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## Newsreel: Trending CAA Developments *NAAQS, Modeling and SSM Exemption*



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Charles R. (Chuck) Buttry  
Regional Manager, Southeast



# Trending Air Developments

- > NAAQS Changes
- > Modeling
  - ❖ Proposed Appendix W Changes
- > SSM Exclusion & Affirmative Defense

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## Community Tags

#PSD

#Illinois

#Flares

#EPA

#TSCA

#GHG

#RMP

#[EPA Region 2]

# NAAQS Changes

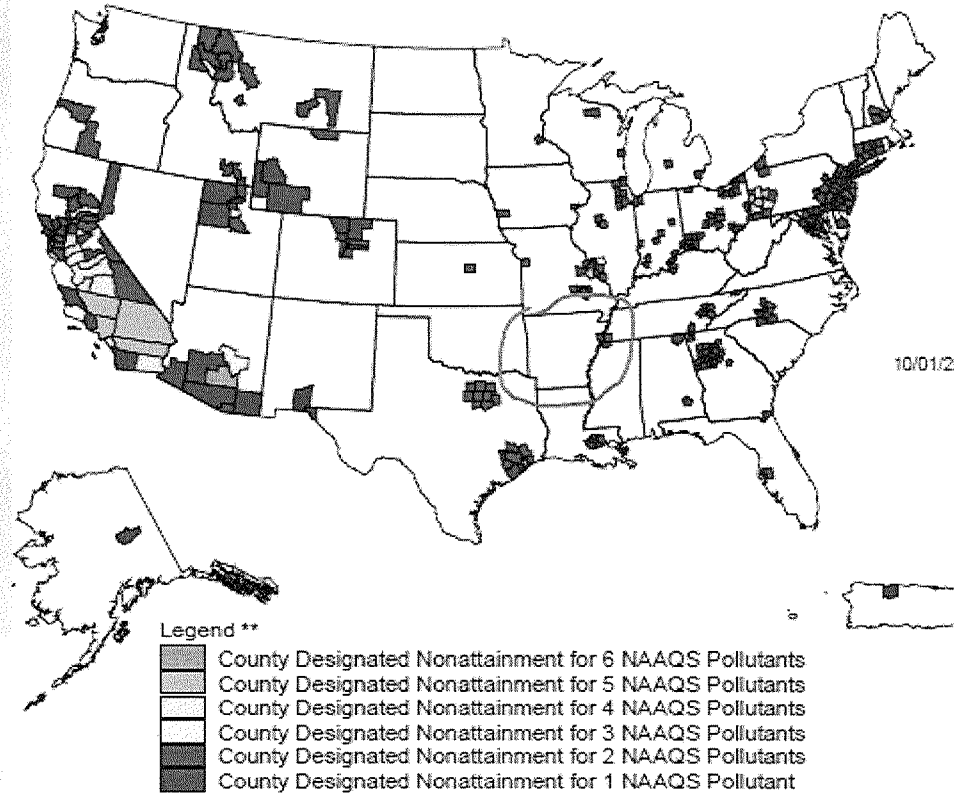
- > Changes to NAAQS have broad reaching consequences for industry, including:
  - ❖ More stringent air permitting requirements for new and modified sources in attainment areas
  - ❖ Requirements to obtain offsets for new projects in nonattainment areas
  - ❖ Additional control requirements for existing sources located in nonattainment areas

# Last 5 Years' NAAQS Changes

Pollutant				
	NO <sub>2</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	8-hr Ozone (ppb)	PM <sub>2.5</sub> (µg/m <sup>3</sup> )
Old Standard	100 (annual)	1300 (3-hr) <del>365 (24-hr)</del> 80 (annual)	75 (2008)	35 (daily) <del>15.0 (annual)</del>
New Standard	188 (1-hr) [4/12/10]	196 (1-hr) [8/23/10]	70 [10/26/15]	35 (daily) 12.0 (annual) [3/18/13]

# NAAQS Changes

- > Good news!
  - ❖ 2/1/2016: EPA proposed Crittenden County as ozone attainment (2008 std)
  - ❖ Once final, Arkansas will NOT have any Nonattainment areas!
  - ❖ Let's keep it that way!



