

# Metropolitan Washington Air Quality Committee

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## TECHNICAL ADVISORY COMMITTEE

Date: September 16, 2005

Time: **Noon - 2pm**

Lunch will be served to members at noon.

Place: **COG Room 1, 1st Floor**

MWCOG, 777 North Capitol St., NE, #300

Washington, D.C. 20002

## Agenda

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- 12:00 1. Call to Order and Review of Meeting Summary (July 8, 2005)**  
*Chairman Tad Aburn, Maryland Department of the Environment*
- 12:05 2. SIP Development: Update**  
*Joan Rohlf, COG DEP, will provide a report on the overall schedule and updates on emission inventory, attainment modeling, and control measure development.*
- 12:25 3. Air Quality Trends and Ozone Season Summary: Update**  
*Jen Desimone and Sunil Kumar, COG DEP, will provide a report on the air quality trends and the ozone season summary for the Washington, DC region. An analysis of one forecasted code red day will be presented.*
- 12:45 4. 8-hour Ozone and PM Conformity: Update**  
*Mike Clifford, COG/DTP, will provide an update on the 8-hour ozone and PM2.5 conformity analysis. Results for the 8-hour ozone and wintertime CO analysis will be presented.*
- 1:05 5. SAFETEA-LU and CMAQ: Update**  
*Ron Kirby, COG/DTP, will provide a report on SAFETEA-LU and CMAQ with special emphasis on planning for diesel initiatives in the Region.*
- 1:20 6. Potomac River Power Plant: Update**  
*Jim Sydnor, VADEQ, and Arnold Solomon, Mirant, will provide an update on recent actions at the Potomac River Power Plant.*
- 1:40 7. State and Local Air Agency Report**
- 1:55 8. Set Date for Next Meeting, Future Agenda Items, Adjourn:**  
*Next TAC Meeting: October 14, 2005*

## **DRAFT**

### **MWAQC Technical Advisory Committee Meeting Summary July 8, 2005 Noon to 2 pm. COG Board Room**

#### **Present:**

Tad Aburn, Maryland Department of Environment  
Tom Biesiadny, Fairfax County Department of Transportation  
Rick Canizales, Prince William County Department of Public Works  
Randy Carroll, Maryland Department of Environment  
Diane Franks, Maryland Department of Environment  
Maurice Keys, District of Columbia Department of Transportation  
Kipp Coddington, Greater Washington Board of Trade  
Barbara Hardy, Fairfax County Department of Environmental Services  
Alex Hekimian, Maryland National Capital Parks and Planning Commission  
Doris McLeod, Virginia Department of Environmental Quality  
Chris Meoli, Virginia Department of Environmental Quality  
Mary Richmond, Montgomery County Department of Environmental Protection  
Howard Simons, Maryland Department of Transportation  
Kanti Srikanth, Virginia Department of Transportation  
Art Smith, Loudoun County  
Jim Sydnor, Virginia Department of Environmental Quality  
Ram Tangirala, District of Columbia Department of Health  
Julie Thomas, National Park Service  
Stan Tracey, District of Columbia Department of Health  
Didian Tsongwain, Prince George's County  
Flint Webb, Fairfax County Federation of Citizens Associations

#### **Staff:**

Rich Denbow, COG/DEP Consultant  
Jeff King, COG/DEP  
Brian Lecouteur, COG/DEP  
Eulalie Lucas, COG/DTP  
Joan Rohlf, COG/DEP  
Daivamani Sivasailam, COG/DTP

#### **Presenters:**

Ivan Cheung, George Washington University  
David Hitchcock, Houston Advanced Research Center (HARC)  
David Sailor, Portland State University  
Eva Wong, U.S. Environmental Protection Agency

#### **Observers:**

Julie Crenshaw, Air Quality Public Advisory Committee  
Greg Dierkers, Center for Clean Air Policy  
Debra Jacobsen, George Washington University  
Gary Koerber, U.S. Department of the Navy Regional Environmental Coordinator Region III  
Edgar Mercado, U.S. Environmental Protection Agency

