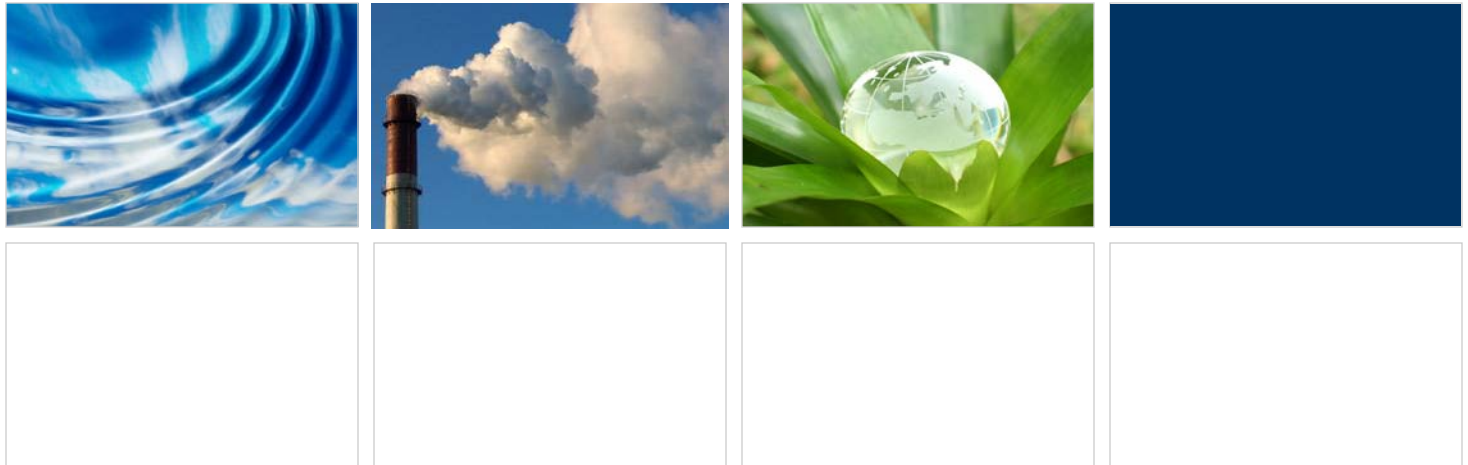


# NSR Permitting Issues

Thomas Rarick P.E.  
Environmental Resources management

IN AWMA Spring Technical Meeting  
March 2009

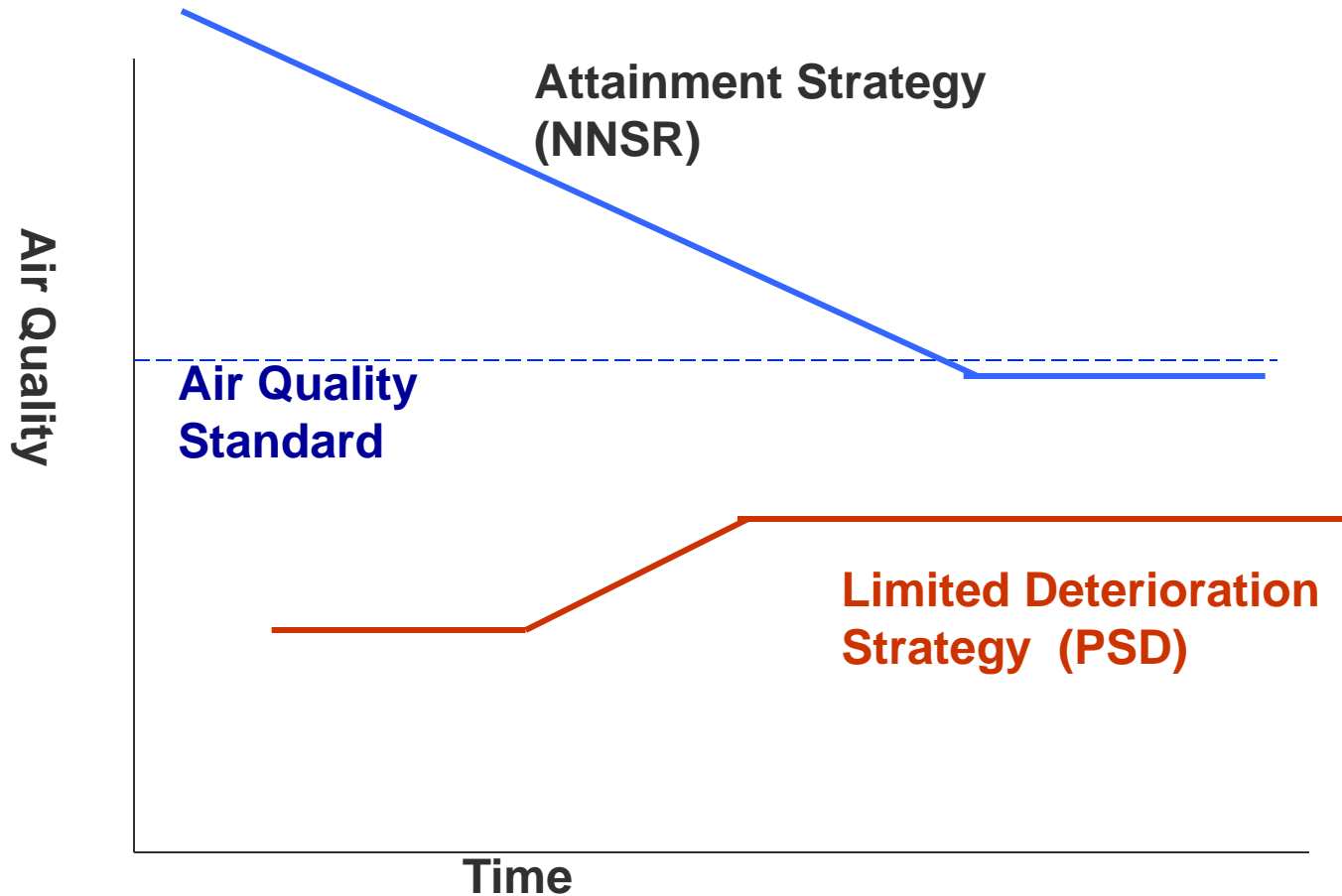


- **NSR Program Basics**
- **Changes in NAAQS**
  - Managing NSR permitting when Standards Change
- **PM2.5 Challenges**
  - Surrogate Policy Removal
  - BACT Determinations
- **Impacts of Climate Change and the Tailoring Rule**
  - When will PSD apply for Greenhouse Gases?
  - Who will the Rule Apply to?
  - What will be required?

# NSR Programs

- **PSD = Prevention of Significant Deterioration**
- **NNSR = Nonattainment New Source Review**
- **At the most basic level:**
  - Preconstruction permitting programs required under the CAA for Large Sources.
  - generally implemented/administered by States
  - Impose control technology requirements.
  - Have an air quality component.
- **Economic Development and Source Expansions can be affected.**

# Strategies for Clean Air



# Relationship Between NAAQS and PSD/NNSR

- **PSD applies to attainment & unclassifiable areas**
  - to preserve, or prevent, significant deterioration of air quality
- **Nonattainment New Source Review (NNSR) applies strictly to nonattainment areas**
  - to enable areas to achieve the NAAQS or restore air quality
- **A project could be subject to both rules but for different pollutants.**



# Regulatory Basis for NSR

- Regulatory Requirements for PSD Found at 40CFR51.165
- Federal Rules for PSD Found at 40 CFR 52.21
- Regulatory Requirements for NNSR Found at 40CFR 51.166.
- Federal Rules for NNSR Found at 40 CFR 51 Appendix S.
- Federal Implementation Based on Federal Rules.
- State Implementation based on:
  - Federal Rules for Delegated States
  - State Rules if SIP approved

# Delegated vs. SIP Approved

- Delegated States (Illinois is an Example):
  - State Administers the Permitting Program based on the Federal Rules
  - Equivalent State Rules have not been developed or approved by EPA.
  - EPA oversight is more rigorous
  - Rules Change when the Federal Rules Change (e.g. PM2.5 changes)
  - Appeals go to the Federal Environmental Appeals Board and permits are automatically stayed until resolution.



