



Process for Ozone, PM2.5, and Regional Haze Modeling Guidance Updates

MARAMA SIP Workshop

Brian Timin EPA/OAQPS

February 11, 2009



Today's Presentation

- Potential updates to Ozone, PM2.5, and Regional Haze modeling guidance
- Process for developing updates and guidance
- Modeled Attainment Test Software (MATS) update



Photochemical Modeling Guidance

- “Guidance on the use of Models and Other Analyses for Demonstrating Attainment of Air Quality Goals for Ozone, PM_{2.5}, and Regional Haze”- Final version- April 2007
 - <http://www.epa.gov/scram001/guidance/guide/final-03-pm-rh-guidance.pdf>



Process

- Would like to get comments and feedback from different groups of stakeholders
 - States and locals
 - Work through EPA Regions and NACAA
 - Establish conference calls
 - Photochemical modelers' workshop
 - EPA Regional modelers
 - Regularly scheduled conference calls
 - Industry stakeholders
 - Environmental groups



What's in the Guidance- Reminder

- Part I- Using Model Results
 - Modeled Attainment tests
 - 8-hour ozone NAAQS
 - Unmonitored area analysis
 - Annual and 24-hour PM2.5 NAAQS
 - Unmonitored area analysis
 - Local area analysis (high primary PM2.5 areas)
 - Regional Haze reasonable progress
 - Supplemental analyses/weight of evidence
 - Activities to support Mid-Course review and future modeling
 - Required documentation



What's in the Guidance- Reminder

■ Part II- Generating Model Results

- Conceptual description
- Modeling protocol
- Selecting a model(s)
- Choosing days/episodes
- Selecting domain & spatial resolution
- Developing met inputs
- Developing emissions inputs
- Evaluating model performance/diagnostic analyses



What's Likely to Stay the Same?

- Basic format of the guidance will not change
- The form of the relative attainment test will remain the same
 - Some details will be further examined
- Many of the chapters only need small updates and revisions



General Updates

- Update references and dates
- Looking for new references and information
 - Published articles
 - Reports
 - Work in progress



Attainment Test

- Relative attainment test

- Ozone

- Updates to address the .075 ppm NAAQS

- PM2.5

- Updates to address the 35 ug/m³ daily NAAQS

- Regional haze

- How to handle base year beyond the 2000-2004 official RH base period
 - Modeling recommendations for 5 year “check-in”?



PM2.5 Attainment Test

- Speciated Model Attainment Test (SMAT) components and assumptions OK?
 - SO₄, NO₃, EC, crustal, NH₄, water, OC
 - “SANDWICH” adjustments
 - Adjusted nitrate, water, and OC by difference
- Local Area Analysis
 - Combines dispersion modeling and photochemical modeling results (at FRM monitors)
 - Get feedback and experiences from States that are doing “local” modeling
 - Ultra fine scale grid modeling (≤ 1 km) vs. dispersion modeling



PM2.5 Attainment Test

■ Unmonitored Area Analysis

- “Fused” ambient data and modeled data to examine unmonitored areas
 - Fine tuning application of fused spatial fields
 - Policy questions concerning unmonitored areas
 - How should unmonitored “hotspots” be addressed?
 - Annual vs. 24-hour NAAQS

■ 24-Hour NAAQS

- Additional guidance needed?
- Definition of “high days” used to calculate species and RRFs



Ozone Attainment Test

- Updates to address 75 ppb NAAQS
 - Lower threshold for RRFs?
 - Multiple RRFs for different concentration ranges?



Baseline Design Value

- Currently using 5-year weighted average
 - Are there “better” alternatives?
- How conservative should we be?
 - Highest possible design value?
 - Average of design values?
 - Met adjusted values?



Weight of Evidence

- Numerical WOE “range”
 - Continue to specify suggested range for ozone and PM2.5?
- Add language to address attainment demonstrations that are submitted close to the attainment date
 - Relative importance of ambient data vs. modeling
 - Near term expected emissions reductions
- More use of met adjusted ambient data?
- Voluntary measures and other un-modeled measures
- Add more examples of supplemental analyses



Miscellaneous

- Future year to model

- First, middle, or last year of design value period?
 - Currently allowed to model last year, based on premise that area can qualify for 1-year extension(s)

- Horizontal grid resolution

- Minimum resolution for ozone and PM2.5
- Is 4km or finer needed for ozone and/or primary PM2.5?
 - What does literature show?
 - State experiences and sensitivity analyses



Other Issues to address

- High Electricity Demand Days (HEDD)
 - Looking for modeling studies
- Does climate change need to be addressed within the timeframe of ozone/PM2.5/RH SIPs?
 - Near term impacts vs. long term
- Accounting for land use changes



Next Steps

- Conference calls (March-May)
 - Regions
 - States
 - Other stakeholders
- Photochemical modeler's workshop
 - May/June in Baltimore, Philadelphia, or Annapolis
- Complete revisions by fall of 2009
- Release new version by end of 2009



MATS Update

- Model Attainment Test Software

- Current official release version

- Ozone and Regional Haze

- Current beta version

- Adds annual PM2.5

- No issues or bugs, but documentation not complete

- Upcoming beta version

- Adds 24-hr PM2.5

- Still undergoing testing