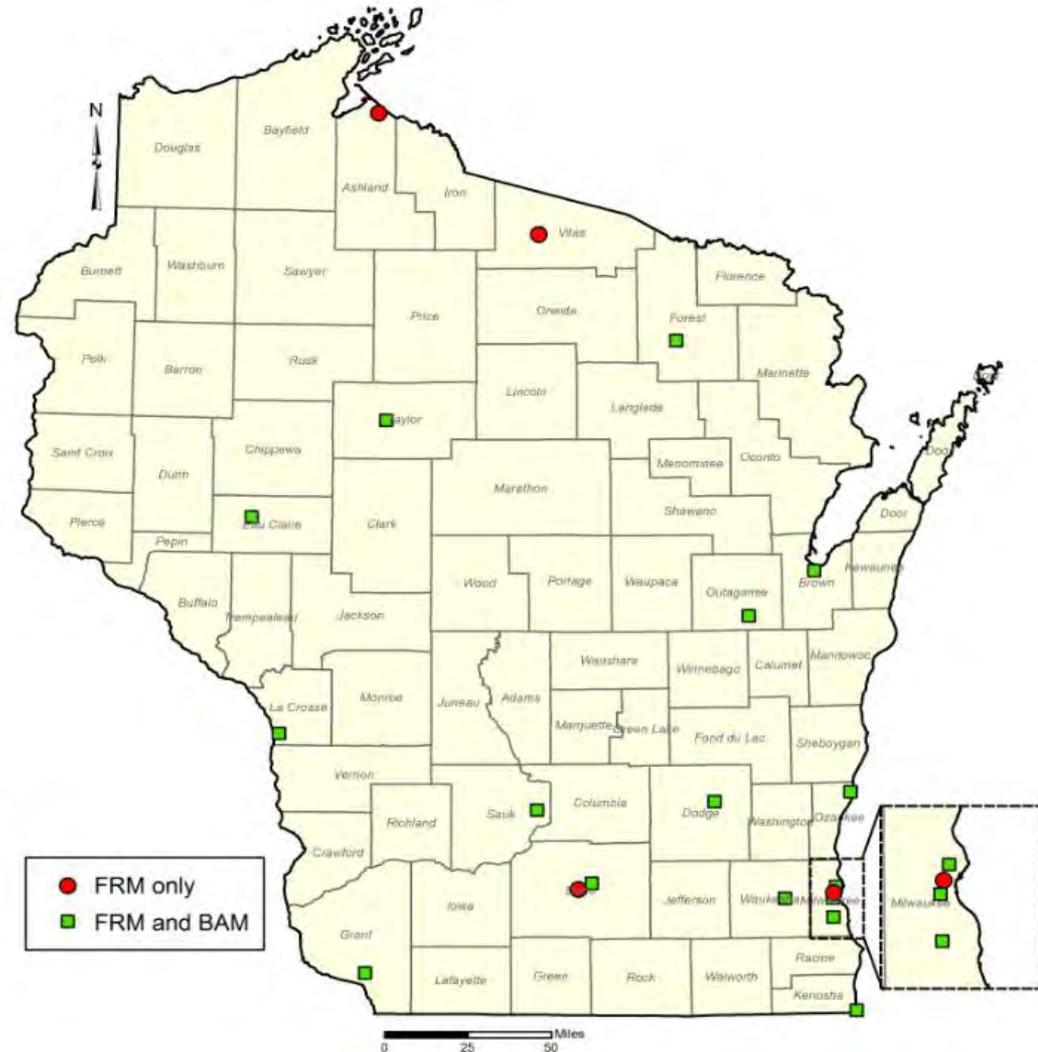
January 2017 - complete method change for both instruments

- 2025i – WINS to VSCC (Very Sharp Cut Cyclone)
 - Nationwide change
- BAM – SCC (Sharp Cut Cyclone) to VSCC
 - BAM becomes FEM



PM_{2.5} FRM and FEM 2016 Network

- 24 Filter Based FRMs at 20 Sites
- 16 FRM and BAM continuous PM_{2.5}
- Addition of Near Road FRM and FEM





Benefits of the Method Change

- DNR can react to decreasing budgets
- Continuation of high quality data to the public quickly
- Site operators have more time to perform critical functions
- Shutdown some of our FRM samplers
 - Decision in FY17 based on results of comparability study
 - Concentration relative to the NAAQS

Contact Information

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Ozone Update

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Air Program Director

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2015 Ozone NAAQS (70 ppb) Area Designations

- The state is currently considering recommendations for nonattainment area designations for the 2015 (70 ppb) ozone NAAQS, due to EPA by October 1.