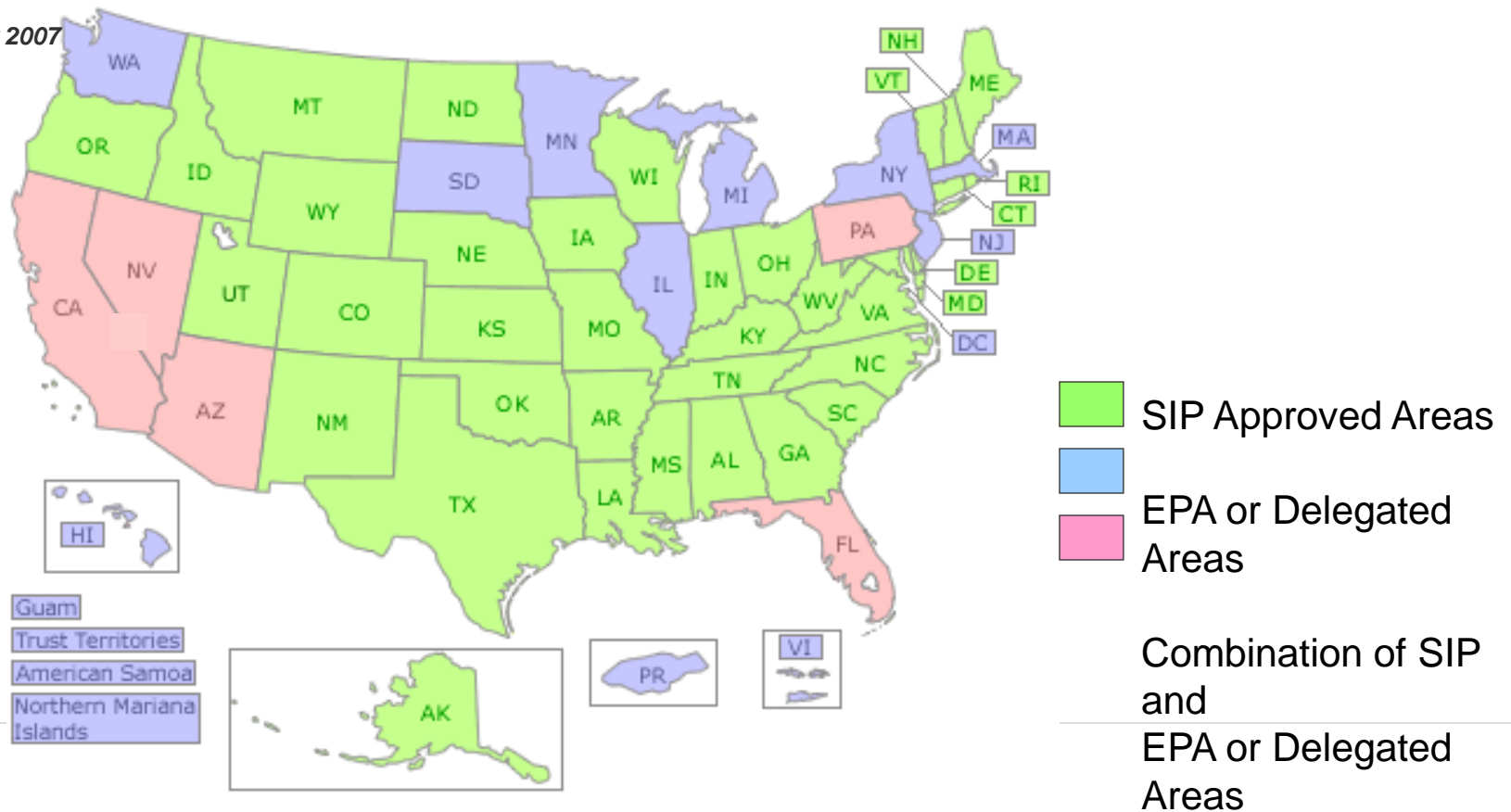
# Delegated vs. SIP Approved

- SIP Approved States (Indiana is an Example)
  - **State Administers the Permitting Program based on State Adopted and EPA approved rules.**
  - States Have More Decision Making Autonomy.
  - Rule Changes have to be made at State Level which can take 2 years or more.
  - Appeals are handled through State Appeal Procedures.
  - State Rules can be more Stringent Than Federal Rules.



# Prevention of Significant Deterioration (PSD) Permit Program Status

May 2007



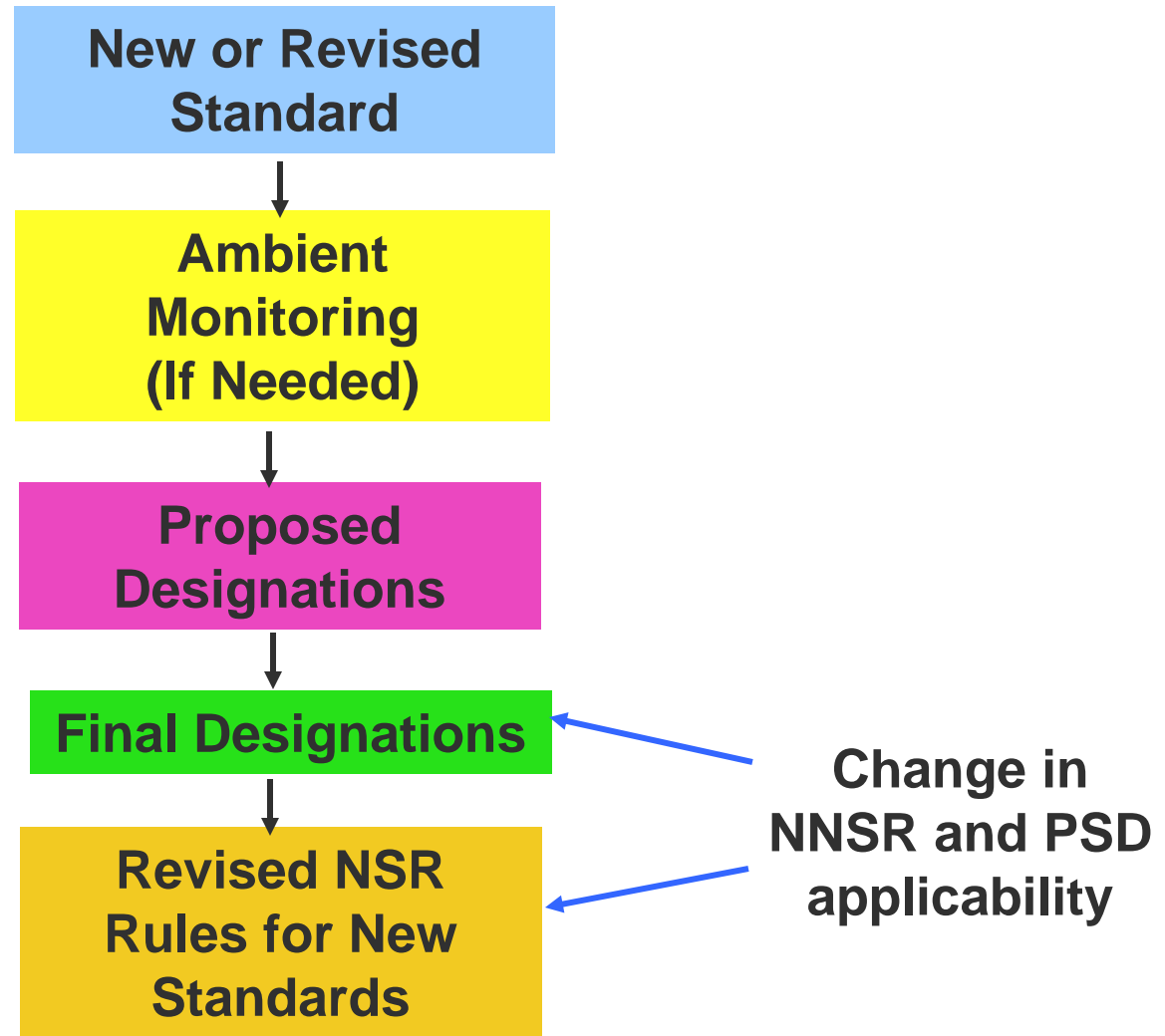
# PSD/ NNSR Overview

	PSD	NNSR
Applies to	<b>“Attainment Pollutants”</b>	<b>“Non-Attainment” Pollutants</b>
Major Source Threshold	<b>100 or 250 tpy of PSD regulated Pollutants</b>	<b>100 tpy of Non-attainment Pollutant</b>
Major Modification Threshold	<b>(Varies)</b>	<b>40 tpy for VOCs, NOx, SO2 15 tpy for PM10 10 tpy for PM2.5</b>
Technology Requirement	<b>Best Available Control Technology (BACT)</b>	<b>Lowest Achievable Emission Rate (LAER)</b>
Air Quality Requirements	<b>PSD Increment and NAAQS Criteria</b>	<b>Emission Offsets and Net Air Quality Benefit</b>
Other Requirements	<b>Visibility, Soils and Vegetation Assessments</b>	<b>“State-Wide Compliance &amp; Alternate Siting Assessment</b>

