Modeling Workgroup
Mobile Sources Technical Review Subcommittee
Clean Air Act Advisory Committee

Minutes of the Modeling Workgroup's Meeting on January 16, 2001
Alexandria, VA
DRAFT February 2, 2001

Introduction and Agenda

John Koupal (U.S. EPA) called the meeting to order at 1:00 p.m. The focus of the meeting was EPA's new generation mobile source emissions model (NGM). The goal of the meeting was to present ideas and generate discussion on NGM. Mr. Koupal presented an overview of the status of MOBILE6 and NGM, "New Generation Mobile Source Emissions Modeling."

MOBILE6

MOBILE6 is scheduled for release on January 31, 2001. It may be released as a beta model. The next steps in developing MOBILE6 are to finish the technical documentation; add PM, air toxics, and greenhouse gases; and validate the model. The PM component should be ready some time this year, and the air toxics and greenhouse gas components will follow. Mr. Koupal outlined the differences between MOBILE6 and MOBILE5 and explained why MOBILE6 is a better tool. However, since MOBILE6 is still a "macro-scale" model, a NGM is needed.

New Generation Model

The EPA's efforts to date to develop the NGM include coordination with the U.S. Department of Transportation, emission modelers, and the Intra-Agency Mobile Source Modeling Workgroup. Using recommendations from the May 2000 National Research Council (NRC) report, *Modeling Mobile Source Emissions*, EPA developed eight guidelines for model development. Mr. Koupal presented these guidelines for the workgroup to discuss.

NGM Guideline 1: Comprehensive. The model would estimate emissions at the micro-scale, meso-scale, or macro-scale for criteria pollutants, PM, toxics, and greenhouse gases. The model would include all pollutants EPA is interested in now and could be adapted to look at other pollutants of concern in the future. It would comprise modules that could be used independently. Mike Rodgers (Georgia Tech) suggested that calling this guideline "flexible" rather than "comprehensive" would be more accurate. Mike Morris (North Central Texas Council of Governments) had a concern that state and local users would have difficultly comparing emissions from the new model to emission budgets set using older models, and that they would be forced to recalculate emissions budgets and repeat the transportation conformity process. However, Tom Darlington (AIR, Inc.) stated that redoing an emissions budget is not necessarily

negative if one is using a better model. Mr. Morris also expressed concern about how EPA would respond to NRC's recommendations about validation. Dr. Rodgers said that each module should be validated both independently and as part of the entire modeling system.

NGM Guideline 2: Compatible. The model would be compatible with current and advanced transportation and air quality modeling frameworks (TRANSIMS, MODELS3). Richard Schoeneberg (Federal Highway Association) voiced concern that there is insufficient appreciation of the limits of the data that are used in the models. He felt that much of the data are not statistically sound at the county level, and that the model needs to account for the quality of data it gets. However, Dr. Rodgers responded that data availability would vary; while good data may not be available nationally, it could be available in specific corridors where the model would be applied. Dr. Rodgers also pointed out that data can come from different sources, both observed and modeled.

NGM Guideline 3: Useable. "Usability" would be defined by ease of use, reasonable software/hardware requirements, and the ability to generate and enter activity and fleet information at the desired level of analysis. One aspect of usability is cost. Currently MOBILE6 is free, but what if the new model must be purchased or requires expensive hardware? Mr. Schoeneberg pointed out that cost is relative; what is affordable to a city of one million may be cost-prohibitive to a city of 50,000, and the model needs to be accessible to cities at both ends of the spectrum. Mr. Koupal explained that EPA is considering moving to a GIS format. Bruce Spear (Federal Highway Association) suggested that EPA not develop new software, but rather use existing GIS software. Mr. Koupal added that some people will only want a piece of the model, such as emissions factors, and they need to be able to extract it.

NGM Guideline 4: Data-Driven. The underlying database structure would allow for more frequent updates based on new data from multiple sources, including in-use emissions and activity data. Gene Tierney (EPA) explained that EPA would like to use both old and new data, although more recent data are likely to be more accurate and therefore more important. Currently there is a good deal of data on light-duty vehicles; the focus now is on collecting data for nonroad and heavy-duty vehicles. EPA is looking to the transportation community for activity data. Mr. Koupal said that for long-range planning, EPA needs to coordinate both existing data and needed research.