Milestone	Date
States submit area recommendations to EPA	No later than October 1, 2016
EPA notifies states concerning any intended modifications to their recommendations (“120-day letters”)	No later than June 2, 2017
EPA publishes notice of designation recommendations and initiates 30-day public comment period	On/about June 9, 2017
States submit additional information, if any, to respond to EPA’s modification of a recommended designation	No later than August 7, 2017
EPA promulgates final nonattainment area designations	No later than October 1, 2017

Dates based on EPA’s draft implementation guidance of 1/27/2016

Ozone Update as-of August 5, 2016

site	Concentrations (ppb)				2016 Critical values		Days at/above C.V.		Current 2014-2016 "design value"
	1st high	2nd high	3rd high	4th high	2008 std	2015 std	2008 std	2015 std	
NEWPORT PARK	85	82	80	77	89	74		5	72
CHIWAUKEE PRAIRIE STATELINE	90	87	83	81	77	62	7	29	77
KENOSHA - WATER TOWER	84	77	76	76	90	75		4	71
KEWAUNEE	82	78	76	72	93	78		2	69
MANITOWOC - WDLND DUNES	85	82	78	75	85	70	1	7	72
MILWAUKEE - SER DNR HDQRS	93	75	75	71	94	79		1	68
BAYSIDE	99	80	78	77	91	76	1	6	71
GRAFTON	94	76	73	72	84	69	1	7	72
HARRINGTON BEACH PARK	93	81	81	79	87	72	1	9	73
RACINE - PAYNE AND DOLAN	94	80	80	77					
BELOIT - CONVERSE	77	76	73	73	92	77		1	69
SHEBOYGAN - KOHLER ANDRAE	91	87	85	85	75	60	7	18	79
SHEBOYGAN - HAVEN	78	77	75	74	93	78		1	69
LAKE GENEVA	75	73	73	73	88	73		4	71

2008 NAAQS: 75 ppb
2015 NAAQS: 70 ppb

Exceeds the 2015 NAAQS critical value or design value

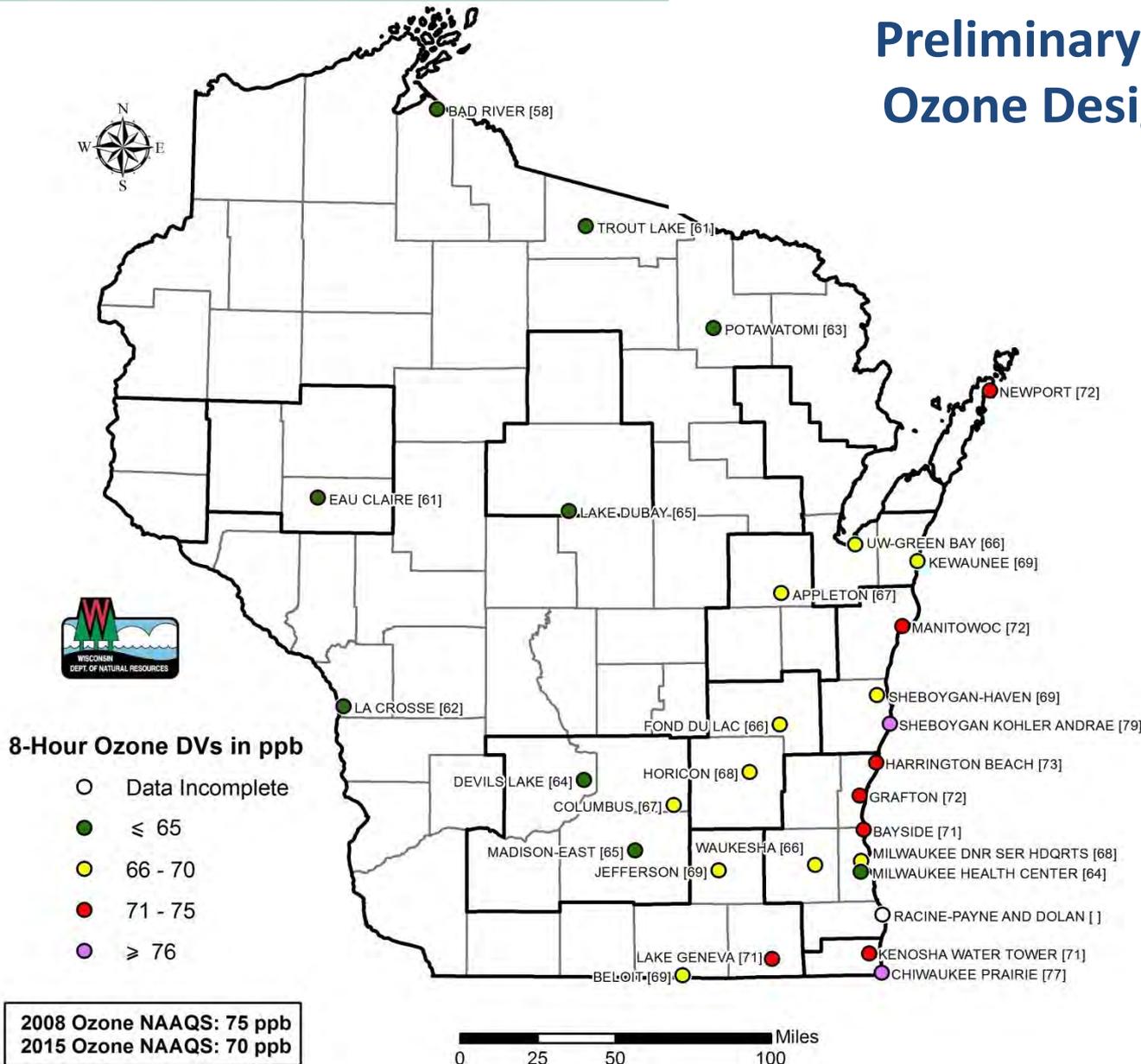
Exceeds the 2008 NAAQS critical value or design value

