

March 14, 2008

Mr. Jean Ospital  
Heath Effects Officer  
South Coast Air Quality Management District  
21865 Copley Drive  
Diamond Bar, CA 91765

Re: Comments on the MATES III Study Draft Report

Dear Jean,

As a member of the MATES III Technical Advisory Group, I am concerned that the analyses contained in the MATES III draft report do not adequately address two important goals of the study. The goals are (1) to characterize the temporal trend in ambient air toxic concentrations and associated risk, and (2) to rank the relative contributions of chemical constituents and sources to the current risk. I recommend using two or more approaches to address each of these issues.

Regarding characterization of the time trend in toxics, I strongly recommend applying consistent modeling and data analysis techniques to the MATES II and MATES III data to address the issue.

1. The District staff needs to complete the modeling analyses that Mr. Joe Cassmassi discussed at the March 13, 2008, meeting and include them in the final report. Using the 2002 emissions inventory back cast to the MATES II period and forecast to the MATES III period, and period-specific MM5 meteorological fields, the District staff needs to apply the CAMx regional air quality model to estimate regional distributions of toxic concentrations during the MATES II and MATES III periods. Once adequate model performance relative to the measured ambient concentrations is demonstrated (i.e., average bias <  $\pm 15\%$  and average error < 30%), the model results can be used to present the “modeling-based” time trend in toxic concentrations and risk (peak and average) between MATES II and MATES III.
2. The District staff needs to process the MATES II and MATES III ambient concentrations using comparable procedures so that an “apples-to-apples” comparison of the data can be presented. The data processing should account for any biases in laboratory analytical methods between the two study periods and treat concentrations below the limits of detection and limits of quantification in a consistent manner. As explained at the Technical Advisors meeting, a direct comparison of the ambient data was not presented in the draft report because the methods for treating concentrations below the limits of

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detection and limits of quantification were not consistent. It is very important to correct this deficiency because the direct comparison of the ambient data is the most unambiguous scientific evidence of temporal trends in concentrations.

Mr. Tom Chico made a clear case at the meeting that the MATES III emissions inventory, ambient data, and modeling consistently rank the top five sources of toxics (or those contributing more than ~1% of the risk). The draft report should be modified to clearly describe the current ranking of source contributions to toxic concentrations and risk derived from these three approaches. The discussion should highlight the similarity and consistency of these results (in their qualitative and quantitative rankings) and discuss differences where they exist. The report should indicate that the corroborating nature of the results strengthen the basic findings.

As you may recall from the meeting, I am also concerned about the vertical resolution selected for the CAMx model applications. Applying the CAMx model for prediction of primary species with only 7 vertical layers is likely to result in model performance shortcomings, like the persistent underestimations evident at inland locations in the MATES III simulations. The deficiency in lower boundary layer vertical resolution should be easily addressed because the MM5 simulations were run with 17 layers.

Overall, the District has done a good job collecting an important data set and setting up the framework for the analysis and reporting. My comments are being submitted as suggestions to further strengthen the analysis and presentation of results.

Please do not hesitate to contact me if you or your staff have questions regarding this matter.

Sincerely

A handwritten signature in blue ink that reads "Fredrick W. Lurmann". The signature is written in a cursive style.

Fred Lurmann  
Manager of Exposure Assessment Studies

cc: Joe Cassmassi, Tom Chico