SOUTHEAST TEXAS PHOTOCHEMICAL MODELING TECHNICAL COMMITTEE

Meeting Summary
October 14, 2010

H-GAC Offices
3555 Timmons Avenue
Houston, Texas

Members and Guests Present:

Dan Baker, Bruce Davis, Judy Bigon, Steve Smith, Nathan Chenaux, Ryan Perna, Graciela Lubertino, Mark Estes, Jim Smith, Cody McLain, Jed Anderson, Ryan Perna, and Dick Karp, and Lola Brown, Angela Kissel, Melissa Kuskie and Liz Hendler, via telephone.

All presentations are available on the SETPMTC Web site, http://www.tceq.state.tx.us/implementation/air/airmod/committee/pmtc_set.html.

SIP Planning and Implementation Update – Lola Brown (TCEQ)

Lola reported that the EPA has approved (9/30/10) the TCEQ's request to redesignate the BPA area to attainment for the 1997 eight-hour ozone NAAQS, which means no additional control measures need to be developed for either the revoked one-hour or the 1997 eight-hour ozone NAAQS.

Lola indicated the TCEQ Air Quality Planning Section staff is currently involved in the following activities:

- Nitrogen dioxide (NO_2) NAAQS designation recommendation, which is due to EPA on January 10, 2011;
- Potential ozone nonattainment area boundaries and designations for the proposed 2010 eight-hour ozone NAAQS, written comments will be accepted until COB 11/8/10; and
- Applications for the New Technology Research and Development (NTRD) Grants program, which is focusing on developers of emission reduction technologies, will be accepted until COB 11/22/10.

Lola was asked about extending the closing date beyond November 8 for comments on potential ozone nonattainment area boundaries and designations, since EPA has delayed issuing the final eight-hour ozone NAAQS. Melissa responded that currently there has been no discussion regarding an extension to the comment period, but if EPA delays beyond the end of October some discussion may be warranted.

Lola also reported that the TCEQ SIP web site has been reorganized to be more user friendly (http://www.tceq.state.tx.us/implementation/air/sip/texas-sip).

For other questions or more information, please contact Lola at lbrown@tceq.state.tx.us.

Ozone Monitoring Update – Nathan Chenaux, TCEQ (Region 12)

Nathan's presentation included a map showing the geographical location of the various ozone monitors in the HGB area (46), the eight-hour exceedances through October 7, 2010, the estimated 2010 ozone design values and comparisons of the current eight-hour NAAQS (75 ppb) with the 1997 eight-hour NAAQS (84 ppb) and the older one-hour NAAQS (124 ppb).

Although there are over 40 ozone monitors, only 21 are regulatory monitors. Nathan reported that the HRM-3 (Hayden Road, CAMS-603), which has been used and reported as a regulatory monitor in the past, is not being used as a regulatory monitor for 2010. Steve Smith explained that the agreement between the TCEQ and the Houston Regional Monitoring (HRM) group to use the ozone data from HRM-3 for regulatory purposes expired at the end of 2009.

Nathan showed the 28 days through October 8 which have exceeded the current 75 ppb NAAQS, of which 14 days also exceeded the 1997 NAAQS (84 ppb) and there were four days that exceeded the older one-hour NAAQS (124 ppb). It was noted that only two of the 28 days fell on a Saturday and there were no Sunday exceedances, suggesting that reduced emissions on the weekends may be related to the paucity of weekend exceedances.

Nathan also showed the current estimate of the 2010 eight-hour design values for the 21 regulatory monitors, the highest (84 ppb) being Manvel Croix (CAMS-84). It was noted that for the "Termination Determination" of the 185 Fees provision of the 1990 Clean Air Act to be effective, the HGB area needs to stay at or below the 1997 NAAQS of 84 ppb. During this discussion, we viewed the Field Operations Support Division web site (http://www.tceq.state.tx.us/cgi-bin/compliance/monops/8hr_4highest.pl), which showed the fourth highest eight-hour ozone for Manvel Croix to be 88 ppb and the third highest eight-hour ozone to be 90 ppb. So as long as eight-hour ozone at Manvel Croix remains at or below 88 ppb for the remainder of the year, the Termination Determination should result in ending the 185 fees. As Nathan noted, this is preliminary data, since it has not been thoroughly quality assured.