# PSD Pollutant “Significant Increase” Thresholds

Criteria Pollutants		Other PSD Pollutants		Old PSD HAPs	
<b>VOCs</b>	<b>40 tpy</b>	<b>Fluorides</b>	<b>3 tpy</b>	<b>Be</b>	<b>0.0004 tpy</b>
<b>NOx</b>	<b>40 tpy</b>	<b>Sulfuric Acid Mist</b>	<b>7 tpy</b>	<b>Hg</b>	<b>0.1 tpy</b>
<b>SO2</b>	<b>40 tpy</b>	<b>Total Reduced Sulfur</b>	<b>10 tpy</b>	<b>Asbestos</b>	<b>0.007 tpy</b>
<b>PM</b>	<b>25 tpy</b>	<b>Reduced Sulfur Compounds</b>	<b>10 tpy</b>	<b>Vinyl Chloride</b>	<b>1 tpy</b>
<b>PM10</b>	<b>15 tpy</b>	<b>H2S</b>	<b>10 tpy</b>		
<b>PM2.5</b>	<b>10 tpy</b>	<b>ODS</b>	<b>100 tpy</b>		
<b>Lead</b>	<b>0.6 tpy</b>	<b>Other Regulated Pollutants</b>	<b>0 tpy</b>		

# Impact of Changing Air Quality Standards



# Significant Lowering of Air Quality Standards

Pollutant	Old Standard	New/ Proposed Standard	Impacts
<b>Lead 2008</b>	1.5 µg/m <sup>3</sup> Quarterly Average	0.15 µg/m <sup>3</sup> 3-month average	Monitoring for States and Industry Potential new Non-attainment areas.
<b>NO<sub>2</sub> 2010</b>	53 ppb, Annual Avg.	100 ppb, <b><u>1-hour average</u></b>	Effective April 12, 2010 New Monitors Potential new Nonattainment areas.
<b>Ozone</b>	0.08 ppm 8-hour avg.	0.075 ppm 8-hour average	Re-designations held up pending Review of the Standard. Central Indiana Currently Attainment at 0.075 ppm
<b>Ozone</b>		0.060 to 0.070 ppm 8-hour average 7-15 ppm-hrs seasonal cumulative secondary standard	Proposed in January 2010, Finalized in August 2010. Designations in 2011 Significant Extension of Non-attainment areas
<b>PM<sub>2.5</sub></b>	35 µg/m <sup>3</sup> 24-hr avg. 15 µg/m <sup>3</sup> annual avg.	25- 35 µg/m <sup>3</sup> 24-hr avg. 14 µg/m <sup>3</sup> annual avg.	Re-designation of central Indiana to Attainment is pending. Potential Wide Spread Non-attainment at lower standard.
<b>SO<sub>2</sub></b>	140 ppb, 24-hour avg. 30 ppb, annual avg.	50-100 ppb 1-hour	Proposed November 2009 Final Expected June 2010

# Impacts of Changing Standards on NSR

## What You Need to Know

- **How large is the non-attainment area and are you in it.**
  - Could be smaller than the County for some pollutants like lead, or CO.
  - Could be regional for pollutants like Ozone and PM2.5.
- **When will the Change in NNSR applicability take place?**
  - Date re-designations are final.
  - Date NSR rule changes are effective
  - Date application is final vs. date permit is issued.

# Impacts of Changing Standards on NSR Strategies

- **Know whether potential modifications may trigger review.**
- **Identify ways to avoid NSR review**
  - Synthetic Minor Limitations
  - Netting Opportunities
- **Submit applications when the area is Attainment.**
- **Push for Timely Issuance of Pending PSD permits.**
- **Critical Review of Key Emission factors and Source Emission Inventories**

