

**Minutes of the BAAQMD 2004 SIP Modeling Advisory Committee (MAC)
Fifth Meeting**

**The fifth meeting of the MAC was held on
Wednesday, December 18, 2002, at 1:00 p.m.
at the District office, fourth floor west conference room.**

Attendees: see sign-up listing attached

Agenda: Posted with these minutes on project web site
(www.environ.org/project.html; click on "Bay Area Air Quality Management District"; enter user name and password)

Next meeting: Tuesday, January 21, 2003 (1:00pm at BAAQMD)

Presented overhead/.ppt presentations (all are provided in a single PDF file on project web site):

- Chris Emery's presentation on episode selection summary table and project schedule;
- Craig Tremback's presentation on meteorological modeling status
- Jim Wilkinson's presentation on emissions processing status

Handouts (all available on the project web site):

- Agenda;
- Package containing episode summary table, SMAQMD/DRI comments and BAAQMD/ENVIRON responses, project schedule.

Discussion items:

Agenda -- No additional agenda items were added.

Approval of minutes from last meeting -- Comments/corrections to last meeting minutes: no comments or revisions offered by attendees. Peter Hess suggested that MAC participants may e-mail any comments or corrections to Environ in the next several days, after which the minutes will be considered final.

Project Status Summary and Meeting Objectives

Chris Emery led off the meeting with a short discussion on the fourth revision of the protocol (Sections 2 and 5 are revised), a summary of episode selection criteria developed by the District, and the current project schedule. The addition of the third episode (July 1999) will extend Tasks 3-7 by at least 2 months.

Meteorological Modeling

Craig Tremback discussed the status of meteorological modeling and presented results from a very preliminary run for the July/August episode. Topics included the RAMS modeling grid, issues associated with how models must deal with very steep slopes at high horizontal/vertical resolution, and cloud and statistical performance for the preliminary run. The steep slope issue was resolved by applying a light smoother to topography in the specific areas of concern.

Issues with QC of the met data from CARB were discussed. Steve Soong summarized some problems he has noted with the data. Saffett Tanrikulu tried to explain some of the possible reasons for these along with expected difficulties with measuring instruments. A new data set at "Level 1" validation is expected "soon", and will include July 28.

Saffett Tanrikulu asked if RAMS levels in the preliminary run matched the CARB configuration. Due to the topographic problems, the preliminary run represents a coarser vertical structure than CARB's, but additional runs will be made to increase vertical resolution. The infamous slope flows issue from SARMAP was again raised. The modeling team would be interested in discussing this further; perhaps if there is a report and graphics of the problem that we could review. In any event, slope flows generated by RAMS will be evaluated as part of the performance evaluation.

Phil Martien indicated that the BAAQMD probably has some satellite pictures from the episode with which to verify maritime stratus performance. The importance of clouds on meteorological and photochemical models was discussed. Saffett Tanrikulu brought up the suggestion for evaluating low-level jet development as one of many suggestions for qualitative evaluation (fractional cloud cover, meandering observations, etc.).

The team concluded with a positive appraisal of the first run, and suggest that additional obvious improvements should provide better simulations.

Emissions

Jim Wilkinson presented the current status of the July/August 2000 emissions inventory. The ARB delivered their working version of EMS-95 along with several updates to the emissions inventory. Based on these data, the project team produced the first draft CAMx-ready emissions estimates. The project team also conducted numerous quality assurance checks on the emissions estimates. These QA checks were summarized and presented in both graphical and tabular form to the MAC. Further, the AQ checks resulted in the identification of numerous problems in the emissions data. Among the most prominent errors were the following:

- Nighttime area source emissions are low/nonexistent;

- Mobile source emissions for counties that border the air quality modeling domain appear to be biased high;
- Mobile source emissions on freeways are significantly lower than past mobile source estimates in the SJV;
- Day-specific emissions estimates appear to be missing from the inventory; and
- Comparison of the stationary source emissions inventory, which ARB delivered, to the CEFS stationary source inventory indicate that stationary source emissions may be underestimated in the ARB inventory.

The ARB has been alerted to these errors, and the project team is working closely with ARB to correct these errors in future emissions deliverables. The ARB indicated that it would deliver revised stationary and area source emissions data to the project team by 20 December. The ARB also indicated that new mobile source emissions estimates would be delivered shortly after the New Year.

There was general concern among the MAC that serious errors existed in the inventory especially given that the stationary source inventory appeared to be significantly flawed. The project team responded that it too was concerned, but its concern was from the standpoint of schedule impacts. The project team believes that most of the problems had been identified and that the ARB was taking corrective action. However, it is possible that the overall schedule is in jeopardy due to delays in obtaining usable emissions estimates from the ARB.

Mr. Wilkinson reported that the biogenic reactive hydrocarbon emissions estimates appeared to be sufficient for the needs of the study. He also reported that he has requested the BEIGIS data from the ARB so that the project team can include an estimate of biogenic NO in the inventory as well. The ARB has not provided any feedback as to when the BEIGIS data might be made available to the project team.

Mr. Altshuler questioned the representativeness of the BEIGIS data in urban areas and how it might impact the overall biogenic emissions estimates as well as the air quality modeling predictions. The project team responded that Mr. Altshuler raises a good point in that urban biomass is poorly defined in most biogenic land use data bases. However, in most areas, the fraction of urban-to-rural biomass is fairly small and that this results in a dominance of rural vegetation contributing to the biogenic emissions load. Further, in most areas, rural biogenic emissions have a limited impact on air quality observed at monitoring stations. But, in the current study, it is possible that biogenic emissions from the urban landscape may indeed impact air quality, particularly at the Livermore station.

Mr. Wilkinson presented the current status of the day-specific shipping emissions effort. Though the shipping emissions represent less than 5% of the inventory, Mr. Wilkinson pointed out that current research shows that commercial marine shipping emissions are underestimated by a factor of two or more. Given the location of these emissions in the domain and the fact that the emissions may be underestimated, Mr.

Wilkinson recommended that a scaled-back day-specific inventory effort for commercial marine shipping emissions be conducted. This effort would focus on the collection of bulk traffic records that identify size of vessel and engine type (though if more detailed records are readily available, they too could be collected). With these records new emissions could be estimated and would be placed in the domain based on current shipping lane data. A discussion among the MAC members seemed to indicate that the project team should proceed forward with a day-specific emissions estimation effort for commercial marine shipping.

Mr. Wilkinson reported that updated refinery emissions were not included in the first draft of the CAMx-ready emissions estimates. These estimates will be included in the next round of CAMx-ready emissions estimates.

Mr. Wilkinson reported that the project team is aware of on-going ARB activities in the South Coast Ozone Study to examine the differences among emitting sources operating during the weekend and weekday. The project team is attempting to gather this information from the ARB in an effort to determine if these data are applicable or can be generalized for use in the current study. It would appear that a “first-order” level of weekend-weekday specificity is in the current ARB CCOS activity data.

Mr. Wilkinson reported that no progress had been made on the June 2000 and July 1999 episodes since no emissions data were available from the ARB.

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