Status Update on the Regulatory Revisions to Appendix W

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Richard A. “Chet” Wayland
OAQPS Air Quality Assessment Division
CAAAC Permits, NSR and Toxics Subcommittee

Challenges to Our Current Models

- States and sources report difficulty demonstrating compliance with 1-hour NO_2 and SO_2 NAAQS.
  - Accuracy of models receiving greater scrutiny. EPA has been asked to address model inputs and science for existing regulatory models.
  - Past practices for NAAQS compliance demonstrations under NSR/PSD that may be "overly conservative" in some cases
- Sierra Club Petition Grant – Ozone and $PM_{2.5}$
  - In January 2012, the EPA granted a petition submitted by the Sierra Club.
  - In the petition grant, the EPA committed to engage in rulemaking to evaluate updates to Appendix W to 40 CFR 51, and, as appropriate, incorporate new analytical techniques or models for ozone and secondary $PM_{2.5}$ for new and modified sources.
- Overall renewed tension between environmental protection and economic growth

Appendix W Update: Planned Schedule

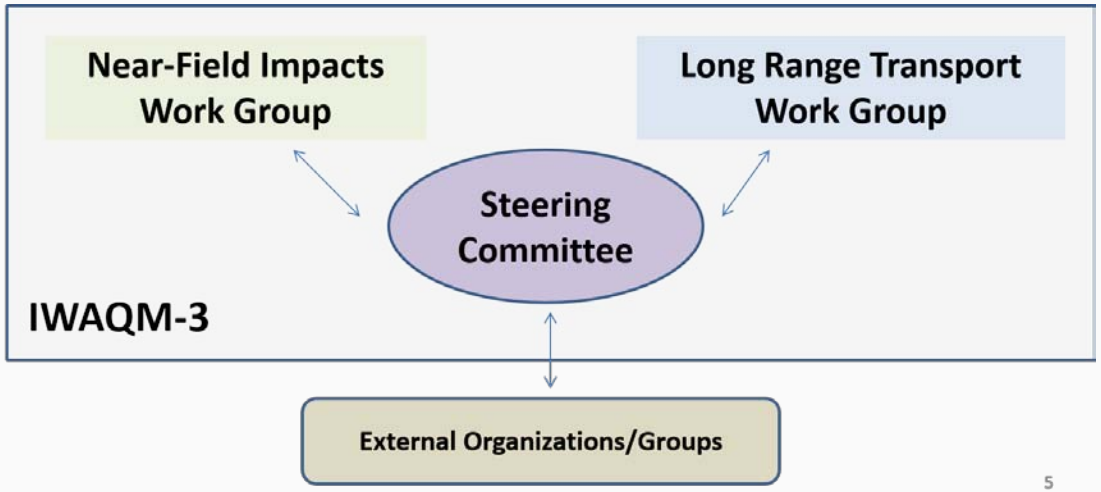
- Proposed Rulemaking, “Revision to the Guideline on Air Quality Models”, Spring 2015
  - Incorporate new analytical techniques to address ozone and secondary $PM_{2.5}$
  - Updates for conducting individual source and cumulative impact analysis for new 1-hour NAAQS
  - Update, as appropriate, current EPA-preferred models to address input and science issues
- 11th Conference on Air Quality Modeling
  - Serves as public hearing for NPRM
  - 2 to 3-day conference in RTP, North Carolina
- Final Rulemaking, “Revision to the Guideline on Air Quality Models”, Spring 2016

Working Groups: Getting the work done

- Established formal working groups of OAQPS and Regional Office Modelers
  - AERMOD Development & Evaluation (Roger Brode)
  - Screening Techniques (James Thurman)
  - NO2 Modeling (Chris Owen)
  - Near-road Modeling (Chris Owen)
  - Meteorological Inputs (James Thurman)
  - IWAQM Phase 3: Near field impacts & Long-range transport (EPA and FLMs)
- Please refer to 2014 R/S/L Modelers Workshop presentations on SCRAM website for details on priorities and activities of each workgroup
  - http://www.cleanairinfo.com/regionalstatelocalmodelingworkshop/archive/2014/agenda.htm

