

ADDENDUM/Appendix A: Specific QUESTIONS for Contractor PEER REVIEW CHARGE Letter

The peer-review consists of the material in the attached documents:

- Updates to Chapter 2.1.1: Heavy Duty Diesel, Running NOx Emissions
 - This section describes the analysis of additional heavy-duty data to evaluate and update MOVES2010 rates for running NOx. The peer-reviewed approaches of calculating STP and emission rates in MOVES2010 were unchanged. We expect substantial new data on latest technology (MY 2010+) to become available in the near future, through Heavy-Duty Diesel In-Use Testing program, and plan to continue evaluating and revisiting the rates that are based on forecasting currently.
- Section 3.3 “Updates to Emission Rates in MOVES2014”
 - This section describes the updates to Heavy-duty Gasoline Emission rates in MOVES2014.
 - Sections 3.1 and 3.2 are unchanged from MOVES2010, and were peer-reviewed as part of the MOVES2010 release.
- Chapter 4 Heavy-Duty Compressed Natural Gas Transit Bus Emissions
 - This chapter documents a new additions to MOVES2014
- Chapter 5 Heavy-Duty Crankcase Emissions
 - This chapter documents updates and changes to MOVES2014.

The *Development of Emission Rates for Heavy-Duty Vehicles in the Motor Vehicle Emissions Simulator (MOVES2014)* is updated from the MOVES2010 documentation, which was peer-reviewed separately as part of the MOVES2010 release. You are charged with reviewing the updated sections which describe analysis, new test data, and modeling methodology that are new to MOVES2014. We have provided the entire report to you for context. We have made minor changes in other sections of the report outside the charge to be consistent with the changes in MOVES2014. Any sections which document changes to the MOVES2014 are included in the charge. Any comments made outside of the charge sections will be addressed at EPA’s discretion.

The heavy-duty report references other MOVES2014 draft reports that are also being peer-reviewed. We will provide these to you at your request.

We are submitting this material for you to review selected methods and underlying assumptions, their consistency with the current science as you understand it, and the clarity and completeness of the presentation. The attached list of charge questions is designed to focus your review on specific topics related to the report. For this review, no independent data analysis or information summary is required. Rather, we ask that you assess whether the information provided is representative of the state of current understanding, and incorporating the information in MOVES will results in appropriate predictions and conclusions.

General Questions

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?
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?

Specific Questions

1. Is the methodology for creating new MOVES2014 running and start exhaust emission rates for compressed natural gas transit buses sufficiently explained? Can you follow the procedure that was used to calculate ratios from the MOVES2010b rates to the MOVES2014 rates and how those ratios were applied? Do you have any suggestions for improving this methodology for CNG emission development or the documentation itself?
2. Does this EPA analysis of CNG buses accurately reflect the changes in control technology and emission standards? If not, how would you recommend to make the CNG emission rates more reflective of bus emission reduction trends over the past two decades?