Data is preliminary, not QA'ed or certified, and is subject to change

Preliminary 2014-2016 Ozone Design Values*

Data is preliminary/not QA'd
and subject to change

Heavy lines delineate
statistical areas



* Through Aug 5, 2016

One-Hour NAAQS Background Concentrations

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Chief, Permits & Stationary Source Modeling Section
WDNR



One-Hour Ambient Air Standards

- Published in Wisconsin Administrative Code August 1, 2016
- Level of State standards matches federal NAAQS
 - NO_2 – 188 $\mu\text{g}/\text{m}^3$
 - SO_2 – 196 $\mu\text{g}/\text{m}^3$
- Criteria for permit approvability in Wisconsin Statute:
 - Source cannot cause or exacerbate a violation of NAAQS
 - No permit may be approved unless a finding is made that the source will not cause or exacerbate a violation of the NAAQS
- Statute does not specify how to make the finding
 - Traditional approach - air quality modeling
 - Technical finding was made in the case of $\text{PM}_{2.5}$
 - Other methods?



A Little Atmospheric Chemistry

Sulfur Dioxide

- Emitted directly as SO_2 by stationary sources
- Stable in the atmosphere
- Air quality models originally developed to predict concentrations of SO_2 caused by industrial source emissions

Nitrogen Dioxide

- Emitted as $\text{NO} + \text{NO}_2 = \text{NO}_x$
- Unstable in the atmosphere: $\text{NO} + \text{O}_3 \Rightarrow \text{NO}_2 + \text{sunlight} \Rightarrow \text{NO}$
- Ambient NO_2 concentrations are derived from dispersion of NO_x emission using a multiplier and not complex chemical formulations.