# 40 CFR 51, Appendix W Guideline on Air Quality Models



Federal Register

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Wednesday,  
November 9, 2005

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Part III

## Environmental Protection Agency

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40 CFR Part 51  
Revision to the Guideline on Air Quality  
Models: Adoption of a Preferred General  
Purpose (Flat and Complex Terrain)  
Dispersion Model and Other Revisions;  
Final Rule



## FEDERAL REGISTER

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Vol. 80                      Wednesday,  
No. 145                     July 29, 2015

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Part III

## Environmental Protection Agency

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40 CFR Part 51  
Revision to the Guideline on Air Quality Models: Enhancements to the  
AERMOD Dispersion Modeling System and Incorporation of Approaches To  
Address Ozone and Fine Particulate Matter; Proposed Rule

# Introduction

- > Appendix W (to 40 CFR 51), *Guideline on Air Quality Modeling* (GAQM)
- > The legally binding regulation on how to conduct air dispersion modeling
  - ❖ SIP Planning
  - ❖ Permitting
  - ❖ NEPA and other regulatory modeling
- > First update since 2005 (AERMOD)
  - ❖ Dozens of policy memos in last 10 years
- > Plan is to finalize this year, i.e., prior to 2016 election (?)

# Appendix W Changes

- > Some of the changes are welcomed
  - ❖ Changes for NO<sub>2</sub> modeling
  - ❖ Recommendation of LowWind3 option
  - ❖ Incorporation of BLP (sort of)
  - ❖ Inclusion of MERPs (but not yet)
  - ❖ *Removal of CALPUFF*
- > Some of the changes are not welcome
  - ❖ Codifying role of EPA Model Clearinghouse approval
  - ❖ Secondary pollutant modeling guidance
  - ❖ *Removal of CALPUFF*



