

The Congressional Review Act, 5 U.S.C. 801 *et seq.*, as added by the Small Business Regulatory Enforcement Fairness Act of 1996, generally provides that before a rule may take effect, the agency promulgating the rule must submit a rule report, which includes a copy of the rule, to each House of the Congress and to the Comptroller General of the United States. EPA will submit a report containing this action and other required information to the U.S. Senate, the U.S. House of Representatives, and the Comptroller General of the United States prior to publication of the rule in the **Federal Register**. A major rule cannot take effect until 60 days after it is published in the **Federal Register**. This action is not a "major rule" as defined by 5 U.S.C. 804(2).

#### List of Subjects in 40 CFR Part 52

Environmental protection, Air pollution control, Carbon monoxide, Incorporation by reference, Intergovernmental relations, Lead, Nitrogen dioxide, Ozone, Particulate matter, Reporting and recordkeeping requirements, Sulfur oxides, Volatile organic compounds.

Dated: October 29, 2010.

Judith Wong,

Acting Deputy Regional Administrator,  
Region 8.

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## ENVIRONMENTAL PROTECTION AGENCY

### 40 CFR Parts 86, 1033, 1039, 1042, 1045, 1054, and 1065

[EPA-HQ-OAR-2010-0142; FRL-9220-7]

RIN 2060-A069

#### Revisions To In-Use Testing for Heavy-Duty Diesel Engines and Vehicles; Emissions Measurement and Instrumentation; Not-to-Exceed Emission Standards; and Technical Amendments for Off-Highway Engines

**AGENCY:** Environmental Protection Agency (EPA).

**ACTION:** Notice of proposed rulemaking.

**SUMMARY:** This NPRM proposes to make several revisions to EPA's mobile source emission programs and test procedures. EPA believes that each of these is minor and non-controversial in nature. Most of the proposed changes arise from the results of the collaborative test program and related technical work we conducted for the highway heavy-duty diesel in-use testing program. Most noteworthy here is the proposal to adopt

a particulate matter measurement allowance for use with portable emission measurement systems. Related to this are two provisions to align the in-use program timing requirements with completion of the program as required in current regulations and the incorporation of revisions to a few technical requirements in the testing regulations based on information learned in this and one other test program. Finally, the NPRM proposes to modify a few transitional flexibilities for locomotive, recreational marine, and Tier 4 nonroad engines and incorporates a handful of minor corrections.

**DATES:** Written comments must be received by December 8, 2010. Request for a public hearing must be received by November 23, 2010. If we receive a request for a public hearing, we will publish information related to the timing and location of the hearing and the timing of a new deadline for public comments.

**ADDRESSES:** Submit your comments, identified by Docket ID No. EPA-HQ-OAR-2010-0142, by one of the following methods:

- <http://www.regulations.gov>: Follow the on-line instructions for submitting comments.

- *E-mail:* [a-and-r-docket@epa.gov](mailto:a-and-r-docket@epa.gov).

- *Fax:* (202) 566-9744.

- *Mail:* Environmental Protection Agency, Mail Code: 2822T, 1200 Pennsylvania Ave., NW., Washington, DC 20460. Please include two copies.
- *Hand Delivery:* U.S. Environmental Protection Agency, EPA Headquarters Library, EPA West Building, Room: 3334, 1301 Constitution Avenue, NW., Washington, DC. Such deliveries are only accepted during the Docket's normal hours of operation, and special arrangements should be made for deliveries of boxed information.

**Instructions:** Direct your comments to Docket ID No. EPA-HQ-OAR-2010-0142. EPA's policy is that all comments received will be included in the public docket without change and may be made available online at <http://www.regulations.gov>, including any personal information provided, unless the comment includes information claimed to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Do not submit information that you consider to be CBI or otherwise protected through <http://www.regulations.gov> or e-mail. The <http://www.regulations.gov> Web site is an "anonymous access" system, which means EPA will not know your identity or contact information unless you provide it in the body of your comment.

If you send an e-mail comment directly to EPA without going through <http://www.regulations.gov> your e-mail address will be automatically captured and included as part of the comment that is placed in the public docket and made available on the Internet. If you submit an electronic comment, EPA recommends that you include your name and other contact information in the body of your comment and with any disk or CD-ROM you submit. If EPA cannot read your comment due to technical difficulties and cannot contact you for clarification, EPA may not be able to consider your comment. Electronic files should avoid the use of special characters, any form of encryption, and be free of any defects or viruses. For additional information about EPA's public docket visit the EPA Docket Center homepage at <http://www.epa.gov/oar/dockets.html>.

**Docket:** All documents in the docket are listed in the <http://www.regulations.gov> index. Although listed in the index, some information is not publicly available, e.g., CBI or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, will be publicly available only in hard copy. Publicly available docket materials are available either electronically in <http://www.regulations.gov> or in hard copy at the EPA Docket Center, EPA West Building, EPA Headquarters Library, Room 3334, 1301 Constitution Avenue, NW., Washington, DC. The Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Public Reading Room is (202) 566-1744, and the telephone number for the Air Docket is (202) 566-1742.