## **1. Call to Order**

Mr. Aburn called the meeting to order at 12:10. The minutes of the July 8, 2005 meeting were approved with suggested changes from Howard Simons regarding establishment of a group similar to the TPB's Travel Management Subcommittee to evaluate proposed new control measures. Mr. Aburn entertained two requests for changes to the agenda. First, he asked if members would approve moving the discussion on the comment letter on the PM2.5 Conformity Scope of Work up in the agenda. Second, he asked if members would approve tabling the discussion on the comment letter on the PM2.5 Conformity Scope of Work to the next TAC meeting. Members approved the change to the agenda. Regarding the second request, Tad asked about the impact on timing. Joan Rohlf's said that the TPB meeting is on July 20th, the MWAQC Executive Committee meets on July 13th, and DTP will send out the TPB package/mailout on July 14th. This means that any issues would need to be resolved on Monday July 11. If the decision is postponed, the full TAC and MWAQC would not have a chance to approve the letter before the end of the public comment period. The group agreed to discuss the letter in an attempt to reach a resolution.

## **2. PM2.5 Conformity: Action**

Jeff King said that members have in their packet two comment letters that need to be considered for approval to recommend to MWAQC as a comment letter on TPB's proposed scope of work handling PM2.5 conformity. One is a letter approved by the chair of the conformity subcommittee (Item 4a). The second is a letter provided by the District of Columbia Department of Health with suggested revisions that were not accepted by the Conformity Subcommittee (Item 4b). Ram Tangirala said that the differences between the letter approved by the Chair and the version suggested by the District need to be considered. Jim Sydnor suggested that the letter be revised to urge the State Air Agencies and the TPB to work together to determine which option should be chosen prior to the next cycle. The letter was approved with one change from Jim Sydnor.

## **3. Emission Inventory: Update**

Ram Tangirala, DC DOH, provided an update on the draft emission inventory for the 8-hour ozone SIP. The Emissions Inventory Subcommittee has asked the states to send any changes. There are some expected changes to the 2009 point source controlled inventory estimates to account for national and regional measures for major point sources/EGUs and for smaller point sources. Howard Simons asked why the point source emissions increase between 2002 and 2009. Doris McLeod said that the major controls affecting this source (e.g., CAIR) don't go into effect until after 2009. Ram Tangirala said that the states are working to incorporate controls for the 2009 controlled point source inventory. Ram Tangirala said that the 2009 controlled inventory for point sources does not include CAIR.

Tad Aburn asked if the 2009 controlled inventory for area sources included the OTC VOC measures. Rich Denbow said that the relatively high controlled inventory for area sources is a result of growth, and that the OTC VOC measures are reflected in the inventory.

Ram Tangirala said that the on-road mobile estimates also need to be revised using most recent inputs, including vehicle registration data, NOx defeat device assumptions, and the Heavy Duty Diesel Engine Rule impacts. The 2009 on-road mobile values were interpolated using currently available emissions estimates for 2005 and 2010. Doris McLeod asked about the results of the VIN Power test, and whether the heavy duty diesel classes were captured. Daivamani Sivasailam said that the test was performed using a 2% sample of registration data. He said that when he receives the complete dataset he will run the program for all records and then be able to provide an answer. Ram Tangirala said that the District has analyzed 20,000 records and will share results with COG DTP staff.

Ram Tangirala said that the area source estimates need to be revised using the latest Cooperative Forecast 7.1 inputs. Flint Webb asked if the forecasts reflect base realignment and closure (BRAC) expectations. Joan Rohlf's said that the Cooperative Forecasts will not be updated until the BRAC decisions are final. Ram Tangirala said that the airports emissions estimates are pending and will be revised and finalized

through the airports workgroup. Diane Franks said that the workgroup has agreed to put in the detailed airports emissions estimates as line items in the SIP. Ram Tangirala said that the handling of emissions from on-site airport motor vehicle traffic may need to be further evaluated. Diane Franks said that on-site mobile emissions will become part of the airports line item in the SIP, and will not be part of the Transportation Conformity mobile emissions budget. Ram Tangirala said that to address any issues of concern related to handling of on-site airport traffic, the TPB and DOTs should be consulted.