# AERMOD Bug Fixes and Proposals

POINTHOR

v15181

BPIP-PRIME  
*not revised*

EMVAP  
*not added*

AREA

DAYRANGE

Urban Areas

LINE

NOSTD

FASTAREA

FASTALL

Open Pits

BUOYLINE v. BLP

PVMRM

POINTCAP

LowWind3

AERSCREEN

PVMRM2

ARM2

CALINE3

NO<sub>2</sub>:NO<sub>x</sub> Ratio

OLM

ADJ\_U\*

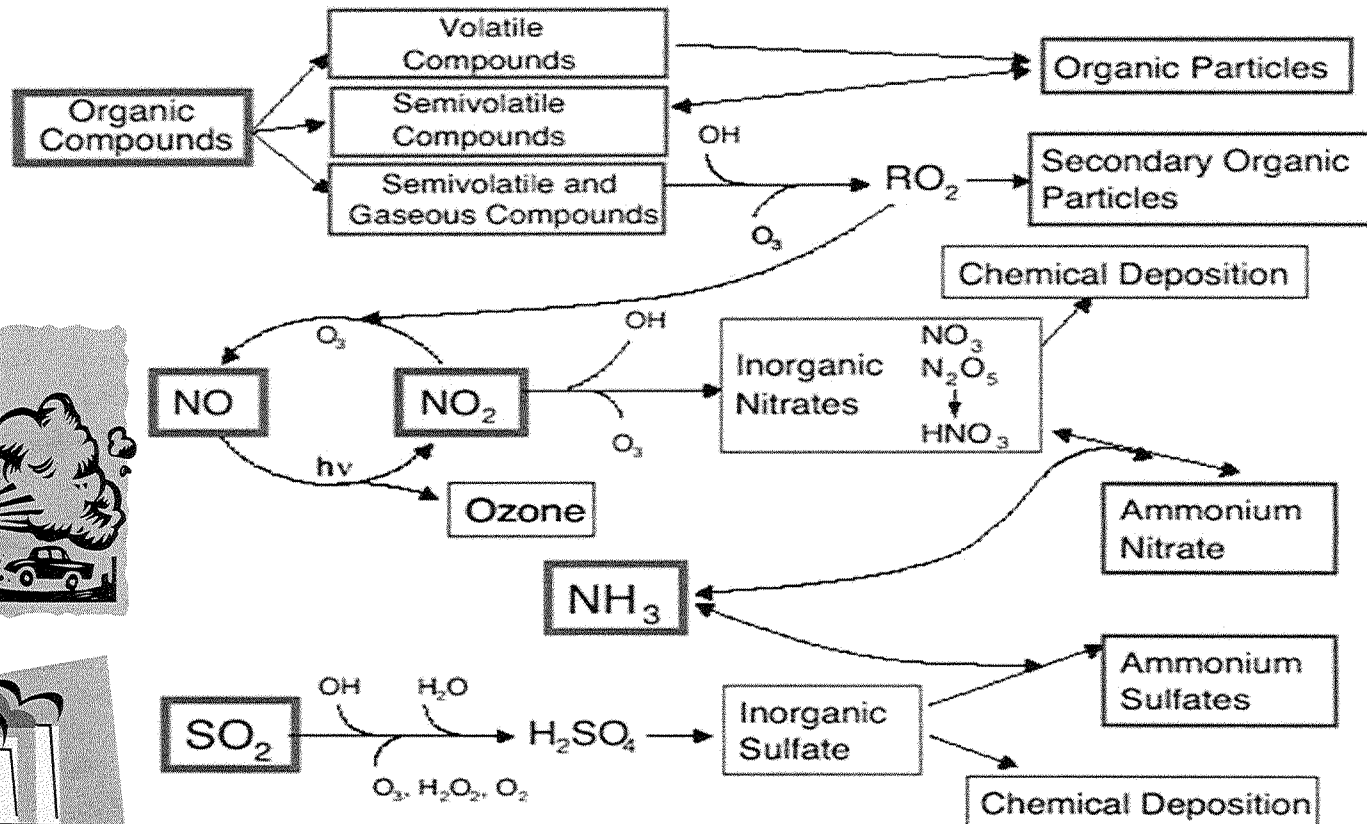
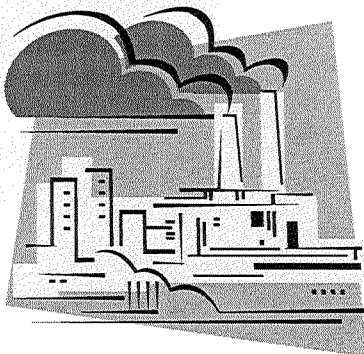
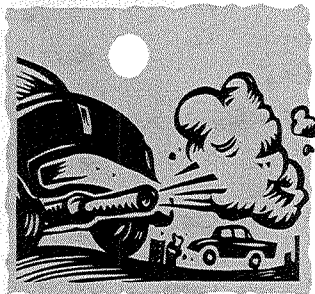
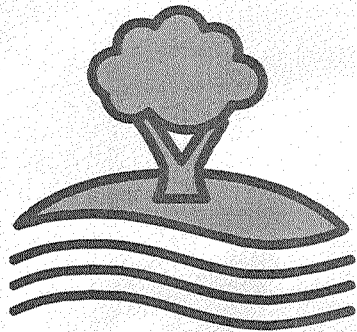
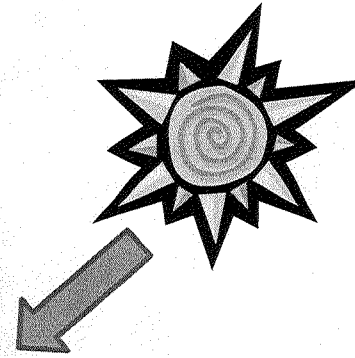
POINTCAP