H-GAC Air Quality Issues – Graciela Lubertino Ph.D., H-GAC

Graciela's presentation focused on a conformity analysis necessitated by a change in the Regional Transportation Plan (RTP) projects. RTP projects are funded in large part from the taxes on fuels, however, fuel sales have been much less than anticipated (approximately $70 billion less), so a number of projects have been cancelled, while others have been modified.

Graciela showed that at the current Motor Vehicle Emissions Budget (MVEB) for NO_X and VOC (186.13 tpd and 86.77 tpd, respectively), the HGB area should remain in conformity out to 2035. Graciela responded to a question concerning the projected

increase in NO_X and VOC mobile source emissions between 2025 and 2035, explaining that emission reduction benefits from the Tier 2 program cease after 2025 since the program will be completely implemented(e.g., complete fleet turnover will have occurred). So without emission reductions to offset VMT growth, emissions will increase. It was noted that these future estimates do not presume any technological changes that might result in changes to the Federal Motor Vehicle Control Program (FMVCP) that could require additional emission reductions. Graciela indicated that the comment period on this conformity revision would close October 28, 2010.

Graciela also reported that H-GAC has joined with other transportation planning organizations via the Association of Metropolitan Planning Organizations (AMPO) engaging EPA on the MOVES grace period issue. In particular, the grace period, which allows conformity analyses to be conducted with MOBILE6 rather than MOVES, terminates in March of 2012. However, SIP revisions for the 2010 ozone NAAQS, which would include an MVEB based on MOVES rather than MOBILE6, are not due to EPA until December of 2013, with the final approval of the MVEB occurring at a subsequent date. During the period from March 2012 until the revised MVEB is approved, EPA regulations will require the use of MOVES in conformity analyses with an approved MVEB, which will be based on MOBILE6. During this discussion a question was raised about redoing the HGB SIP modeling with MOVES instead of MOBILE6. It was noted that the increased NO_X emissions resulting from MOVES rather than MOBILE6 are not the same proportion in the baseline (2006) and the future (2018) years. The increase is a larger proportion in the future year. Thus, it is anticipated that the ozone reduction between the baseline and future years will be less, resulting in a larger projected future design value. A larger projected future design value may warrant additional control measures, which would have to come from other source categories (e.g., point sources), since on-road mobile emission reductions are not regulated by the state.

Pipeline HRVOC Emission Loss Estimates – Cody McLain, TCEQ

Cody presented the results of a study conducted by Eastern Research Group (ERG) to compile a 2008 area source inventory of speciated and total volatile organic compound (VOC) emissions for pipelines transporting ethylene, propylene, and 1,3-butadiene (HRVOC) in the eight-county Houston-Galveston-Brazoria (HGB) ozone nonattainment area. The area source categories included fugitive emissions from metering stations, valve stations, pumps and other related components. ERG collected activity data via a survey sent to 31 pipeline owner/operators identified from Texas Railroad Commission (TRRC) permit information. For the various source categories, emissions were estimated on a county-wide basis using the average emissions factor approach with Synthetic Organic Chemical Manufacturing Industry (SOCMI) emission factors. The total estimated 2008 annual VOC emissions are 1473.9 tons of which 1390.4 tons are HRVOC.

Cody was asked why the emissions inventory was prepared for 2008 and responded that the 2008 emissions are the latest fully quality assured inventory. In addition, it was noted that 2008 is a periodic emissions inventory year as prescribed by the Consolidated Emissions Reporting Rule (CERR) and that 2008 is the proposed baseline

year for the 2013 attainment demonstration (modeling) SIPs pursuant to the 2010 ozone NAAQS.

During the presentation Cody was asked about the commodities and their composition and responded that thirteen commodities containing the HRVOC were initially identified in the TRRC data, but only nine commodities were reported by survey respondents (note: there is a table in the presentation showing the nine commodities and their composition).

Cody was also asked about the use of the average emissions factor approach, since it is known to over-estimate emissions, rather than the correlation equation approach. Cody responded that not all the respondents reported pipeline size and pressure, which is needed to apply the correlation equation approach. It was noted that the Office of Pipeline Safety, which prepares Zone of Impact analyses, may have additional data, such as size and pressure.