# PM2.5 NSR Challenges

# Particulate Matter: What is It?

A complex mixture of extremely small particles and liquid droplets

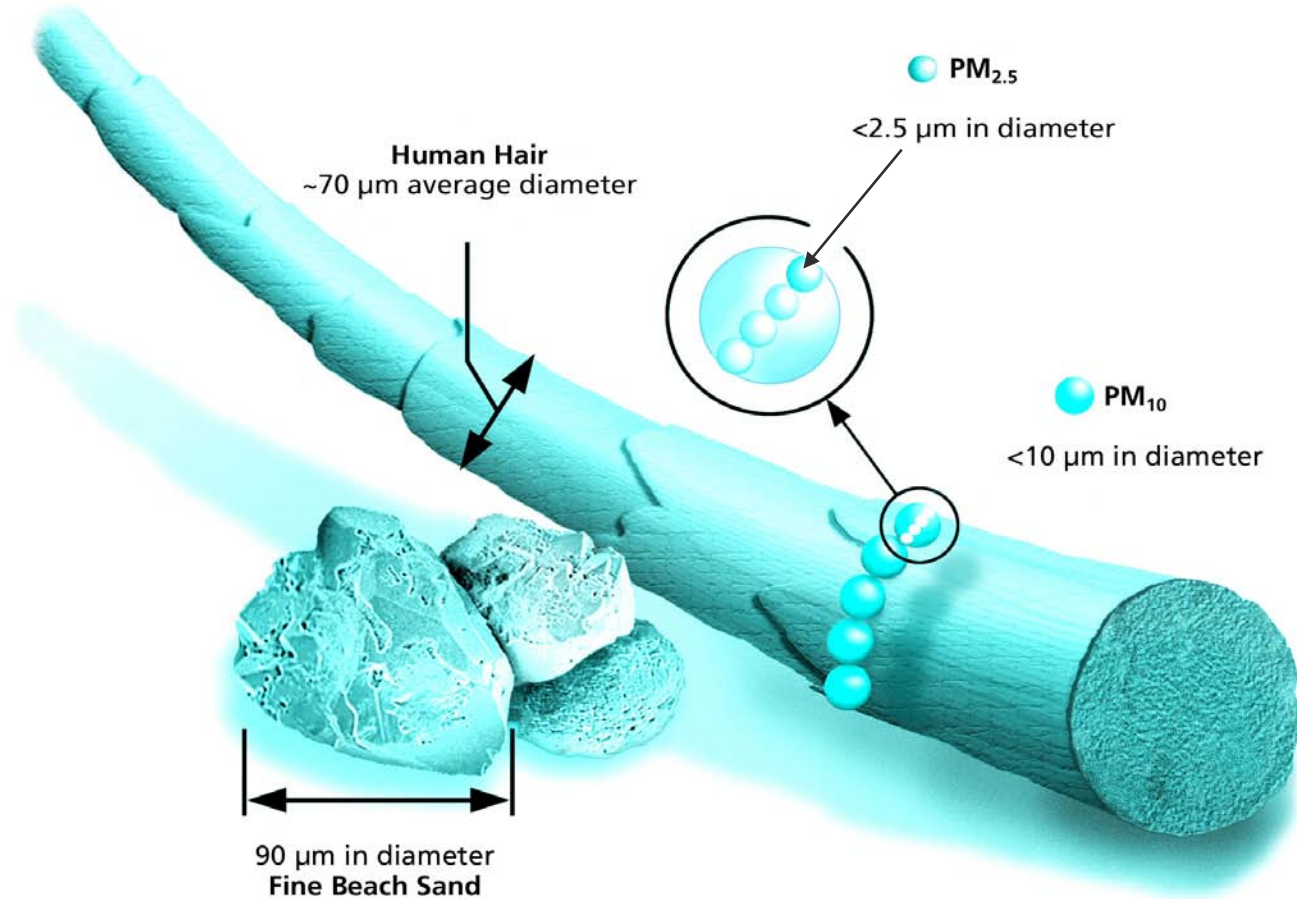
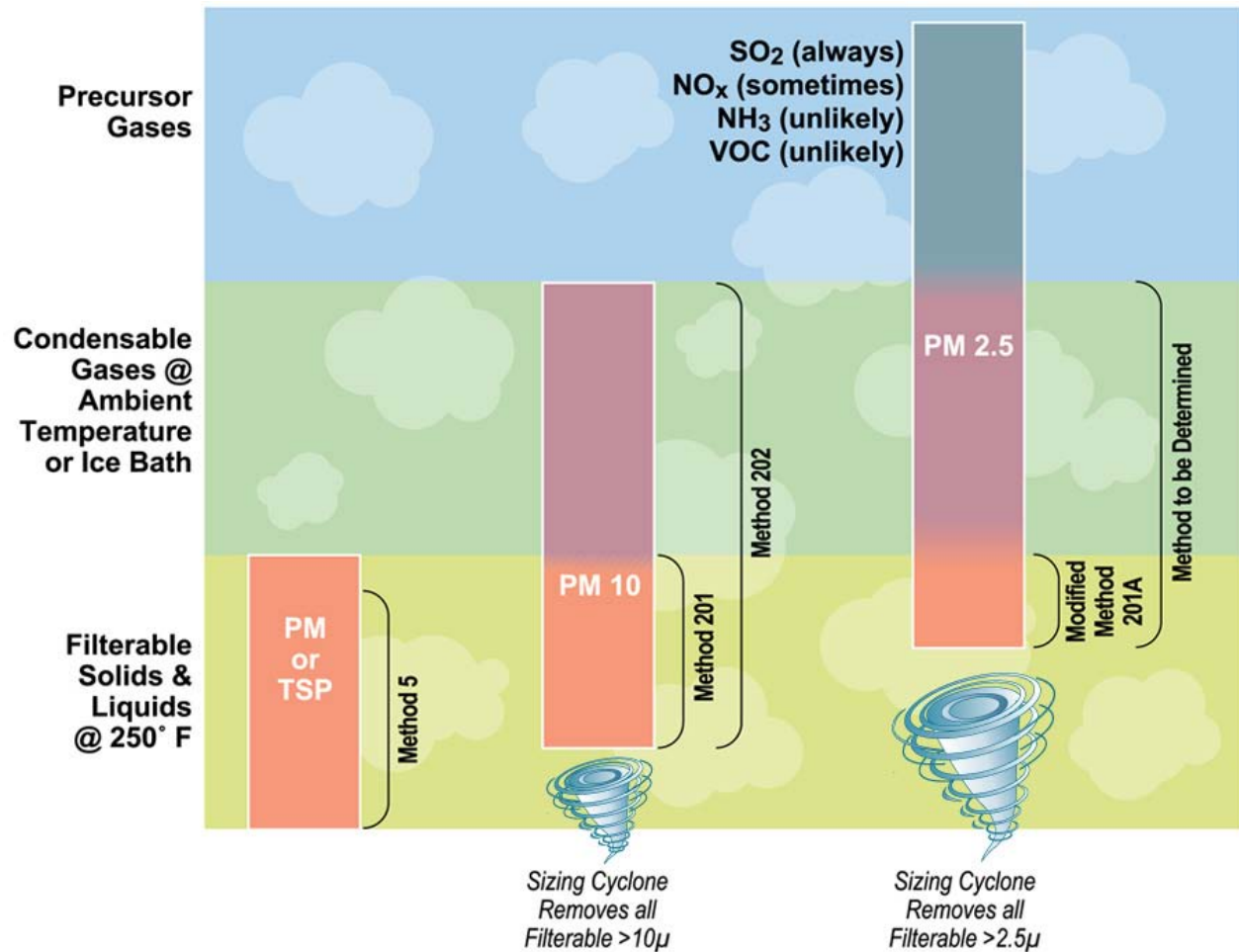


