

## 1. Charge Questions and Scope of the Peer Review

The peer reviewers were asked to review the MOVES 2013 Fuel Effects, Toxics Emissions, Total Organic Gases (TOG) and Particulate Matter (PM) Speciation Analysis Reports. These reports consisted of several documents, summarized below in Table 1.

**Table 1. Documents Reviewed for the Peer Review of the Fuel Effects, Toxics Emissions, Total Organic Gases (TOG) and Particulate Matter (PM) Speciation Analysis Reports**

Type	Title
Chapter	Gasoline Fuel Effects for Vehicles Certified to Tier-2 Standards, IN: <i>Modelling Effects of Fuel Properties in the Motor Vehicle Emissions Simulator (MOVES2014)</i>
Chapter	MOVES2014 Sulfate and Sulfur Dioxide Emissions Calculator, IN: <i>Modelling Effects of Fuel Properties in the Motor Vehicle Emissions Simulator (MOVES2014)</i>
Chapter	Calculating the Effects of Gasoline Sulfur on Exhaust Emissions, IN: <i>Modelling Effects of Fuel Properties in the Motor Vehicle Emissions Simulator (MOVES2014)</i>
Report	<i>TOG and PM Speciation in MOVES for Air-Quality Modeling</i>
Appendix	PM2.5 Speciation in MOVES
Section	2.3 Estimating Elemental Carbon Fractions, IN: <i>Development of Emission Rates for Light-duty Vehicles in the Motor Vehicle Emissions Simulator (MOVES2014)</i>
Section	2.5 Updates to PM2.5 Emission Rates in MOVES2014, IN: <i>Development of Emission Rates for Light-duty Vehicles in the Motor Vehicle Emissions Simulator (MOVES2014)</i>
Sub-section	2.1.3.5 Computation of Elemental Carbon and Non-Elemental Carbon Emission Factors, IN: <i>Development of Emission Rates for Heavy-Duty Vehicles in the Motor Vehicle Emissions Simulator (MOVES2014)</i>
Report	<i>Estimation of Air-Toxic Emissions from Highway Vehicles in the Motor Vehicle Emissions Simulator (MOVES 2014)</i>

Responses were requested to five general questions and one catch-all question. These are repeated below.

### 1.1. General Charge Questions

The general charge questions were as follows:

1. Does the presentation give a description of selected data sources sufficient to allow the reader to form a general view of the quantity, quality and representativeness of data used in the development of emission rates? Are you able to recommend alternate data sources might better allow the model to estimate national or regional default values?
2. Is the description of analytic methods and procedures clear and detailed enough to allow the reader to develop an adequate understanding of the steps taken and assumptions made by EPA to develop the model inputs? Are examples selected for tables and figures well chosen and designed to assist the reader in understanding approaches and methods?

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3. Are the methods and procedures employed technically appropriate and reasonable, with respect to the relevant disciplines, including physics, chemistry, engineering, mathematics and statistics? Are you able to suggest or recommend alternate approaches that might better achieve the goal of developing accurate and representative model inputs? In making recommendations please distinguish between cases involving reasonable disagreement in adoption of methods as opposed to cases where you conclude that current methods involve specific technical errors.
4. In areas where EPA has concluded that applicable data is meager or unavailable, and consequently has made assumptions to frame approaches and arrive at solutions, do you agree that the assumptions made are appropriate and reasonable? If not, and you are so able, please suggest alternative sets of assumptions that might lead to more reasonable or accurate model inputs while allowing a reasonable margin of environmental protection.
5. Are the resulting model inputs appropriate, and to the best of your knowledge and experience, reasonably consistent with physical and chemical processes involved in exhaust emissions formation and control? Are the resulting model inputs empirically consistent with the body of data and literature that has come to your attention?

The catch-all charge question was as follows:

1. Please provide any additional thoughts or review of the material you feel important to note that is not captured by the preceding questions.