

**U.S. Environmental Protection Agency
Advisory Council on Clean Air Compliance Analysis
Air Quality Modeling Subcommittee
Teleconference
August 7, 2006
1:00 – 3:00 pm, Eastern Time**

Committee Members: Dr. David T. Allen
Dr. David Chock
Dr. D. Alan Hansen
Dr. Paulette Middleton
Mr. Ralph Morris
Dr. James Price
Dr. Ted Russell
Dr. Chris Walcek
Dr. Trudy Cameron

Date and Time: 1:00pm – 3:00pm, August 7, 2006

Purpose: to discuss the 812 Team’s draft emissions modeling plans and results

SAB Staff: Dr. Holly Stallworth, Designated Federal Officer

Other EPA Staff: Mr. Jim DeMocker, Dr. Ron Evans, Dr. Bryan Hubbell

Other: Mr. Neil Wheeler, Sonoma Technology
Mr. Matt Todd, American Petroleum Institute
Mr. Jim Neumann, Industrial Economics
Mr. Jason Price, Industrial Economics
Mr. Jim Wilson, Pechan Associates
Mr. Frank Divita, Pechan Associates
Mr. Andy Bollman, Pechan Associates

Meeting Summary

The discussion followed the issues and general timing as presented in the meeting agenda (Attachment A). Charge questions are presented in Attachment B.

Dr. Allen reviewed the agenda and asked Mr. DeMocker to provide the AQMS with an update on the status of the 812 report and its air quality modeling component. Dr. Allen said the purpose of today’s call is to cover the charge questions in the document dated 7-24-06 with approximately 1 hour devoted to this discussion.

Summary of status of the 812 Report and air quality modeling:

Mr. DeMocker provided an update on the status of the 812 report and noted a few corrections to the materials sent out. Mr. DeMocker reported that the 812 Team was looking at emissions inventories and core scenarios and was planning the sector disaggregation runs and high/low economic growth runs. Mr. DeMocker reported that BenMAP improvements were underway as were improvements to the macroeconomic modeling and uncertainty analysis but since the emissions inventory represents a threshold task, it was important to get early feedback from the AQMS.

Mr. DeMocker noted the following three corrections.

1. The review materials circulated to the panel indicated that the response surface model (RSM) for ozone was based on a reference set of CMAQ model runs, but actually the reference model runs for the ozone version of the RSM were based on CAMx.
2. Supplemental local control measures for electricity generating unit (EGU) controls beyond requirements established by existing CAA programs are allowed as part of the SIP modeling process, but there is a constraint placed on supplemental regional control programs beyond those established by the Clean Air Interstate Rule (CAIR).
3. The 812 Team no longer plans to conduct a high renewables scenario (as documented in the early blueprint). One reason for that decision was that, in this scenario, evaluation of the high renewables case inputs by the 812 project team led us to believe there would not be significantly useful differences in outcomes between the high renewables case and the core with-CAAA scenario.

A member asked for specifics on how the 812 Team was going to use the CMAQ model versus the CAMx model. Mr. DeMocker clarified the use of these alternative models and then introduced the problems with sector disaggregation runs introduced by interaction effects and non-linearities.

Turning to the charge questions, Mr. DeMocker noted the following, recently emergent issues by chapter.

For Ch. 1, ongoing internal review by the 812 Team indicates the need to look at copper smelter activity factors. The 812 team also plans to look at the no-control case for the industrial boiler PM and SO₂ emissions factors. The 812 team has concerns about the accuracy of those emissions factors. Finally, the 812 team plans to look into differences in outcomes using energy use-based activity factors versus production output and other economic activity-based activity factors.

For Ch. 2, the 812 Team is considering adding an appendix that provides greater detail on the crosswalks between AEO and SPC codes.

For Ch. 3, the 812 Team is considering using the 2002 NEI inventory for ammonia, backcast to 1990 for the CAAA 1990 case and the without CAAA 1990 case.

For Ch. 4, the 812 Team is wrestling with having projection years that occur in the past; i.e., the year 2000, and the issues raised by analyzing a historical year using models built only for forecasting future conditions. The fundamental question is whether to stick to a model to model approach or a model to actual comparison.

For Ch. 5, the 812 Team is considering using the current default non-road equipment data from EPA's NONROAD model in lieu of the AEO non-road equipment population data. On this issue, the question is on the acceptability of diverging from the AEO aggregate energy input implied by AEO equipment population estimates, a potential disadvantage offset by the greater detail and apparent accuracy of the NONROAD model data sets.

For Ch. 7, the ammonia inventory issue is different from that in third chapter in that it focuses just on non-point sources.

For Ch. 8, the 812 Team is contemplating how best to manage the unidentified measures. The key issue is setting arbitrary caps on cost-effectiveness for unidentified measures needed for achieving the last increment of emissions reductions needed for modeling some nonattainment areas.

Following Mr. DeMocker's summary, Dr. Allen proposed the Subcommittee begin with the specific issues raised in charge question #2 first. This discussion followed the bulleted questions as noted in the charge questions in Attachment B.

Subcommittee's discussion of Charge Question #2:

- Reasonableness of base year inventory choice as projection basis for with and without CAAA scenarios.