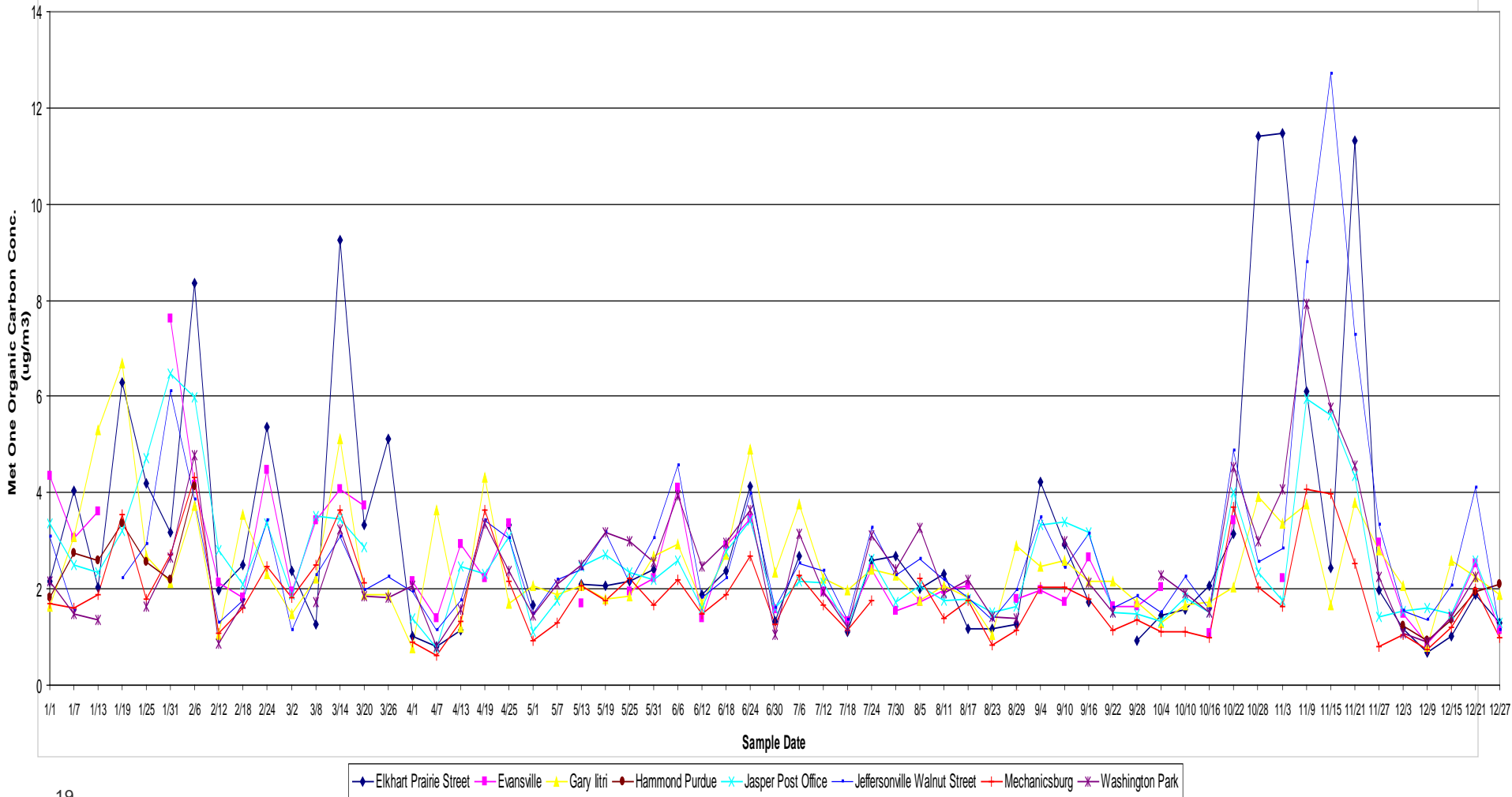
Image courtesy of EPA, Office of Research and Development

