D R A F T 4/3/2006

SOUTHEAST TEXAS PHOTOCHEMICAL MODELING TECHNICAL COMMITTEE

Houston/Galveston Area Council Conference Room C
3555 Timmons Lane, 2nd Floor, Houston, Texas 77027

March 23, 2006

Meeting Summary

Members & Guests Present:
Mamadou Djimde, Fred Manhant, Rohit Sharma, N.N. Dharmarajan, Catarina Cron, Bruce Davis, Steve Kidpatrick, Tom Tesche, David Ducan, Jay Olaguer, Graciela Lubertino, Erik Snyder, Dan Baker, Shelley Whitworth, John Wilson, Carole Lenz, Zarena Post, Rebecca Rentz, Susana Hildebrand, Jim Smith, Dick Karp

Air Quality Planning and Implementation Update – Rebecca Rentz (TCEQ)
Rebecca gave a verbal update. In particular, Ms Rentz indicated that the short list of identified mobile source and point source control measures would be on the website shortly. The prioritized list should be available for review at the Stakeholders' meeting scheduled for April 19, 2006.

Note was made that this is the date of the next SETPMTC meeting. However, since the Stakeholders' meeting is scheduled to begin at 2:30 pm, the SETPMTC meeting could precede it.

EPA SIP Implementation Update – Eric Snyder (EPA)
Erik gave a verbal update. Erik reported that Peggy Wade (wade.peggy@epa.gov) is now the new "Guy Donaldson" for the HGB SIP. In addition, Herb Sherrow has retired and Carrie Paige (paige.carrie@epa.gov) is assuming his duties regarding the DFW SIP.

Erik also reported that EPA/6 was finishing up with the comments they received on the HGB 1-hour SIP and that it should be out of regional council in about a month's time. Additionally, the trading provision, which can not be approved before the SIP, would at best occur at the same time, but may likely be approved later.

Erik reported that since DFW will likely be one of the first 8-hour large-scale ozone SIPs addressing a difficult non-attainment area, it continues to get a lot of attention from EPA Head Quarters and EPA's Office of Transportation Air Quality (OTAQ).

Erik also reported that he was engaged in conference calls with TCEQ modeling staff concerning the draft protocol for the HGB modeling.

Erik made brief mention of a proposed workshop to address 8-hour ozone modeling issues. Doug Deason has requested that EPA, including staff from RTP, conduct a couple-day workshop

to address some of the issues/requirements set forth in EPA's new modeling guidance. The tentative dates proposed for this workshop have been Thursday & Friday, April 20-21, 2006. However, no location or agenda have yet been established.

John Wilson questioned Erik as to EPA's position concerning the likelihood that some of the TERP emission reductions in the HGB area scheduled to occur by 2007 will not occur. In particular, John was interested in how proactive EPA would be in addressing this issue. Erik indicated he would have to research the issue.

HGB Control Measure Catalogue Update – Shelley Whitworth (HGAC)
Shelley gave a verbal update. She indicated that they were beginning to discuss the draft short list of quantified mobile source measures. They would be having a series of stakeholder meetings, e.g., on March 27th they would be meeting with representatives of the construction industry and on March 28th with representatives of the airports, locomotives and marine ports. Shelley encouraged stakeholders to sign up on the list-serve, so they don't have to be dependent upon the web-site for updates and meeting schedules.

TCEQ SIP Modeling Update – Jim Smith, PhD & Dick Karp (TCEQ)
Dr. Jim Smith presented the recently completed 2009 future (attainment) year modeling. Note this presentation is available on the SETPMTC web-site (www.tceq.state.tx.us/implementation/air/airmod/committee/pmtc_set.html). As Jim showed, these results indicate that with the growth and scheduled controls to be in place by 2009 the projected maximum 8-hour future design value of 97 ppb would occur at the Deer Park monitor. The Relative Reduction Factor (RRF) of 0.909 upon which this projection was made is the highest among the RRFs of the various monitoring sites, which averaged 0.874. A comment was made that EPA's recommended method of determining the RRFs should be expanded to determine if a particular day is dominating the RRF calculation. Erik Snyder indicated that as part of the Weight-of-Evidence (WOE), it would certainly be acceptable to provide such an analysis.