NGM Guideline 5: Modular. The model would be structured to enable access, updates, and validation of individual modules. Dr. Rodgers pointed out that the validation of each individual module is necessary, especially since modules may be used for unforeseen applications. People will want to know that individual modules are validated.

NGM Guideline 6: Well-Documented. Documentation would cover the model and its use, model operation, structure, code, algorithms, inputs, testing, and user guidance. There were no comments about this guideline.

NGM Guideline 7: "Certified". The model would be consistent with emerging EPA guidelines for model development. There was a suggestion to examine some modules now and compare them to real data. There was some concern about the variation between emission estimates from different types of sources, such as stationary versus mobile, and that this uncertainty impacts both the models and the ensuing regulations. Mr. Koupal acknowledged that the technical challenges will be easier to address than the policy challenges.

NGM Guideline 8: Coordinated. The model would be developed in coordination with stakeholders, users, and other entities engaged in mobile source modeling. Randy Guensler (Georgia Tech) suggested that the energy community be included because they are also doing CO_2 modeling. Susan Field (Toyota) also suggested including NESCAUM because they are working on air toxics.

Potential Interim Steps. Mr. Koupal stated that the first step is to move toward a GIS framework and add a micro-scale component for evaluation of transportation control measures. There are two goals for the NGM: (1) to create a national emissions inventory generation system that is more comprehensive than MOBILE6, and (2) to provide a tool that states and localities can use or can use modules from. By using a GIS framework, the model will do a better job spatially allocating emissions and it will be able to use a huge database and disaggregate emissions information for different uses.

Wrap-Up

Mr. Koupal stated that EPA wants to use this workgroup as an advisory group because of its substantial expertise. A NGM issue paper/initial proposal is scheduled to be released in April 2001, and Mr. Koupal will provide copies of the paper to the workgroup in advance of its next meeting. (#1)[1] The Modeling Workgroup will meet in conjunction with the next quarterly meeting of the Mobile Sources Technical Review Subcommittee Meeting (April 18) and will discuss the paper at that time. (#2) A comprehensive plan for how the model will be developed should be completed in September 2001. The meeting was adjourned at 4:10 p.m.

Action Items

1. Mr. Koupal will provide the issue paper on NGM to the Modeling Workgroup in advance of its next meeting.
2. The Modeling Workgroup will meet in April in conjunction with the quarterly meeting of the Mobile Sources Technical Review Subcommittee.

[1] The numbers in parentheses refer to the list of action items which appears at the end of the minutes.

Attendees (including those off-site)

Chad Bailey	U.S. EPA	
Rick Barrett	CO Department of Health	rick.barrett@state.co.us
Matt Barth	Univ. of California, Riverside	
Megan Beardsley	U.S. EPA	
John Byun	Federal Highway Admin.	joon.byun@fhwa.dot.gov
Larry Caretto	California State University Northridge	
Mitch Cumberworth	U.S. EPA	
Tom Darlington	AIR, Inc.	tomdarl@voyager.net
Susan Field	Toyota	field@ttc-usa.com
Chuck Freed	Consultant	cnfreed@aol.com
Randy Guensler	Georgia Tech.	
Phil Heirigs	Sierra Research	
Alan Huber	U.S. EPA	
Mike Keenan	New York State DEC	
Sue Kimbrough	U.S. EPA	
Sandeep Kishan	Eastern Research Group	
Chris Klaus	North Central Texas Council of Governments	
John Koupal	U.S. EPA	
David Lax	API	lax@api.org
Chuck Mann	U.S. EPA	
Harvey Michaels	U.S. EPA	
Mike Morris	North Central Texas Council of Governments	
Brian J. Morton	EC/R, Inc. (EPA Contractor)	morton.brian@ecrweb.com
Alison Pollack	Environ	
Mike Rodgers	Georgia Tech.	
Richard Schoeneberg	Federal Highway Admin.	dick.schoeneberg@fhwa.dot.gov
Celia Shih	New York State DEC	
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Stephanie Walsh	EC/R, Inc. (EPA Contractor)	walsh.stephanie@ecrweb.com
Tom Wentzel	Lawrence Berkeley Laboratory	
Mike Williams	Los Alamos National Lab.	