

SOUTHEAST TEXAS PHOTOCHEMICAL MODELING TECHNICAL COMMITTEE

Meeting Summary
February 24, 2011

H-GAC Offices
3555 Timmons Avenue
Houston, Texas

Members and Guests Present:

Jian Zhang, Bruce Davis, Bob Elam, Ken Gathright, Barry Lefer, Ryan Perna, Nathan Chenaux, Eddy Lin, Chris Kite, Mark Estes and Dick Karp, and via telephone Lola Brown, Angela Kissel, Erik Snyder, Tom Tesche, Jim Wilkinson, Tim Elie, Bob Cameron, and Liz Hendler.

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 gave a verbal update via the conference telephone. Lola reported that at the February 23, 2011, commissioners' agenda the Title-V air emissions fees proposal was approved. The commissioners also approved withdrawal of portions of the SIP rules concerning the System Cap Trading program applicable to facilities with system cap emission limits specified in 30 TAC 117.

Lola also reported that at the January 26, 2011, commissioners' agenda the new TCEQ Oil and Gas Permit-by-Rule (PBR) and the new Air Quality Standard Permit for Oil and Gas Handling and Production facilities were adopted with amendments. These authorizations are currently limited to the counties within the Barnett Shale Region in North Texas, although, the commission is considering expanding the applicability to all counties in Texas. The TCEQ plans to hold a series of stakeholder meeting to get input on the Oil and Gas Industry Air PBR and Standard Permit. These meeting will be open to the public, although, [registration](#) is required to attend.

In addition, Lola reported that the EPA published a notice of its determination that the motor vehicle emissions budgets in the March 10, 2010, Houston-Galveston-Brazoria SIP revisions are adequate for transportation conformity purposes, effective on February 9, 2011 (January 25, 2011, Federal Register).

Further, Lola reported on the TCEQ's status addressing the 2010 NO₂ and SO₂ NAAQS. On January 22, 2011, the TCEQ-recommended NO₂ designations were sent to EPA and consisted of 17 counties designated attainment and all other designated unclassifiable/attainment. The TCEQ recommended SO₂ designations are scheduled for the April 20, 2011, commissioners' agenda.

Lola also reported that at the last meeting (12/01/10) of the Control Techniques Guidelines Stakeholder Group members were encouraged to comment on the CTG categories currently being evaluated. One stakeholder comment was received during the informal comments period, which ended January 12, 2011.

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

EPA Update – Erik Snyder (EPA)

Erik gave a verbal update via the conference telephone. Erik reported that the EPA plans to promulgate the new ozone NAAQS implementation rules, which would include the classification scheme, at the same time, in July 2011, as the ozone standard. Erik also mentioned that new boiler MACT should reduce NO_x and SO₂, as well as mercury (Hg).

Erik was asked about the schedule for SIP submittal, and responded that, even with the July 2011 promulgation date for the new ozone standard, EPA was planning on an expedited SIP submission schedule of 2.5 to 3 years. The comment was made that, depending on the ozone classification scheme EPA selects, designations may not be final by year end.

Erik also responded that the lead (Pb) SIP for a portion of Collin County is expected to be submitted in June or July 2012, and that the SO₂ SIP for Jefferson County will probably be due in 2014.

Erik was asked about modeling guidance for the SO₂ SIP, and responded that EPA plans to issue guidance in 3 to 4 months, which will address how to determine the size of the nonattainment area and how to model. Further, Erik indicated that AERMOD was the recommended model. Erik was asked about determining background SO₂ concentrations, and responded that it should be similar to the approach used in a PSD permit application.

2010 Summary of H-NET Monitoring – Barry Lefer, Ph.D., UH

Barry's presentation provided a summary of the [H-NET](#) monitoring network. This network consists of five air quality monitoring sites, with four of the sites on the periphery of the HGB nonattainment area and one site, the Moody Tower residents' hall on the U of H campus (MDTW, CAMS 695), in the urban core of Houston. The four sites on the periphery were specifically located to form a box around the majority of the nonattainment area, filling in some gaps in the otherwise densely monitored area, as well as to provide monitoring of upwind (i.e., background transport) concentrations somewhat irrespective of the synoptic wind direction. In addition, two of the sites, Sugarland and West Liberty, are located in Fort Bend (UHSL, CAMS 696) and Liberty (UHWL, CAMS 699) counties, respectively, and are the only air quality monitors located in these counties.

The air quality data measured at the periphery sites include ozone concentrations and meteorological parameters (e.g., wind speed, wind direction). However, at the MDTW

site, ambient carbon monoxide (CO) is also being routinely measured. The routinely collected air quality data from these sites is being transferred to the TCEQ LEADS in near real time. Additional air quality data is also being collected, primarily at the MDTW site, and includes NO₂, HONO, HCHO, LIDAR and SO_x. Barry encouraged members to visit and explore the web site.

Barry's presentation also included an analysis of some of the data collected in 2009 and 2010. Prominent in this analysis is the elevated ozone concentrations that occur a few days after frontal passages, which usher in clear sky and low wind speed conditions, conducive to ozone formation.