# Secondary PM<sub>2.5</sub> and Ozone Modeling - Previously

- > Currently there is very little guidance about assessing single source secondary formation impacts for Ozone and PM<sub>2.5</sub>
- > On 1/4/2012, in response to a Sierra Club petition, EPA committed to update Appendix W to address Ozone and PM<sub>2.5</sub>

# Secondary Formation



# Secondary PM<sub>2.5</sub> and Ozone Modeling - Present & Future

- > An entire section (Section 5) is dedicated to secondary pollutants: Ozone and PM<sub>2.5</sub>
- > Recommends a “multi-tiered approach” for single source assessments
  - ❖ Tier 0 - Model Emission Rates for Precursors (MERPs)
    - ◆ Values not proposed; additional rulemaking needed; timing?
  - ❖ Tier 1 - Use of pre-existing credible technical information or a screening model for the purpose of estimating single source impacts on a case-by-case basis
  - ❖ Tier 2 - Lagrangian puff models (CALPUFF, SCIPUFF) or Eulerian grid models (CAMx, CMAQ)
    - ◆ Only for the complicated (less-anticipated) situations
- > Correctly focuses on importance of protocol and consulting with the reviewing authority

# EPA Model Clearinghouse Approval

## *Formal Model Clearinghouse Process*

- *State contacts Region Office with a regulatory modeling situation that requires EPA review and/or approval.*
- *Regional Office determines if it is an alternative modeling situation per Appendix W, Section 3.2.*
- *Regional Office writes request memorandum to the Modeling Clearinghouse:*
  - *Statement of issue.*
  - *Desired approach by the state/local/tribe or applicant.*
  - *Justification per the requirements of Section 3.2.2.*
- *Clearinghouse is engaged and consulted on solutions and writes formal concurrence response memorandum*

- > “all but simplest modeling analyses”
- > No timelines

# Impacts on Air Permit Modeling

## *The Good*

- > Probably overall reduction in conservativeness
  - ❖ New options in AERMOD, e.g., PVMRM2
  - ❖ Background value assessments
- > Reduced time to execute modeling runs
  - ❖ Reduced source inventory requirements
  - ❖ Smaller modeling domains
- > Just plain better
  - ❖ Use of prognostic meteorological data (potentially)
  - ❖ Inclusion of AERMINUTE processor