# The Many Components of Particulate Matter



# Organic Carbon Component of PM2.5, 2009 at various Sites

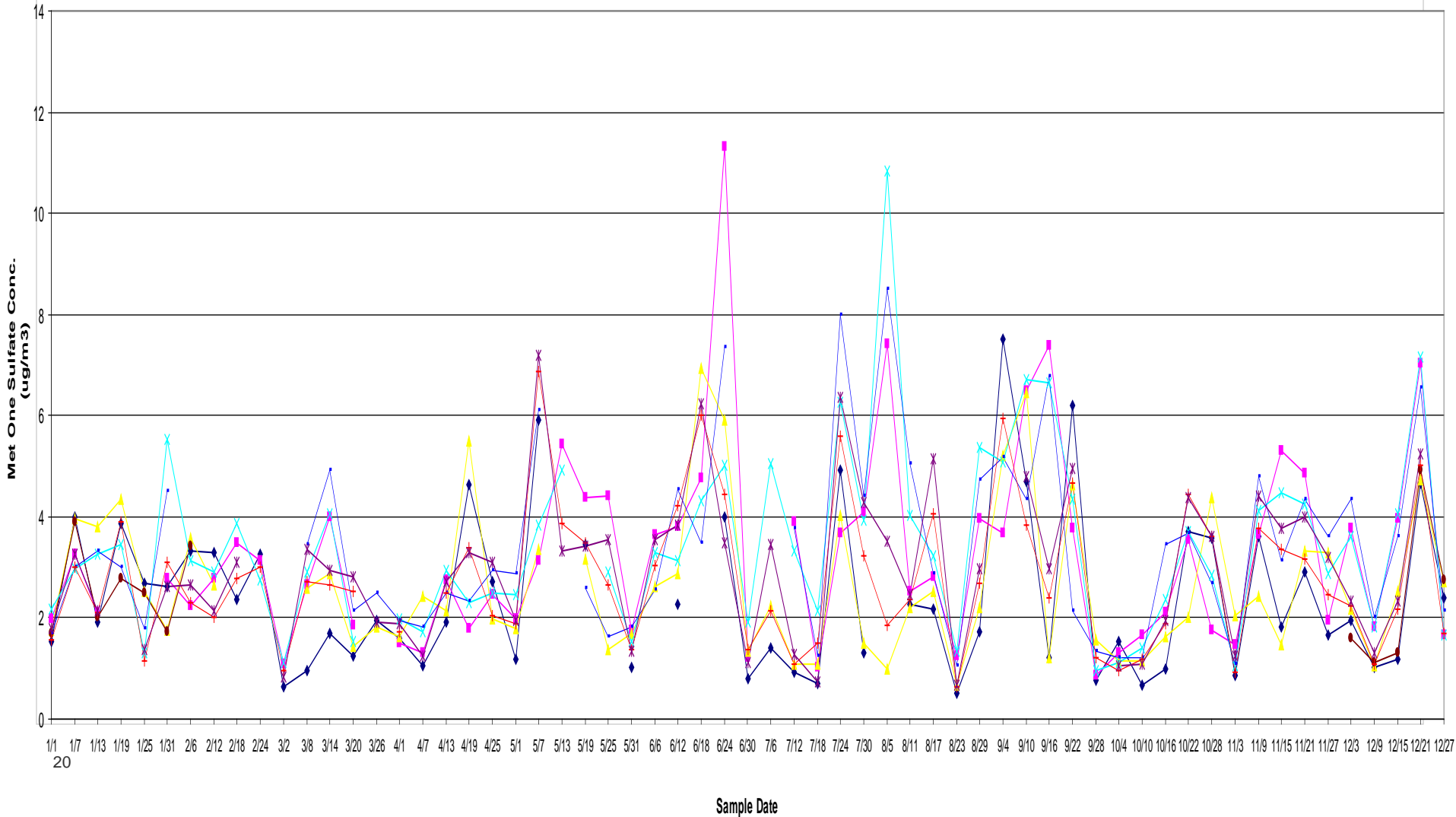
Indiana Met One Speciation Organic Carbon Conc. Time Series  
2009



# Sulfate Component of PM2.5, 2009 at various Sites

Indiana Met One Speciation Sulfate Conc. Time Series

2009



Delivering sustainable solutions

- Elkhart Prairie Street
- Evansville
- Gary Itri
- Hammond Purdue
- Jasper Post Office
- Jeffersonville Walnut Street
- Mechanicsburg
- Washington Park

# PM<sub>2.5</sub> NSR Implementation Timeline

<b>April 2005</b>	39 areas designated for 1997 standards
<b>December 2006</b>	2006 revised PM <sub>2.5</sub> NAAQS
<b>March 2007</b>	PM <sub>2.5</sub> implementation rule proposed without NSR requirements
<b>September 2007</b>	PM <sub>2.5</sub> NSR implementation rule proposed
<b>May 2008</b>	Partial PM <sub>2.5</sub> NSR Implementation rule proposed – No Increments, SILs or SMCs
<b>December 2008</b>	EPA finalizes new PM <sub>2.5</sub> NA areas based on 2006 standards Appendix S essentially governs expansion in NA areas
<b>March 2009</b>	EPA proposed revision to Test 202 for Condensable PM (projected final by ??)
<b>February 2010</b>	Proposed Rescission of “Surrogate Policy”.

# PM<sub>2.5</sub> NSR Implementation



- **May 16, 2008 – EPA promulgates major provisions of PM<sub>2.5</sub> NSR Implementation Rule (PSD and NaNSR) addressing:**
  - Significant emissions rates
  - Precursors
  - Condensables
  - Transition
- **Remaining Issues (Promulgation not expected until 2010)**
  - PSD Increments
  - Significant Impact Levels
  - Significant Monitoring Concentrations

# PM<sub>2.5</sub> NSR Applicability



- **PSD New Source – 100/250 tpy threshold**
- **NaNSR New Source – 100 tpy threshold**
- **Significant emissions rates (apply individually)**
  - Direct PM<sub>2.5</sub> – 10 tpy
  - SO<sub>2</sub> precursor – 40 tpy, must be regulated
  - NO<sub>x</sub> precursor – 40 tpy, presumed\* to be regulated
  - VOC – 40 tpy, presumed\* not regulated
  - NH<sub>3</sub> – SIP specific, presumed\* not regulated
- **Condensable PM<sub>2.5</sub> – Included in direct PM<sub>2.5</sub> after transition**

***\*States may differ from presumption***

# Condensable PM Issues and Implementation

- **EPA will not require addressing condensable PM for either  $PM_{10}$  or  $PM_{2.5}$  during a transition period.**
- **January 1, 2011 – transition period expiration or an earlier date if established by rulemaking**
  - Revision to RM 202 for condensable PM proposed March 25, 2009 included provision for transition period to end 90 days after method goes final
- **States may require condensables to be included earlier: Indiana Does**
- **Existing SIPs may require condensables now**