IWAQM Phase 3

- IWAQM (phase 3) initiated in July 2013 to provide a mechanism for updating Appendix W and related guidance documents in partnership with the Regional offices and other Federal Agencies (short term)
  - Increase knowledge regarding NSR/PSD program and single source secondary impacts
  - Understand and evaluate modeling techniques for single source secondary impacts for O3 and secondary PM2.5
  - Products from the IWAQM3 process intended to inform and support regulatory revisions to Appendix W in response to Sierra Club petition grant
- IWAQM3 consists of 2 working groups and a steering committee:



IWAQM3 Participants

Near-Field impacts working group
Kirk Baker, OAQPS (Chair)
Jim Kelly, OAQPS
George Bridgers, OAQPS
Andy Hawkins, Region 7
Randy Robinson, Region 5
Jaime Wagner, Region 5
Rebecca Matichuk, Region 8
Bob Kotchenruther, Region 10
Richard Monteith, Region 4
Rynda Kay, Region 9

Long range transport working group
Bret Anderson, US FS (Chair)
Tim Allen, US F&W
Mike Barna, US NPS
John Notar, US NPS
Craig Nicholls, BLM
Kirk Baker, US EPA OAQPS
Chris Owen, US EPA OAQPS
Gail Tonnesen, US EPA Region 8
Michael Feldman, US EPA Region 6
Rick Gilliam, US EPA Region 4

Steering Committee
Tyler Fox, US EPA OAQPS
Bret Anderson, US FS
Tim Allen, US F&W
Annamaria Coulter, Region 2
Erik Snyder, Region 6
Robert Elleman, Region 10
Carol Bohnenkamp, Region 9
John Vimont, US NPS
Craig Nicholls, BLM
Val Garcia, US EPA ORD
Shawn Roselle, US EPA ORD

Responding to Recent Court Decisions

- $PM_{2.5}$ SIL Reconsideration Rule
  - To address remand of $PM_{2.5}$ SILs in January 2013
  - Rulemaking to:
    - Re-establish $PM_{2.5}$ SILs for both annual and daily standards
    - Establish revised SERs for $PM_{2.5}$ precursors for triggering the requirement for air quality analysis, logically linked to the SILs
- Ozone PSD and NNSR Requirements Rule
  - To address screening criteria associated with planned Appendix W revisions regarding quantification of ozone impacts
  - Rulemaking to:
    - Establish SILs for ozone standard
    - Establish revised SERs for VOC and NOx as ozone precursors, for triggering the requirement for air quality analysis, logically linked to the SILs
  - Leverage outcomes from $PM_{2.5}$ SIL rulemaking regarding approach and expected to streamline rule development timeline

Guidance for $PM_{2.5}$ Permit Modeling*

*A “downpayment” on the Sierra Club petition grant

Draft Guidance for $PM_{2.5}$ Permit Modeling

- Publically released on Monday, March 4, 2013.
- Initial 45 day comment period through April 17, 2013 was extended by 45 days through May 31, 2013.
  - Numerous requests to extend the comment period by co-regulators, industry, and environmental groups.
  - The extension through May gave an opportunity for the entire dispersion modeling community to discuss the draft guidance document at the 2013 Regional, State, and Local Modelers' Workshop in Dallas, TX (April 22nd through 25th)
- At the end of the comment period, EPA had received 30 comprehensive comment packages.

Comments Received

- Most of the comments were supportive and positive.
- Earth Justice (Sierra Club) was very critical of our use of SILs throughout the draft guidance given the January 22, 2013 court decision.
- Industrial comments warned that the processes laid out in the draft guidance were complex and would be an additional burden on top of their issues with existing background levels of $PM_{2.5}$.
- Several industry related comments desired a more simplistic (surrogate) approach as was previously policy.

Comments Received *(Continued)*

- A few of the industrial comments were emissions / stack testing related and have been shared with the appropriate groups within EPA.
  - Interim guidance for the treatment of condensable particulate matter test results in the PSD and NSR permitting programs http://www.epa.gov/ttn/emc/methods/psdnsrinterimcmpmemo4814.pdf
- Most of the co-regulating agency comments provided specific feedback along the lines of the NACAA workgroup recommendations.
- Several of the co-regulating agencies desired more prescriptive approaches, especially in the assessment of secondarily formed $PM_{2.5}$.