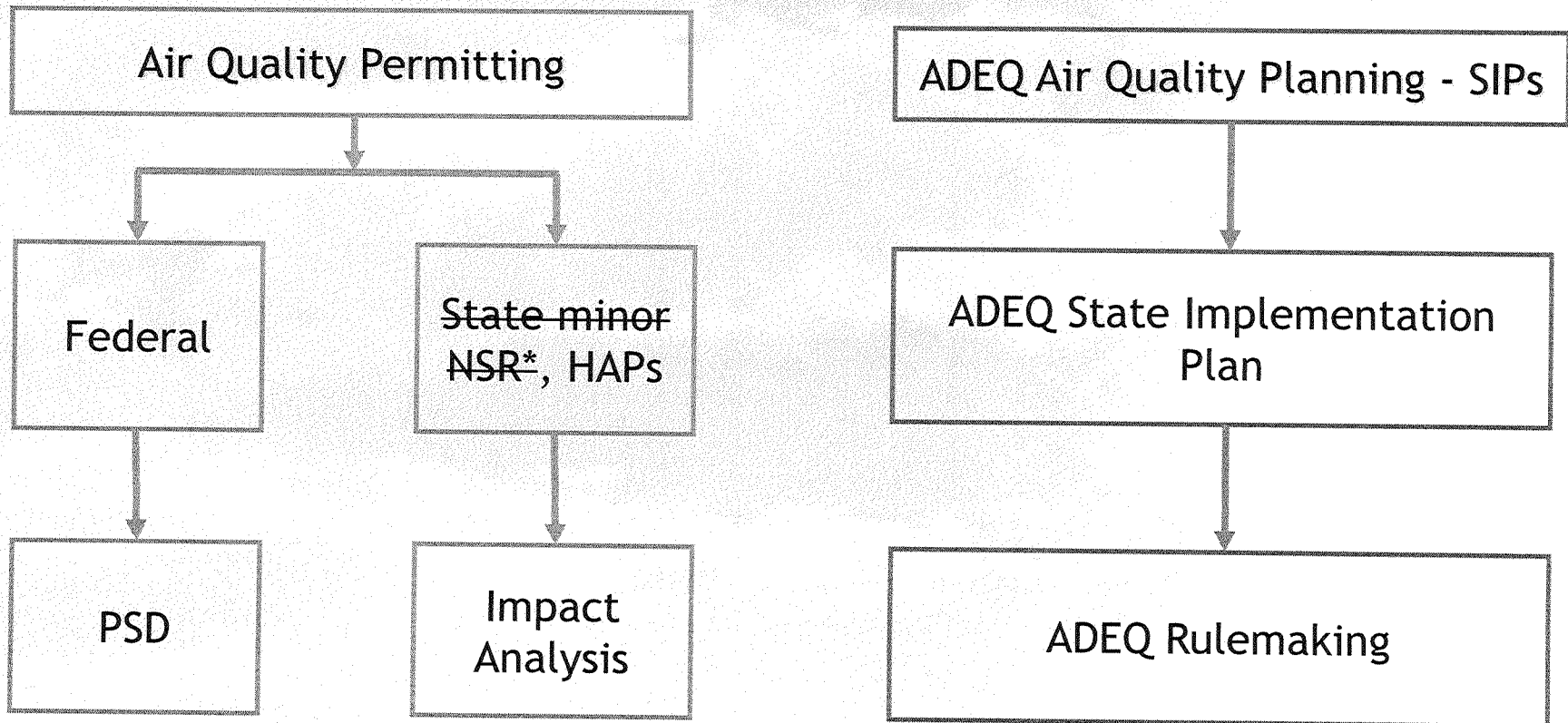
# Impacts on Air Permit Modeling

## *The Bad*

- > Incompletely defined modeling approaches
  - ❖ Protocols will have to be robust
  - ❖ Protocol approval, especially when Model Clearinghouse review is needed, takes time
  - ❖ Protocol approval does not exempt you from additional scrutiny during application/permit review
  - ❖ Reduction in consistency because of the move to more case-by-case decisions?
  - ❖ Increased time, expense, and vulnerability of modeling will lead to further efforts to avoid modeling (i.e., PSD) altogether.

**Q: When is Modeling Required in Arkansas?**

**A: Usually only PSD or air toxics (NCPCS).**



*\* For projects that do not trigger a Federal review, modeling for criteria pollutants (NAAQS) may be required if NAAQS SIP criteria are met*



# Slow death of SSM Exclusion & Affirmative Defense

- > Evolving policy going back to 1982
- > Recent EPA admission that its own words led to:  
“a misimpression that exemptions for excess emissions are permissible during planned events”  
[78 FR 12477, 2/22/2013]
- > Current policy: Excess emissions = violations
- > SSM exemptions in MACT rules not permissible  
[Sierra Club v. EPA, 2008]
- > Affirmative defense for EE from malfunctions not permissible [NRDC v. EPA, April 2014]



# SSM/Affirmative Defense (cont'd)

- > Future rules will not include SSM exemption or Affirmative defense
  - ❖ Uncontrolled SU/SD will have separate emission limits
- > Q: Excess emissions from malfunction?
  - ❖ A: EPA will determine an appropriate response based on...
    - ◆ Good faith efforts to minimize emissions?
    - ◆ Root Cause Analyses to correct/prevent EE?
- > SSM SIP Call - Reg 19.1004(H) and 19.602
  - ❖ Affirmative defense is impermissible or too broad

