

Implementation of the New/Revised National Ambient Air Quality Standards

Air & Waste Management Association Fall Meeting
November 13, 2012

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National Ambient Air Quality Standards (NAAQS)

The NAAQS are Federal standards that establish maximum concentrations of air pollutants that are acceptable in the general air we breathe. These standards are set to protect public health and welfare with margin of safety.

- Primary standards to protect public health, and
- Secondary standards to protect welfare & the environment.

- **NAAQS are established for “Criteria Pollutants.”**
 - **Attainment = the area meets all NAAQS**
 - **Nonattainment = the area is failing to meet all NAAQS**
 - **Unclassifiable= functionally equivalent to attainment**

NAAQS Pollutants

- **Six criteria pollutants**
 - Ground-level ozone (O₃)
 - Particulate Matter (PM)
 - Nitrogen Dioxide (NO₂)
 - Sulfur Dioxide (SO₂)
 - Carbon Monoxide (CO)
 - Lead (Pb)
- **Particulate matter broken into two size fractions, PM₁₀ & PM_{2.5}**
 - Fractions measured in microns

Some Groups Are More at Risk



- **People with heart or lung disease**
 - Conditions make them vulnerable
- **Older adults**
 - Greater prevalence of heart and lung disease
- **Children**
 - More likely to be active
 - Breathe more air per pound
 - Bodies still developing

NAAQS Changes

- **NAAQS undergo periodic review, required by CAA**
 - Every 5 years
- **Review latest public health information and scientific data**
- **Changes between 2006 and 2010:**
 - Revised 24-hr PM_{2.5} standard (2006)
 - Revised lead and ozone standards (2008)
 - New 1-hr NO₂ and SO₂ standards (2010)

What Do NAAQS Changes Mean for DNR?

- **Making attainment/nonattainment designations**
- **Updating/revising monitoring networks**
- **Discussing implementation issues/concerns with stakeholders**
- **Updating administrative rules**
- **Revising permitting and modeling guidance**
- **Revising State Implementation Plan (SIP)**

NAAQS Implementation Timeframes

- **When a new/revised NAAQS is finalized, implementation timeframes (up to) are prescribed by the Clean Air Act:**
 - **EPA's Designations: 2 years after NAAQS finalized**
 - **Infrastructure SIP Due: 3 years after NAAQS finalized**
 - **Nonattainment SIP Due: 3 years after NA designations**
 - **Attainment Date: 5 years after NA designations**

State Law Requirements



- **Iowa Code 455B.134(14)**
- **Convene meetings no later than June 1 during the second calendar year following EPA adoption of a new or revised NAAQS**
 - Re: Review emissions limitations
- **By November 1 of same year: Submit report to Governor and General Assembly with law change recommendations necessary for attainment of new or revised NAAQS**

New/Revised NAAQS = SIP Revision

- **State Implementation Plan (SIP)**
 - **Documentation that shows how a state will meet federal requirements**
 - SIPs are a collection of regulations and planning/technical/supporting documents
 - Approved by EPA, federally enforceable
 - **An infrastructure SIP is required any time a NAAQS is revised (or a new NAAQS is developed)**
 - Demonstrate ability to fulfill the CAA 110(a)(2) elements
 - Enforceable emission limitations
 - Permitting/modeling
 - Ambient monitoring program
 - Adequate personnel, resources, and legal authority, etc.

PM2.5 NAAQS

- Fine particulate matter first regulated in 1997
- The 24-hour standard was revised in 2006

	1997 Standards		2006 Standards	
	Annual	24-hour	Annual	24-hour
PM_{2.5} (Fine Particles)	15 µg/m³ Annual arithmetic mean, averaged over 3 years	65 µg/m³ 24- hour average, 98 th percentile, averaged over 3 years	15 µg/m³ Annual arithmetic mean, averaged over 3 years	35 µg/m³ 24- hour average, 98 th percentile, averaged over 3 years

- Particulate matter NAAQS review
 - Proposal Jun 14, 2012, final expected Dec 14, 2012

PM2.5 Implementation in Iowa

- **Designations completed**
 - Attainment/unclassifiable
- **Adopted PM2.5 PSD rules**
 - Significant emission rates and precursors
 - Significant impact levels and increments
 - PM2.5 stack test methods (separate rulemaking)
- **PM10 surrogate policy use**
 - Not applied to PSD projects
 - EPA ended surrogate policy May 2011
- **Infrastructure SIP not submitted**
 - Re: Final Federal rules not in place until Dec 2010
 - Re: PM2.5 workgroup (Jun-Oct 2010)