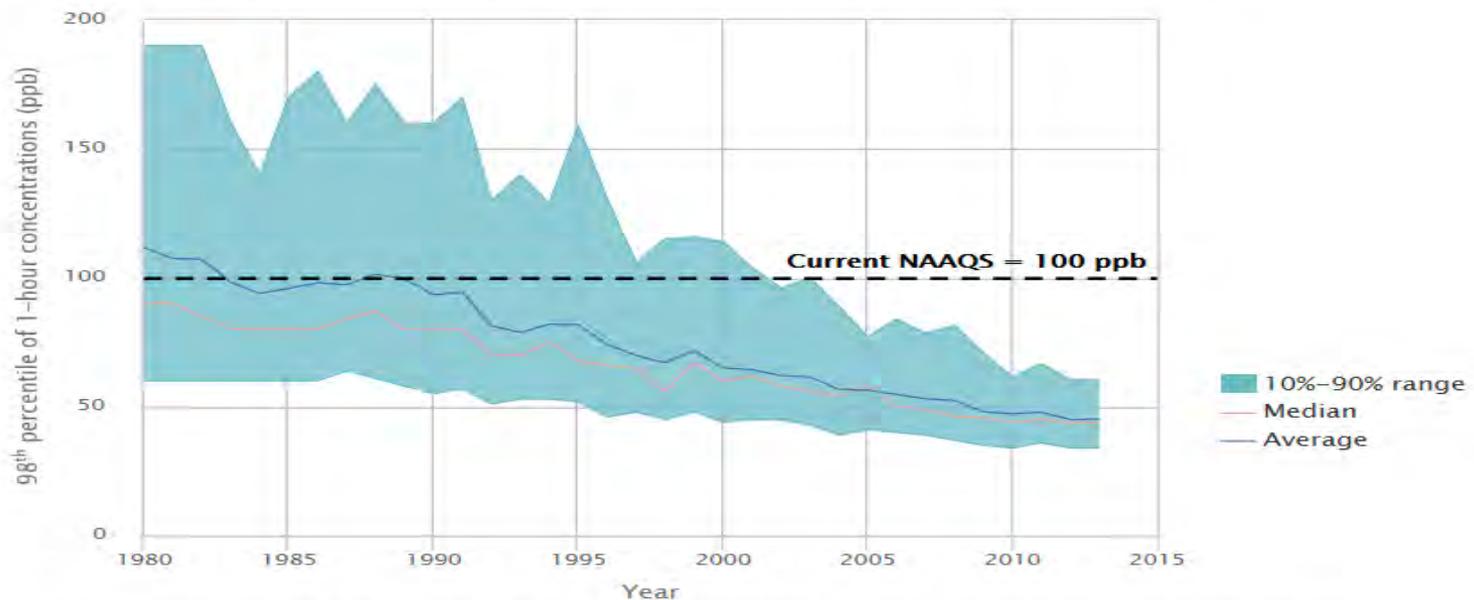


Maintaining Air Quality

- The trend over time shows marked reductions in NO₂ ambient concentrations both in Wisconsin and nationally
- These reductions have *not* been driven by NO_x emission limits set in permits to protect the 1-hour NO₂ standard and increment
- Reductions in NO₂ ambient concentrations result from:
 - Implementation of mobile source emission standards
 - Nationally, from the interstate and transport rules for large NO_x point sources.
- SO₂ ambient concentrations are very source specific
- SO₂ monitors in the state have shown either decreased concentrations or have held steady

Nation-wide Trends in 1-hr NO₂ Concentrations

Exhibit 4. Ambient 1-hour NO₂ concentrations in the U.S., 1980–2013



The current 1-hour NO₂ NAAQS was established in 2010 and is shown to provide context for the magnitude of pollutant concentrations. No 1-hour NO₂ NAAQS existed prior to 2010 (U.S. EPA, 2014b).

Coverage: 29 monitoring sites in 24 counties nationwide (out of a total of 308 sites measuring NO₂ in 2013) that have sufficient data to assess NO₂ trends since 1980.

Information on the statistical significance of the trends in this exhibit is not currently available. For more information about uncertainty, variability, and statistical analysis, view the technical documentation for this indicator.

Data source: U.S. EPA, 2014a



One-Hour Ambient Air Standards - Implementation

- There are many possible approaches to implementing one-hour standards for NO₂ and SO₂. We want your feedback on ideas or suggestions you have for implementation. To guide the discussion, please focus on the following questions:
 - 1) Can you relate any experiences on whether or how the 1-hr standards have affected your facility or a facility you represent?
 - 2) What ideas do you have for 1-hour SO₂ implementation?
 - 3) What ideas do you have for 1-hour NO₂ implementation?
 - 4) What are your thoughts on using approved approaches in the SO₂ Data Requirements Rule (DRR) for both SO₂ and NO₂?
 - 5) The statute does not require modeling as a finding - what do you think about using a technical finding approach vs air quality modeling analyses?



1-hr Implementation Schedule

- **September 2016** – Gather feedback from stakeholders
- **October 2016** – EPA finalizes Appendix W
 - Contingency plan needed if rule is not finalized
- **Late October 2016** – DNR prepares implementation strategy and provides for public comment
- **Nov/Dec/Jan 2017** – Address public comment, finalize strategy and associated guidance documents
- **Today** – continue reviewing air permit applications using existing approved methods
 - Modeling
 - Working with sources to make sure emission estimates are accurate



Existing Background Concentration Methodology

- Air Quality Modeling is used to convert an emission rate into a concentration. This is the source's impact.
- A background concentration is added to the source impact and compared to the standard.
- Background concentrations represent the un-modeled emissions such as mobile sources, residential heating, and distant facilities
- Background concentrations are established by analyzing data from DNR's ambient air monitoring network
- DNR uses a higher background for sources in areas with higher population and a lower background everywhere else, based on an approach developed with stakeholder input years ago.



Background Concentrations

Propose temporally varying background concentration to match diurnal emission trend (i.e. mobile source impact)

- NO₂ Standard is 188 micrograms per cubic meter
- High NO₂ = Milwaukee SER
- Low NO₂ = Combination of rural monitors in WI, IA, MI
- SO₂ Standard is 196 micrograms per cubic meter
- High SO₂ = Milwaukee SER
- Low SO₂ = Horicon
- Each month has a high/low background established for each hour of the day
- Draft for Public Comment in September 2016

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