The Panel agreed that this was a reasonable choice.

- Choice of AEO 2005 as projection basis for economic activity.

The Panel agreed that this was a reasonable choice, particularly in view of precedents already set with the use of AEO.

- Approach for cross-referencing AEO activity indices vis-à-vis SCC codes for key categories of non-EGU point and nonpoint sources.

The Panel deferred this question until all information was available.

- Ch. 3: choice of alternative projection techniques for ammonia emissions in the without CAAA case to resolve remaining inconsistencies between 1990 and 2002 ammonia emission estimation methods and source categories.

The Panel agreed that because of improvements in recent inventories of ammonia emissions, the 812 Team's approach of using 2002 estimates and backcasting to 1990 was preferable to the alternative.

- Chapter 4: method for estimating emissions for analysis target year 2000, relying on model to model comparison but accepting some inconsistency of result in comparison to historical data.

The Panel agreed that this was a reasonable approach if presented in a way that acknowledges the sensitivities and uncertainties. The 812 Team clarified how the Ellerman method would be applied to estimating a NOx counterfactual (given that Ellerman has thus far only used the approach for SO2).

- Ch. 5 --- use of trend projection for nonroad equipment populations (as opposed to AEO 2005 based equipment projections).

The Panel agreed that this was the most reasonable approach, given the alternatives.

- Ch. 7 – methods for resolving inconsistencies between 1990 and 2002 ammonia emission estimation methods for key source categories.

The Panel agreed that this was the most reasonable approach, given the alternatives.

- Ch. 8 – the method for estimating the need for local controls to meet ozone and PM NAAQS in 2010 and 2020.

The Panel agreed that this was the most reasonable approach, given the alternatives, but suggested the Team clarify precisely its assumptions and when its forecasts required unidentified measures. Cost assumptions were fine so long as they were drawn from the realm of observed practices.

Discussion of Charge Question #1:

The 812 Team was asked whether there were any substantial differences in the predictions of MOBILE 6.2 and EMFAC for California fleet. The Chair also discussed the uncertainties associated with estimations when other states adopt California's on-road standards. The Chair recommended that this issue be addressed in the documentation for the inventory.

Another member suggested that 30 year average temperatures were no longer appropriate for projections in the face of recent global warming trends. The Panel generally agreed that although it is preferable to incorporate globally rising temperatures, the absence of this adjustment would be a small error and an error that applied to both the "with CAAA" and the "without CAAA" scenarios.

The Chair suggested the 812 Team look into recent criticisms of the NEI estimates for fine particulate matter in the form of fugitive dust. The suggestion was made that EPA had resolved the key issue regarding fugitive dust by applying transport factors in recent analyses such as the Clean Air Interstate Rule (CAIR) and the Clean Air Mercury Rule (CAMR). One member suggested the 812 Project Team consider applying these transport factors in the 812 analysis. Another member also suggested looking into the spatial allocation of ammonia emissions vis-à-vis land use. One member pointed out that for ammonia emissions, a statement on p. 7-3 says that 2002 NEI numbers were used for 1990 values; and a request was made to find out the relative size of the ammonia sources for which this substitution was made.

Discussion of Charge Question #3:

Ralph Morris led this portion of the teleconference dealing with the selection of a model. Mr. Morris said he was pleased that the 812 Team proposed to use CMAQ 4.5 for the core case and for the high/low scenarios. Mr. Morris raised a question as to whether the 812 Team would be doing some comparison between CMAQ and RSM for ozone based on CAMx. Mr. DeMocker said he would check to see if a new version of RSM for ozone based on CMAQ reference runs was being developed. A concern was raised about the validity of the methodology for the 98th percentile. A discussion ensued about the difference between modeling for attainment versus modeling for the difference between scenarios (with CAAA versus without CAAA). A question was raised as to whether full CMAQ would be compared to the RSM CMAQ.

The Subcommittee generally agreed with the 812 Team's plan to use the current version of the RSM for ozone which is based on CAMx and the RSM for PM based on CMAQ while using the full CMAQ for the core case and high/low growth scenarios was reasonable. This was particularly true in view of the purpose of the 812 Study: to compare scenarios. Hence the difference between RSM for ozone based on CAMx and the RSM based on CMAQ would have to be very large in order to affect the differential.

Turning to the portion of the agenda devoted to a new advisory request from the Office of Air Quality, Planning and Standards, an OAQPS representative introduced a forthcoming advisory request to the Subcommittee.

Finally, the Chair concluded the teleconference with a discussion of next steps. The Chair promised to write a first draft then circulate it to the full Subcommittee for their review in the near future.

Respectfully Submitted:

/Signed/ Holly Stallworth

Designated Federal Officer

Certified as True:

/Signed/ David Allen

Chair

NOTE AND DISCLAIMER: The minutes of this public meeting reflect diverse ideas and suggestions offered by Committee member during the course of deliberations within the meeting. Such ideas, suggestions and deliberations do not necessarily reflect consensus advice from the panel members. The reader is cautioned to not rely on the minutes to represent final, approved, consensus advice and recommendations offered to the Agency. Such advice and recommendations may be found in the final advisories, commentaries, letters or reports prepared and transmitted to the EPA Administrator following the public meetings.