**FOR FURTHER INFORMATION CONTACT:** Rich Wilcox, Assessment and Standards Division, Office of Transportation and Air Quality, 2000 Traverwood Drive, Ann Arbor, MI 48105; telephone number: (734) 214-4390; fax number: (734) 214-4050; email address: [laroo.chris@epa.gov](mailto:laroo.chris@epa.gov).

#### SUPPLEMENTARY INFORMATION:

##### I. General Information

In the "Rules and Regulations" section of this **Federal Register**, we are making these revisions as a direct final rule without prior proposal because we view these revisions as noncontroversial and anticipate no adverse comment.

The regulatory text for this proposed rule is included in the direct final rule and parties should review that rule for the regulatory text. If we receive no

adverse comment, we will not take further action on this proposed rule. If we receive adverse comment on the rule or any portions of the rule, we will withdraw the direct final rule or the portion of the rule that received adverse

comment. We will address all public comments in a subsequent final rule based on this proposed rule. We will not institute a second comment period on this action. Any parties interested in commenting must do so at this time.

**II. Does this action apply to me?**

This action will affect companies that manufacture and certify heavy-duty diesel engines and vehicles for use on the highway.

Category	NAICS code <sup>a</sup>	Examples of potentially affected entities
Industry .....	336112	Engine and Truck Manufacturers.
	336120	
Industry .....	333112	Manufacturers of lawn and garden tractors.
Industry .....	333618	Manufacturers of new engines.
Industry .....	482110, 482111, 482112	Railroad owners and operators.
Industry .....	811112, 811198	Independent commercial importers of vehicles and parts.

<sup>a</sup> North American Industry Classification System (NAICS).

To determine whether particular activities may be affected by this action, you should carefully examine the regulations. You may direct questions regarding the applicability of this action as noted in **FOR FURTHER INFORMATION CONTACT**.

**III. What should I consider as I prepare my comments for EPA?**

*A. Submitting CBI.* Do not submit this information to EPA through <http://www.regulations.gov> or e-mail. Clearly mark the part or all of the information that you claim to be CBI. For CBI information in a disk or CD-ROM that you mail to EPA, mark the outside of the disk or CD-ROM as CBI and then identify electronically within the disk or CD-ROM the specific information that is claimed as CBI. In addition to one complete version of the comment that includes information claimed as CBI, a copy of the comment that does not contain the information claimed as CBI must be submitted for inclusion in the public docket. Information so marked will not be disclosed except in accordance with procedures set forth in 40 CFR Part 2.

*B. Tips for Preparing Your Comments.* When submitting comments, remember to:

- Identify the rulemaking by docket number and other identifying information (subject heading, **Federal Register** date and page number).
- Follow directions—The agency may ask you to respond to specific questions or organize comments by referencing a Code of Federal Regulations (CFR) part or section number.
- Explain why you agree or disagree; suggest alternatives and substitute language for your requested changes.
- Describe any assumptions and provide any technical information and/or data that you used.
- If you estimate potential costs or burdens, explain how you arrived at

your estimate in sufficient detail to allow for it to be reproduced.

- Provide specific examples to illustrate your concerns, and suggest alternatives.
- Explain your views as clearly as possible, avoiding the use of profanity or personal threats.
- Make sure to submit your comments by the comment period deadline identified.

**IV. Details of the Proposed Rule**

*A. Revision of 40 CFR Part 86 Subpart T to Revise the In-Use Testing Program for Heavy-Duty Diesel Engines*

**1. Background**

The manufacturer-run, in-use testing program for heavy-duty diesel vehicles that are used on the highway was promulgated in June 2005 to monitor the emissions performance of the engines used in 2007 and later model year vehicles when operated under a wide range of real world driving conditions.<sup>1</sup> The program is specifically intended to monitor compliance with the applicable Not-to-Exceed (NTE) exhaust emission standards for non-methane hydrocarbons (NMHC), carbon monoxide (CO), oxides of nitrogen (NO<sub>x</sub>), and particulate matter (PM). It requires each manufacturer of heavy-duty highway diesel engines to assess the in-use exhaust emissions from their engines using onboard, portable emission measurement systems (PEMS) during typical operation while on the road. The PEMS unit must meet the requirements of 40 CFR 1065 Subpart J.

The program was amended in March 2008 to delay some of the implementation dates and reporting deadlines and to adopt final PEMS measurement “accuracy” margins for gaseous emissions (*i.e.*, NMHC, CO, and

NO<sub>x</sub>).<sup>2</sup> The development of PEMS accuracy margins are further described below.