# PSD PM<sub>2.5</sub> Requirements

PSD Element	PM <sub>2.5</sub> Implementation
BACT	<ul style="list-style-type: none"><li>• Direct PM<sub>2.5</sub></li><li>• SO<sub>2</sub> precursor emissions</li><li>• NO<sub>x</sub> precursor emissions (unless exempted by state)</li><li>• VOC precursor emissions only if required by state</li></ul>
NAAQS and Increment Demonstrations	Proposed SILs, increments and SMCs
Preconstruction Monitoring	Required but case-by-case exemptions available based on SMCs and other data

# NaNSR PM<sub>2.5</sub> Requirements

NaNSR Element	PM <sub>2.5</sub> Implementation
LAER	<ul style="list-style-type: none"> <li>• Direct PM<sub>2.5</sub></li> <li>• SO<sub>2</sub> precursor emissions – small project impacts?</li> <li>• NO<sub>x</sub> precursor emissions (unless exempted by state)</li> <li>• VOC precursor emissions only if required by state</li> </ul>
Emissions Offsets	Ratio for direct and precursor emissions
Compliance Certification	No change from existing
Alternatives Analyses	No change from existing

# Nonattainment Area NSR and Precursor Emissions

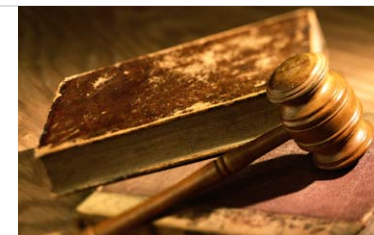
- **Under Appendix S (for interim implementation)**
  - only SO<sub>2</sub> is a precursor
- **Under requirements for SIPs**
  - SO<sub>2</sub> is a precursor
  - NO<sub>x</sub> is “presumed in”
  - VOC and ammonia are “presumed out”
  - States may demonstrate that NO<sub>x</sub> is not a precursor
  - States may demonstrate that VOC or ammonia is a precursor

# Timing and Transition Issues



- **NaNSR – Appendix S applies July 15, 2008 in all NA areas**
- **PSD – Federal rules apply July 15, 2008 in delegated states and areas where EPA issues permits**
- **PSD – Prior PM<sub>10</sub> surrogate policy applies in SIP authorized states.**

# PM2.5 NSR Rule - Reconsideration



- **January 2009, Administrator Johnson denies Reconsideration and Stay.**
- **February 10, 2009, petitioners file second request for reconsideration to Administrator Jackson.**
- **April 24, 2009, EPA issued a letter to the petitioners granting the petition for reconsideration and stayed the grandfathering provision for 3 months.**
- **February 20, 2010:**
  - EPA proposes repealing the grandfathering provision under the Federal PSD program.
  - EPA proposes to end the “surrogate” policy for PM10.
  - Some Regions already implementing PM2.5 under the PSD rules based on Regional Office Requirements and Louisville gas and Electric Decision.

# PM2.5: Where are we now?

- **Must address PM2.5 in PSD reviews.**
- **Must include Condensables in BACT and Air Quality Assessments.**
- **Limited or no data on PM2.5 for many sources.**
- **Even less data for Condensables.**
- **Don't know what the components of the condensable PM are, so it is unclear how to effectively control.**

# PSD and Title V GHG Tailoring Rule

- **Proposed Rulemaking – Published in October 27, 2009 Federal Register**
- **Purpose:**
  - Establish major source thresholds for GHG emissions under PSD and Title V rules
- **What GHGs are covered:**
  - CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs, and SF<sub>6</sub>

# Background

- **Reasons for the proposed rulemaking:**
  - EPA has proposed to set standards under the Clean Air Act for GHG emissions from light duty vehicles by the end of March 2010
  - EPA believes that this rulemaking will make GHG emissions a pollutant 'regulated under the CAA'
  - Title V rules require regulatory agencies to issue Federally enforceable operating permits to sources with potential emissions of more than 100 tpy of any regulated air pollutant

# Background

- **Reasons for the proposed rulemaking:**
  - Prevention of Significant Deterioration rules apply to sources which have the potential to emit 100 tons per year or 250 tons per year (depending on the category) of pollutants regulated under the Clean Air Act
  - Title V and PSD requirements may be triggered immediately once rules regulating GHG emissions become final.

# Issues With GHG Becoming Regulated Under CAA

- **EPA estimates that current 100 tpy threshold would result in the need for over six million sources to file Title V permit applications.**
- **EPA estimates that 41,000 sources per year would require PSD permits based on an applicability threshold of 250 tons per year of CO<sub>2e</sub> for a new or modified source**
- **Little environmental benefit would be gained by such permits:**
  - No applicable requirements to include in Title V permits
  - No air quality impact appropriate under PSD rules, as no NAAQS exist for GHG pollutants
  - What is BACT for GHG??

# Proposed Approach

- **Set Major Source definition under Title V at 25,000 tons/year CO<sub>2e</sub>**
  - Under Title V rules, applications for new Title V sources would be due within one year of the date the source becomes subject to Title V
- **Set Major Source definition under PSD at 25,000 tons/year CO<sub>2e</sub>**
- **Set Major Modification definition under PSD at 10,000 to 25,000 tons/year CO<sub>2e</sub>**
- **Perform a five year study of the impact, effectiveness, and need for these thresholds**

# Developments to Watch

- **Legal challenges**
- **Senate Actions**
- **Revised EPA Approach**
  - Increase major Source threshold to 75,000 tpy.
  - Delay implementation until 2011 to 2012.
- **Approach for BACT**
  - Include energy efficiency as BACT alternative?
  - Include GHG offset projects as BACT alternative?
- **Status of state agency rules.**

# Questions

**Tom Rarick, P.E.**

**ERM**

11350 Meridian St.  
Suite 320  
Carmel, IN 46032

317-706-2003

**tom.rarick@erm.com**