Federal Implementation Plan (FIP) for PM2.5

- **Suit in Federal Court for EPA's failure to require submissions of SIPs for PM2.5 from States**
- **Sept 8, 2011- EPA published finding that IA has failed to submit PM2.5 infrastructure SIP**
 - Finding effective Oct 11, 2011
- **Establishes 24 month deadline for EPA to promulgate a FIP if a SIP is not submitted and approved by Oct 11, 2013 deadline**
- **Separate from the Muscatine PM2.5 "SIP Call"**

Lead NAAQS: Old & New

Lead Health Standards*	1978 Standards		2008 Standards	
		Level:	1.5 ug/m³	Level
(measured in total suspended particulates)	Form:	Average concentration in a calendar quarter** No averages over 1.5 ug/m ³ allowed (not to be exceeded)	Form:	Rolling 3-month average No averages over 0.15 ug/m ³ allowed (not to be exceeded)

*The secondary standard has been set to be identical to the primary standard

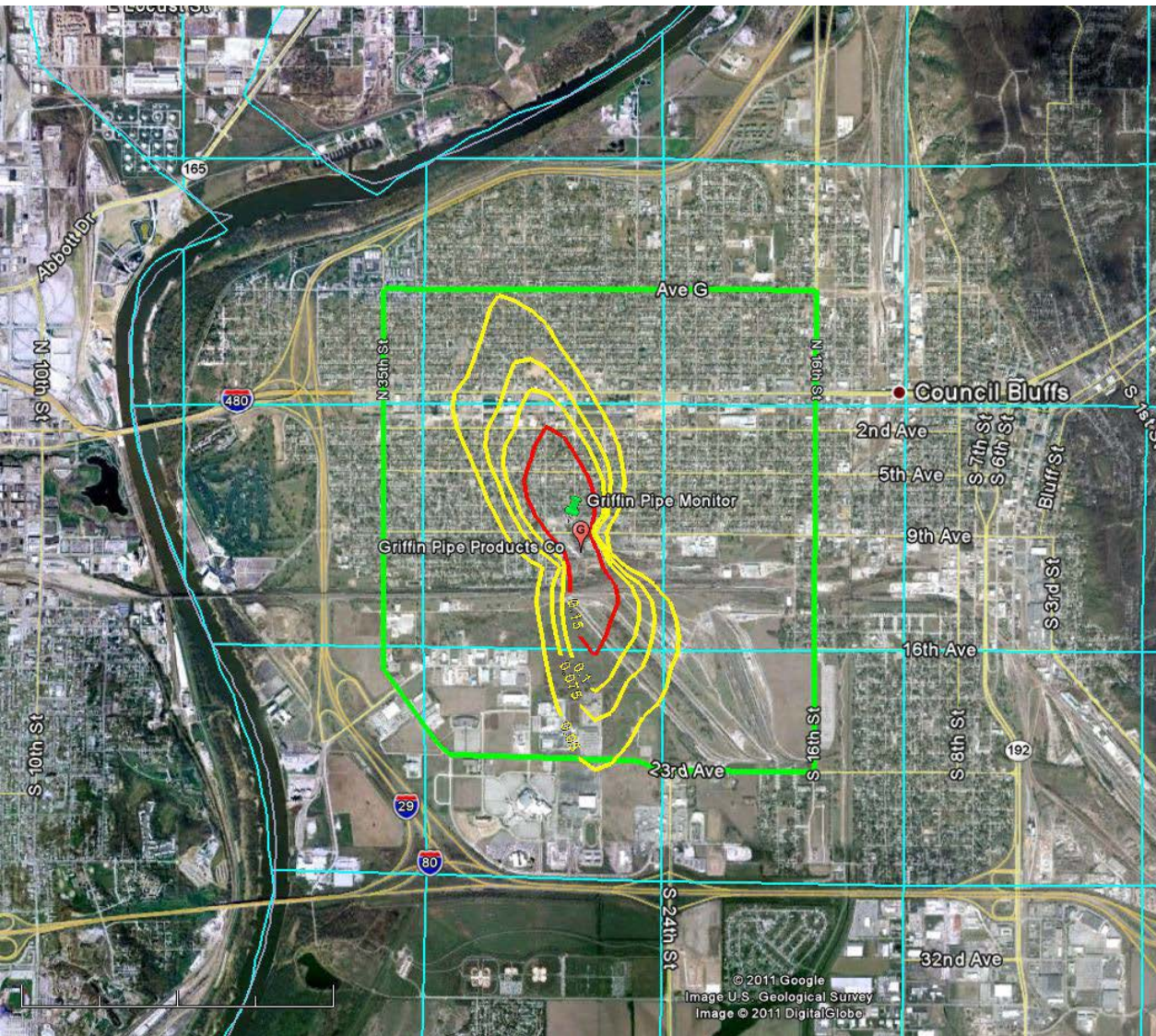
**Calendar quarters: Jan-Mar, April-Jun, Jul-Sep, Oct-Dec.