Barry invited everyone to an air quality conference on April 19, 2011, at the U of H Hilton Hotel, entitled "Recent Advances in our Understanding of Texas Air Quality: A Tribute to Daewon Byun." In addition, Barry indicated that NASA will be conducting an air quality monitoring program in Texas during the late summer of 2013 and this provides an opportunity for other Texas air quality researchers to participate in a field intensive monitoring program. Barry also indicated that this summer enhanced air quality monitoring will be conducted in both HGB and DFW nonattainment areas. In particular for HGB, this includes SOF and DOAS measurements and establishing a temporary ground level monitoring site in close proximity to the MDTW site which is an elevated site (approximately 70 meters above ground level).

Flash Emissions from Oil and Condensate Tanks – Eddy Lin, TCEQ

Eddy's presentation provided a synopsis of a project (TCEQ-2010-43) conducted by Environ to quantify the VOC emissions reduction achieved by the tank flash emissions rule, Texas Administrative Code (TAC) §115.112(d)(5). This rule went into effect January 1, 2009, and applies to storage tanks or tank batteries at oil and condensate production facilities in the HGB area with a potential to emit (PTE) of 25 tpy or more of VOC emissions on a rolling 12-month basis. This project also included other areas, such as the BPA and Haynesville Shale areas.

As Eddy explained, at about the same time as a voluntary survey questionnaire developed by Environ was sent to the larger producing facilities in the various areas, the TCEQ Region 12 also sent out a mandatory 2009 VOC emissions survey request to all oil and condensate producers in the HGB area. For the HGB area, Environ combined the responses from both surveys, which yielded better than a 50% response rate. Of those facilities which responded, about 36% were using either vapor recovery units or flares to control emissions, 22% of which installed the controls in compliance with the rule. Erik Snyder commented that the new green house gas (GHG) rules may have prompted some producers to install controls, as well, and there may be more facilities installing controls in the future to comply with GHG rules. Eddy showed the results of the Environ analysis, which estimated the flash VOC emissions reduction in the HGB area to be approximately 16% for condensate and 20% for oil producers.

As Eddy noted, there is a large disparity between the default emission factors stated in the rule for determining PTE, and emission factors determined from test data. For example, using the default emission factors, approximately 60% of the facilities have a

PTE greater than or equal to 25 tpy. However, based on the survey respondents' data, only about 14% have reported emissions greater than or equal to 25 tpy.

Preliminary Comparison Between MOVES and MOBILE6 – Chris Kite, TCEQ

Chris' presentation provided a synopsis of a project (TCEQ-2010-14) conducted by TTI to incorporate the MOVES emissions factor model into the on-road emissions modeling for Texas, as well as providing a preliminary comparison between MOVES and MOBILE6.2 on-road link-based emissions for the HGB nonattainment area.

Chris showed that compared with MOBILE6, MOVES on-road emission estimates are somewhat lower for CO, somewhat higher for VOC and higher for NO_x. However, emissions using either model reflect the decline over time for NO_x, VOC, and CO due to fleet turnover even with expected annual growth in VMT.

Chris was asked about in-use data, with regard to differences in the emission factors generated by MOBILE6 and MOVES. Chris responded that the in-use data refers to the deterioration rate of emission controls on new cars. When MOBILE6 was released for SIP applications in 2002, in-use data for vehicles meeting the Tier 1 and NLEV standards were not yet available. However, in-use data for Tier 1 and NLEV vehicles was available for MOVES, which indicates that MOBILE6 under-estimated the deterioration rate for these vehicles. Similarly, MOVES will be updated when in-use data for vehicles meeting the Tier 2 standards are available.

Chris was also asked about the availability of 2009 on-road mobile source emissions. Chris responded that 2009 on-road mobile source emissions are not currently being developed. The on-road mobile source emissions being developed for SIP modeling included 2006 base case, 2008 baseline and 2018 future-year emissions. TTI projects (TCEQ-2011-03 and TCEQ-2011-10), which are scheduled to be completed August 31, 2011, will provide state-wide county-level and HGB link-based on-road emission for the 2006 base case and the 2008 baseline. Chris further indicated that in order to incorporate the latest version of MOVES, the schedule for the development of the 2018 future-year emissions has not been finalized.

Atmospheric Chemical Mechanisms Conference – Mark Estes, TCEQ

Mark gave a synopsis of the 2010 Atmospheric Chemical Mechanism conference he attended in December 2010. In particular, Mark focused on the conference presentations addressing the greatest uncertainties, which are also pertinent to ozone formation in Texas. One of the research areas of particular interest for HGB is alternative reaction mechanisms that generate more HONO, such as HNO₃ reactions with organics at night and photolysis of nitro-aromatics during the day. Recent studies in HGB, such as SHARP and FLAIR, have measured HONO during the day, which is not replicated in the modeling possible due to the limitations of the current chemical mechanism.

Another research area of particular interest for HGB is new reaction mechanisms of isoprene and its products that regenerate OH and HO₂. Again, modeling of HGB does not replicate the concentrations of these radicals that have been measured during special studies, which is likely due to the limitations of the current chemical mechanism.

Next Meeting Schedule and Agenda– Dick Karp, TCEQ

Dick indicated that the next meeting is scheduled for Wednesday April 13, 2011, and that he will line up presenters for various air quality monitoring, emissions and modeling projects to be used in the next HGB SIP modeling.