Guidance for $PM_{2.5}$ Permit Modeling

- Signed by Steve Page and released on May 20, 2014 during the middle of the 2014 RSL Modelers' Workshop in Salt Lake City, UT.

- Available for download from the EPA's SCRAM website: http://www.epa.gov/ttn/scram/guidance/guide/Guidance_for_PM25_Permit_Modeling.pdf

Guidance for $PM_{2.5}$ Permit Modeling

- Noteworthy changes made to the draft version include:
  - Clarifications throughout with respect to procedures for adequately addressing primary and secondarily formed $PM_{2.5}$.
  - Inclusion of an example hybrid (qualitative/quantitate) secondary $PM_{2.5}$ impact assessment based on a location representative of more typical background $PM_{2.5}$ concentrations. *(Reference Appendix D)*
  - Revision of a second tier cumulative $PM_{2.5}$ NAAQS compliance approach. *(Reference Section IV.3 and Appendix E)*
  - Revision of Section V and other sections relative to PSD Increment for $PM_{2.5}$.

Appropriate Use of SILs

- Per the previously mentioned January 22, 2013 court decision, any permitting authority wishing to use a particular SIL value as a screening tool in a significant impact analysis should determine whether a substantial portion of the NAAQS has already been consumed.
  - Preconstruction monitoring data (or adequately representative monitoring data from an existing monitoring network) should be evaluated against the respective $PM_{2.5}$ NAAQS.
  - If the difference between the NAAQS and the measured $PM_{2.5}$ background in the area is greater than the applicable SIL value, then the EPA believes it would be sufficient in most cases for permitting authorities to conclude that a source with an impact below that SIL value will not cause a new NAAQS violation.

$PM_{2.5}$ Compliance Demonstration: Assessment Cases

- We have established 4 different scenarios or assessment cases that further define what air quality analyses, *if any*, that an applicant would follow for compliance demonstrations of the $PM_{2.5}$ NAAQS or PSD Increments.
- Reference: Table III-1. *(NAAQS)* and V-2. *(Increment)*.

Assessment Case	Description of Assessment Case	Primary Impacts Approach	Secondary Impacts Approach
Case 1: No Air Quality Analysis	Direct PM2.5 emissions < 10 tpy SER Both NOx and SO2 emissions < 40 tpy SER	N/A	N/A
Case 2: Primary Air Quality Impacts Only	Direct PM2.5 emissions ≥ 10 tpy SER Both NOx and SO2 emissions < 40 tpy SER	**Appendix W preferred or approved alternative dispersion model**	N/A
Case 3: Primary and Secondary Air Quality Impacts	Direct PM2.5 emissions ≥ 10 tpy SER Both NOx and/or SO2 emissions ≥ 40 tpy SER	**Appendix W preferred or approved alternative dispersion model**	• **Qualitative** • **Hybrid qualitative / quantitative** • **Full quantitative photochemical grid modeling**
Case 4: Secondary Air Quality Impacts Only	Direct PM2.5 emissions < 10 tpy SER Both NOx and/or SO2 emissions ≥ 40 tpy SER	N/A	• **Qualitative** • **Hybrid qualitative / quantitative** • **Full quantitative photochemical grid modeling**

$PM_{2.5}$ Increments

- The recommendations for assessing secondary $PM_{2.5}$ impacts associated with precursor emissions on NAAQS analyses, based on the four assessment cases, are also applicable for increment analyses.

- First source into an increment impact area should be able to exercise a typical Source Impact Analysis with a minimal “headroom” checks.
  - Reference Figure II-2.

$PM_{2.5}$ Increments

- Expanded conversation on the use of monitoring to track increment (consumption and expansion) in the baseline area based on regional considerations.
  - Additional clarification will be necessary as more real-world application of using monitoring in a cumulative increment compliance demonstration is gained.

- **Early coordination** with the reviewing authority is encouraged to identify the appropriate baseline concentration and baseline area for the proposed new/modified source, and the inventory of increment-affecting sources.