New Lead Monitoring Requirements

- **EPA's rulemaking to revise the NAAQS also included new monitoring provisions**
 - Required states to monitor lead sources suspected or known of causing a NAAQS violation

- **Griffin Pipe Products Company**
 - Located in Council Bluffs
 - The only facility in IA with emissions greater than 0.5 tons per year and not eligible for a waiver
 - Source oriented monitor started November 3, 2009
 - Recorded six NAAQS violations in 2010
 - 0.26 ug/m³ maximum (Jun-Aug 2010)

Lead Nonattainment Area



- Northern Border:
 - Ave G
- Southern Border:
 - 23rd Ave
- Eastern Border:
 - N 16th St / S16th St
- Western Border:
 - N 35th St / S 35th St
- Legend:
 - Boundary: 
 - Section Lines: 
 - Modeled NAAQS violation : 
 - Modeled Contours: 

Lead Implementation in Iowa

- **Designations completed**
- **Submitted lead infrastructure SIP in Oct 2011**
 - No action to date by EPA
- **Council Bluffs Nonattainment SIP under development**
 - Submittal due July 1, 2013
- **Conducting annual reviews of reported lead emissions**
 - Perform modeling if applicable
- **Reviewing lead emissions increases as part of minor NSR program**

NO₂ & SO₂ NAAQS

- **New 1-hr NO₂ NAAQS finalized on January 22, 2010**
 - Level: 100 ppb
 - Form: 3 year avg of the 98th percentile
 - Retain the current annual standard of 53 ppb
- **New 1-hr SO₂ NAAQS finalized on June 2, 2010**
 - Level: 75 ppb
 - Form: 3 year avg of the 99th percentile
 - Revocation of 24-hr and annual standards

NO2 Implementation in Iowa

- **Designations complete**
 - All counties unclassifiable/attainment
- **New NO2 monitoring requirements**
 - Near roadway monitors in Metropolitan areas \geq 500,000
 - Des Moines: Monitor operational by January 1, 2013
- **Stakeholder implementation meetings**
 - Feb, May, Sep 2012 AQ Client Contact meetings
- **Permitting and modeling for PSD projects**
- **Infrastructure SIP due by Jan 22, 2013**

SO2 Implementation in Iowa

- **State designation recommendations complete**
 - Proposed (2011) 5 counties attainment, rest unclassifiable
 - Muscatine County?
- **Stakeholder implementation meetings**
 - Feb, May, Sep 2012 AQ Client Contact meetings
- **Infrastructure SIP due by Jun 3, 2013**
- **Permitting and modeling for PSD projects**

Additional SO2 SIP Considerations

- **April 2012: EPA announced:**
 - Continuing process to designate areas as quickly as possible, focusing on areas with sufficient ambient air quality data
 - Organizing a series of stakeholder meetings to get focused input to refine approach for establishing whether areas are meeting the SO2 NAAQS
- **Modeling demonstration not required showing future attainment for areas designated “unclassifiable” as part of June 2013 infrastructure SIPs**
- **EPA planning to issue further guidance and/or rulemaking addressing SO2 implementation**
- **Infrastructure SIP still due Jun 3, 2013**

Ozone NAAQS Update

- **Current NAAQS was set in 2008 at 75 ppb (8-hr)**
- **Reconsideration started in 2009 in response to concerns that NAAQS was not protective of public health and environment**
- **EPA proposed range from 60-70 ppb in early 2010**
- **Reconsideration was withdrawn by EPA at request of President on Sept 2, 2011**
- **EPA finalized designations in 2012**
- **Infrastructure SIP submittal timeframes unknown**
- **EPA currently reviewing the 2008 standard with final NAAQS rule expected late 2014**