Ram Tangirala said that there are issues with the uncontrolled inventory for non-road sources. He said that it's not critical unless there is a Reasonable Further Progress requirement. Rich Denbow said that the OTC VOC control programs are in the control totals for area sources. Within the past month the states agreed on how to take reductions. Two were applied only in the District and Virginia because Maryland had already required the programs prior to 2002. Rich Denbow also said that the airports estimates are preliminary. Emissions projections for Dulles were available from the Runway Expansion EIS, but projections for Reagan National Airport have not yet been developed so a surrogate was used. Flint Webb asked if a breakdown of area sources was available. Rich Denbow and Ram Tangirala said yes but noted that the results are still preliminary. They referred Flint to the 2001 Periodic Emissions Inventory for more information.

Tad Aburn said that a lot of work has gone into developing the preliminary emissions inventory. He requested that an extended session be worked into the next TAC meeting so that the group can spend more time understanding the estimates for each source sector. Howard Simons asked about the goals of the emissions subcommittee in terms of timing. Tad said that the emissions inventories need to feed into the attainment modeling effort so results are needed by the end of the summer/early Fall. Flint Webb asked if the modeling protocol has been completed. Tad Aburn said that TAC should receive a briefing on the modeling efforts. He said that the prototype runs have shown good results, but more work is needed on inventories and meteorological parameters such as windfields.

Jim Sydnor asked that the totals be added to the emissions bar charts. Flint Webb asked about the decrease in mobile emissions. He asked if improvements in technology mean that emissions are less even with higher VMT. Tad Aburn said that there are significant controls coming on line, including Tier 2, Heavy Duty Diesel, and Low Sulfur Fuel rules.

Kanti Srikanth asked if the emission inventory needs to be approved for MWAQC. He expressed concern about circulating the preliminary on-road mobile numbers. Eulalie Lucas also said that TPB hasn't seen or approved the on-road mobile emissions numbers yet. Joan Rohlf's said that the draft inventory is needed so that the preliminary control strategy scenarios can be developed. Tad Aburn said that COG air and transportation staff should meet to discuss.

#### **4. Urban Heat Island Mitigation Strategies: Report**

Eva Wong, U.S. EPA, Ivan Cheung, George Washington University, and David Hitchcock, Houston Advanced Research Center (HARC), provided a report on approaches to reduce urban heat islands.

Eva Wong discussed the three main strategies to reduce urban heat islands: urban vegetation, cool roofing, and cool pavements. Tree canopies can cool urban areas by providing shading and through evapotranspiration. There are more than 1,000 commercial products available for cool roofing projects, in particular for flat and low-sloped roofs. The benefits of heat island mitigation include reduced energy demand and air pollution, as well as improved water quality and human health. There are a variety of programs and policies that support heat island reduction strategies, including Energy Star, Cool Roof Rating Council, Green Buildings, incentives, and Standards/Codes. Impacts of heat island reduction strategies can be estimated using a screening tool called Mitigation Impact Screening Tool (MIST).

Ivan Cheung presented information on the relationship between surfaces and urban temperatures. He said there is a strong correlation between surface temperatures and ozone formation. David Hitchcock said that Texas is expecting an equivalent emission reduction of 0-0.5 tpd in the Houston area as a result of the state's commitment to reducing urban heat islands. Tad Aburn asked about the possible reductions in ozone concentrations resulting from implementation of a suite of mitigation measures. David Hitchcock said that LBNL has completed its first runs but the results have been inconsistent. Modeling tools need to be further enhanced to enable assessment of the benefits of mitigation. Alex Hekimian asked about the rationale for the use of equivalent emission reduction estimates. Eva Wong said that it's based on the impact on atmospheric chemistry, which may be useful in obtaining SIP credit. Flint Webb said the goal would be to determine how heat island effects translate into model results and demonstration of ozone reductions. Tad Aburn agreed and said that one approach could be to use heat island mitigation impact modeling results as part of weight of evidence in the attainment demonstration.