Dr. Smith also presented the results of across-the-board emission reductions applied to the 2009 future base case. These results indicated that attainment could be reached with ~60% reduction in each NOx & VOC emissions, or ~65% reduction in NOx emissions alone. This prompted a question about the difference in these results versus the 8-hour Coalition's modeling results, which indicated that possibly just over a 25% NOx reduction would be needed to reach attainment. A notable difference between this modeling and the 8-Hour Coalition modeling is the magnitude of the 2009 future base case emissions. For example the 2009 base case point source emissions for the 8-county HGB non-attainment area, upon which this modeling is based, are 214 tpd, whereas the comparable point source emissions for the 8-hour Coalition's modeling is 112 tpd. Therefore in comparing the two sets of modeling results it has been suggested that rather than comparing percentages, it may be more appropriate to compare the level of the emissions in an attainment budget. For example, this modeling, which suggests a 65% reduction in NOx, when applied to the 214 tpd point source emissions in the 8-county area, would yield an attainment budget of ~ 75 tpd, whereas the same calculation with the 8-hour Coalition's

modeling (i.e., 112 tpd & 25%) would yield an attainment budget of less than 84 tpd (i.e., because slightly more than 25% NOx reduction is needed). While the 9 tpd difference is appreciable, the projected attainment budgets for the point sources NOx emissions in the 8-county HGB non-attainment area are much more comparable than the percentage reductions.

John Wilson asked about conducting other emission reduction analyses, besides the across-the-board type, for example, controls from selected source regions and reductions in "other" VOCs. Dr. Smith indicated that a number of other emission reduction analyses are being considered, including reductions in the biogenic emissions that would, in part, address "other" VOCs. Erik Snyder with EPA indicated that the purpose of conducting emission sensitivities was to see if there would be a significant difference in the RRF for the type of control. In addition, Dr. Tom Tesche, representing the 8-Hour Coalition, indicated that they intend to conduct source apportionment and "roll-out" modeling.

Dick Karp presented some additional model performance analyses, in particular scatter plots of modeled predictions versus monitored values of 8-hour ozone concentrations. Note this presentation is available on the SETPMTC web-site (www.tceq.state.tx.us/implementation/air/airmod/committee/pmtc_set.html). As Dick showed, when considering the predicted ozone at each of the monitoring sites for each of the days in the extended episode, the comparison with the measured values is quite favorable with a relative bias of ~8%. The positive value of the relative bias means that in general, the model tends to slightly over predict.

A question was raised as to what model-predicted value is used for the comparison with the monitored value. In this case, as has been the typical approach in comparing modeled and monitored values, the modeled value is derived from a bi-linear interpolation of the ozone predicted in four grid cells, including the grid cell in which the monitor resides, as well as the 3 other grid cells in closest proximity to the monitor. As noted this is somewhat different from the 8-hour modeling guidance concept of the region "near-by" a monitor (e.g., 7 X 7 grid array centered on the grid cell in which the monitor resides). Thus, there may be some consideration of an alternative to the typical bi-linear approach.

Dick also showed modeled and monitored comparisons at selected sites over the days of the extended episode, as well as comparison for selected days over the monitoring sites. One of the more favorable comparisons is at Deer Park (DRPK), which has a relative bias of ~ -2.5%, indicative of a slight under-prediction. On the other hand, the relative bias of ~ 46% for HRM-4 represents the poorest comparison. Of the days, August 21st represents the poorest comparison of a day with high 8-hour ozone, with a relative bias of ~ -33%. However, the other days with high 8-hour ozone concentrations, including August 25th, August 30th & 31st, and September 5th have relative biases of less than $\pm$10%, which is indicative of good model performance.

The quantile–quantile plot of all the 8-hour modeled and monitored values at each of the stations on each of the days shows a quite favorable comparison, especially for data in the range of 50 ppb to 100 ppb. Dr. Tesche indicated that this was one of the better comparisons of this type he has seen in numerous modeling efforts.

During the viewing of the various scatter plots there was some discussion of the need to be mindful of the model-to-monitor comparisons in the upper regions of the graphs, i.e., 85 ppb and greater, since this is indicative of the model's ability to predict exceedances.

Future Agenda Item Recommendations

On behalf of the 8-Hour Coalition, Dr. Tesche requested that we put presentations from the 8-Hour Coalition on the agenda for the next SETPMTC meeting (i.e., April 19th). In particular, Dr. Tesche mentioned model performance evaluations, and "roll-out" modeling results. Dr. Tesche also requested the input emission files for the 2009 modeling.

John Wilson requested that the failure of the diesel defect device be addressed, as well as the proposed marine port in Texas City, which is expected to be operational by 2009.