Minor NSR NAAQS Implementation Schedule

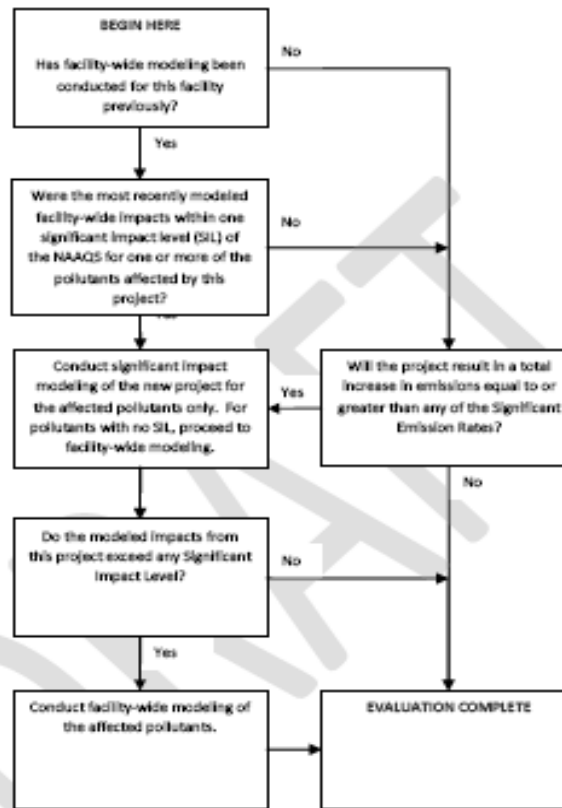
- **PM2.5 and NO2: January 22, 2013**
 - PM2.5 implementation date aligned with 1-hr NO2 date
 - 1-hr NO2 date based on infrastructure due date
- **SO2: June 3, 2013**
 - Based on SO2 infrastructure due date
- **Lead: Implementation started in Oct 2011**



Minor NSR NAAQS Implementation (Cont.)

- **Construction permit applications submitted on or after Jan 22, 2013 will be reviewed for PM2.5 and 1-hr NO2**
- **Construction permit applications submitted on or after Jun 3, 2013 will be reviewed for 1-hr SO2.**
- **New determination process (Form MD) will be used to select projects for modeling review**
- **Updated default background values will be available**
 - **Alternative approaches for including background values (pairing monitoring data with modeled data) will also be available.**

Pollutant Specific Modeling Determination Flow Chart



Pollutant	Significant Emission Rate	National Ambient Air Quality Standard ($\mu\text{g}/\text{m}^3$)				Significant Impact Level (SIL) ($\mu\text{g}/\text{m}^3$)					
		1-hour	3-hour	8-hour	24-hour	Annual	1-hour	3-hour	8-hour	24-hour	Annual
PM ₁₀	3.42 lb/hr				150				5		
PM _{2.5}	2.28 lb/hr				35	15			1.2	0.3	
NO ₂	9.13 lb/hr	188			100		7.5			1	
SO ₂ *	9.13 lb/hr	196	1,300		365	80	7.9	25	5	1	
CO	22.8 lb/hr	40,000		10,000			2,000	500			
Ozone**	40 (VOC) tpy			235							
Lead	0.6 tpy	0.15 per rolling quarter									

* For 1-hour SO₂: no dispersion modeling is currently required for minor projects. Ambient air impact evaluation will be required in the future State Implementation Plan revision.

** Direct O₃ is evaluated on a case-by-case basis.

NAAQS Implementation Rulemaking (567 IAC Chapters 22 and 28)

- **Revise permitting exemptions**
 - Based on stakeholder input;
 - Engineering and modeling evaluations
- **Revise Title V insignificant activities**
 - Based on corresponding exemption revisions
- **Revise spray booth permit by rule**
 - Add content limits for lead containing materials
- **Adopt new 1-hr SO₂ NAAQS**
 - PM_{2.5}, lead, ozone and NO₂ revisions adopted previously
- **Remove use of PM-10 surrogate for annual PM_{2.5} NAAQS**

Permitting Exemptions Being Updated (567 IAC 22.1(2)):

- Fuel burning equipment for indirect heating or cooling (“b”) [PM2.5, Lead]
- Incinerators and pyrolysis furnaces (“e”) [PM2.5, Lead, discontinued for new incinerators]
- One pound per hour exemption (“i”) [discontinued]
- Small unit exemption (“w”) [all pollutants]
- Production welding (“ff”) [PM2.5, Lead]
- Soldering (“gg”) [Lead]
- Research and development (“kk”) [all pollutants]

NAAQS Implementation Rulemaking Status

- **Pre-stakeholder input completed at AQ Client Contact meetings**
 - May and Sep 2012, review at Nov 2012 meeting
- **Informal public comment period completed Sep 2012**
- **EO80 determination scheduled for Dec with IGOV**
 - Discuss stakeholder workgroups/interactions since 2010
- **Tentative schedule (no EO80 workgroup):**
 - Final rules expected Spring 2013

Questions/Discussion