David Hitchcock provided a summary of the heat island mitigation program in Texas. He said that there is statewide cool roofs legislation. Heat Island mitigation will be included in SIPs. The state has developed quantification protocols but improvements in air quality models are needed to enable incorporation of heat island mitigation measures as weight of evidence in SIPs. He said reversing forest canopy loss is a major challenge. He also said that incremental approaches can be useful, for example planting trees can result in reductions in mowing, increased ozone deposition, and shading. Tad Aburn asked if cost/benefit information is available. Eva Wong said that there is information but it is not yet organized. EPA is developing a guidebook that could be useful in the future.

Jim Sydnor asked if there were any disbenefits associated with implementation of these strategies, particularly in winter. Eva Wong said that reflective roofs do result in a disbenefit in winter, but the models attempt to capture such factors. Tad Aburn asked what is driving the cool roofs legislation in California. Eva Wong said energy savings. Utilities in Minnesota and Florida are also looking into similar programs to shave peak loads. Jim Sydnor asked for clarification about roof tile benefits. Eva said that metal and tile roofs have been designed as effective cool roofing products. Asphalt shingles that offer heat mitigation have not yet been commercialized. David Hitchcock said that Houston is not focusing on residential roofing markets yet. The main strategy is to focus on all flat roofs first.

##### **5. Control Strategy Development: Update**

Jeff King, COG/DEP, provided an update on the draft control strategy for the 8-hour ozone SIP. The preliminary emission inventory for 2009 was completed for use as a starting point in estimating emission reduction goals. Using the draft data, potential attainment scenarios were developed for consideration by the control measures workgroup. The first step is to estimate the reductions that are expected to occur from implementation of programs that began in 2003. Reductions from existing controls were estimated by subtracting the 2009 controlled inventory from the base year inventory. The second step involves developing potential attainment scenarios. Scenario 1 assumes Rate of Progress (ROP) of 3 percent per year from 2003 to 2009. Emission reduction requirements are estimated assuming that EPA may require traditional Rate of Progress of 3% per year, for a total reduction requirement of 21 percent off the 2002 base. Scenario 2 assumes an additional 10 percent reduction beyond ROP goals, for a total reduction requirement of 31 percent off the 2002 base. For scenario 1, emission reductions from existing controls exceed the emission reduction requirements. There is a potential surplus for both NO<sub>x</sub> and VOC. For scenario 2, emission reductions from existing controls do not exceed the emission reduction requirements. Overall, the results suggest that reductions from existing controls may enable the region to meet potential ROP requirements, but that additional control measures and emission reduction beyond those needed for ROP will likely be required to reach attainment.

Ram Tangirala clarified that the rationale for scenario 2 is that EPA modeling indicates that the region may be in nonattainment even after implementation of CAIR in 2009. Jim Sydnor said that this work represents good progress. Tad Aburn agreed and said that the results are encouraging. The analysis

indicates that controls will continue to result in additional emission reductions before 2009. The challenge will be to determine through modeling what additional reductions may be needed to reach attainment.

Flint Webb asked if the results were still valid considering the projected reductions are largely based on the mobile sector where emission estimates for 2009 are still preliminary. Kanti Srikanth said that while the inventories are still draft and the actual emission numbers may change based on new inputs, the overall conclusions are still valid.

Tad Aburn said that when presenting these results, it will be important to add caveats that the numbers are preliminary and subject to change based on new information such as EPA guidance. He also said that Virginia should try to highlight the reductions they are already planning to achieve in upwind areas from small NO<sub>x</sub> sources. Kanti Srikanth said that EGUs should be defined on the table, and that the innovative measures bundle should be attached.

#### **8. State and Local Air Agency Report**

The local governments, Maryland, the District of Columbia, and Virginia had nothing to report.

#### **9. Set Date for Next Meeting, Future Agenda Items, Adjourn: September 16, 2005**

The TAC will meet next on September 16, 2005 from noon to 2 pm. The meeting time is being rescheduled due to the rescheduling of the TPB Technical Committee meeting for September 9 from 9 am to noon. There being no further business, the meeting was adjourned at 2:15 p.m.