In addition, Cody was asked what pipeline emissions are in the current inventory and responded that only emissions from pipeline compressors have been routinely inventoried. It was mentioned that compressor emissions are mostly NO_X and what little VOC is emitted has very little if any HRVOC. It was also mentioned that a number of these pipelines begin or terminate at petrochemical facilities that may have included some of these emissions in their reporting. Cody mentioned that care is being taken to not double count these emissions. Dick mentioned that even if some of these pipeline components have been included in a facility's fugitive estimate, the speciation for the facility's fugitives generally would not have the richness of HRVOC captured in this specific pipeline inventory.

Also during the presentation, Cody was asked whether emissions from mobile flares used during pipeline maintenance and repair were included and responded that no emission events were included.

Carbon Bond Version 6 (CB6) Chemical Mechanism – Mark Estes, TCEQ

Mark presented the results of a TCEQ-funded project conducted by ENVIRON to update the carbon bond chemical mechanism used in the CAMx photochemical model. As Mark indicated, when new data and interpretations emerge (e.g., findings from TexAQS II), the TCEQ has a responsibility to incorporate them into the regulatory modeling.

During the presentation, Mark mentioned that comparisons between the carbon bond and SAPRC chemical mechanisms identified the need to update the toluene chemistry in the carbon bond mechanism, and was asked why the TCEQ does not just start using SAPRC. Mark responded that a major reason is maintaining a backward compatibility with our previous SIP modeling which has used the carbon bond mechanism.

Also during the presentation, Mark was asked about reviewing and assessing the basic formulation of the carbon bond mechanism and responded that each time the mechanism is updated, the basic formulation is reviewed and assessed to properly incorporate the added reactions.

Mark was asked about the smog chamber data used, in particular the reliance on chamber experiments using black light. Mark explained that black light chamber experiments were excluded when another chamber experiment could be used instead. However, none of the UNC chamber data was usable because of a problem in the light model.

During the presentation, Mark showed a series of graphics displaying a comparison of the CB05 and C6 box-modeled results to chamber measurements (i.e., prediction bias) for two metrics: maximum ozone concentration and NO_X cross-over time (i.e., the time it takes for the NO_2 concentration to increase to an amount equal to the decreasing NO concentration). Participants engaged in discussion of these performance results. CB6 showed a notable improvement over CB05 in predicting maximum ozone, with a bias generally within +/- 20 percent. In general, CB6 also showed better performance for the NO_X cross-over time, although for the PAR and ISOP carbon bond species, the performance was degraded, both having a positive bias greater than 20 percent with CB6.

Meeting Schedule and Agenda Items for 2011 – Dick Karp TCEQ

Dick engaged the participants in a discussion of the frequency of meetings for the next calendar year, scheduling the same day of the week or alternate days, whether there was any interest in trying to use web conferencing for a meeting and identifying agenda topics.

It was mentioned that bi-monthly meetings seem to work well, except that TCEQ funded projects generally conclude at the end of August and therefore we may want to consider more frequent meetings toward the end of the calendar year. It was also mentioned that varying the day of the week for meetings would more likely accommodate scheduling of presentations by university faculty. Participants seemed receptive to trying web conferencing (e.g., Webinar technology) for a meeting, which may be utilized toward the end of the calendar year when more frequent meetings may be necessary. It was mentioned that we may want to extend an invitation to representatives of the BPA area, since the area is likely to be designated nonattainment for the 2010 ozone NAAQS. Dick indicated he would contact Bob Dickinson with the Southeast Texas Regional Planning Commission. For the scheduling of meetings next year, Dick requested the participants identify potential conflicts, such as conferences (e.g., AMS, AGU, AWMA, CMAS, TCEQ Trade Fair).

Dick indicated that similar to this past year, he would compile a list of projects for 2011 that have specific outcomes related to the HGB area. Liz Hendler asked if a timeline for modeling activities could be presented at the next meeting, so the 8-Hour Coalition contractors could schedule their modeling activities. Dick indicated he thought that might be possible. The next meeting, scheduled for December 16, 2010, is expected to include presentations on Emission Estimates from Oil and Gas Platforms in Texas State Waters, Potential Impact of MOVES On-road Emissions for HGB, Flare Study Update, NASA ROSES (Dr. Cohan), Summary of 2010 CMAS Conference, and 8-Hour Coalition Update.