The in-use testing program began with a mandatory two-year pilot program for gaseous emissions in calendar years 2005 and 2006. The program also included a pilot program for PM emissions in calendar years 2007 and 2008. The programs are fully enforceable after their respective pilot program ends, *i.e.*, the 2007 calendar year for gaseous emissions and the 2009 calendar year for PM emissions. Fully enforceable means that engines found not compliant after this time frame could be subject to a compliance action.

The in-use testing program is based on the NTE emission standards. For the purposes of the in-use testing program, EPA established a vehicle pass/fail criterion for each pollutant that compares a vehicle’s measured in-use emissions to a corresponding numerical compliance limit, *i.e.*, NTE threshold. The NTE threshold for each pollutant is the sum of the NTE standard, any in-use compliance testing margin that is already allowed by the regulations, and a new emission measurement accuracy margin associated with the use of PEMS. The PEMS accuracy margin is the difference between the emission measurement “error” for the portable instrument and the measurement “error” for “laboratory grade” instruments that are used to test vehicles or engines on a dynamometer in a laboratory setting. This accuracy margin is expressed in the same numerical terms as the applicable NTE emission standards, *i.e.*, grams of pollutant per brake horsepower-hour (g/bhp-hr).

When the in-use testing program was first established in June of 2005, there was uncertainty regarding what specific

<sup>1</sup> See “Control of Emissions of Air Pollution From New Motor Vehicles: In-Use Testing for Heavy-Duty Diesel Engines and Vehicles, 70 FR 34594 (June 14, 2005).

<sup>2</sup> See “Control of Emissions of Air Pollution From New Motor Vehicles; Emission Measurement Accuracy Margins for Portable Emission Measurement Systems and Program Revisions, 73 FR 13441 (March 13, 2008).

accuracy margins should be used in the in-use testing program, since the portable measurement devices that were expected to be used in the program had not been rigorously tested at that time. As a result, we originally promulgated interim accuracy margins for use in the pilot programs.<sup>3</sup> These interim values were believed to represent an upper bound of the possible instrumentation variability based on our experience with portable and laboratory instruments and test methods. Subsequently, we adopted final values for gaseous pollutants based on the cooperative research program described below.<sup>4</sup>

In May of 2005, shortly before the in-use test program was promulgated, EPA entered into a memorandum of agreement (MOA) with the California Air Resources Board (CARB) and the manufacturers of heavy-duty highway diesel engines (through the Engine Manufacturers Association (EMA)) to develop "data driven" emission measurement allowances through a comprehensive research, development, and demonstration program for the fully enforceable programs.<sup>5</sup> The overall test program was designed to be completed in two phases. The first phase addressed gaseous emission accuracy margins and the second phase addressed the PM emission accuracy margin. The remainder of this discussion focuses on the final PEMS accuracy measurement for PM, since the final margins for gaseous emissions have already been adopted.

The MOA and the June 2005 final rulemaking addressed the consequences of failing to complete the accuracy margin development work in time for the scheduled start of the PM enforceable program.<sup>6 7</sup> Two provisions in these documents are most relevant to today's rule. The first provision addresses short term delays in receiving

the final accuracy margins. Specifically, for each month the accuracy margins are delayed beyond the agreed upon dates, then the affected enforceable program would be delayed by the same number of months up to three months. The second provision, which is most relevant to today's action, addresses delays in excess of three months. In particular, if the final accuracy margin and documentation were delayed more than three months from November 1, 2008, then the affected PM enforceable program would be placed in abeyance for a year and the respective pilot program would be continued for calendar year 2009 using the interim allowance. If necessary, this programmatic adjustment would be repeated in subsequent years until the final PM accuracy margin was identified.

## 2. Particulate Matter Emission Measurement Margin for Portable Emission Measurement Systems

The MOA described above called for development of a comprehensive test plan for determining the final emission measurement accuracy margins for the manufacturer-run, in-use testing program.<sup>8</sup> Generally, the detailed plan included a methodology that called for: (1) Comprehensive engine testing in the laboratory to assess the agreed upon sources of possible error and the resultant measurement variability between the PEMS and laboratory instrumentation and measurement methods; (2) the effects of environmental conditions on PEMS error and the variability in key engine parameters supplied by the engine's electronic controls to the PEMS; (3) the development of a statistically-based computer model to simulate effects of all sources of error on the final measurement accuracy margin; and (4) validation of the simulation model results and resulting accuracy margin against data generated through actual in-use field testing using simultaneous on-vehicle measurements from a mobile emissions laboratory (*i.e.*, laboratory-grade instruments mounted inside a trailer) and a PEMS unit. This validation step is important because it provides confidence that the simulation model results reflect reasonable accuracy

margin. If the two methods do not statistically agree, then there may be possible errors in the simulation model, the in-use mobile emissions testing results, or both. The test plan also contained the statistically-based algorithms for calculating the data-driven margin for PM from in-use data.

After the simulation modeling results were completed, the test plan called for the final accuracy margin to be determined by the following generalized process. First, select the PEMS with the lowest or minimum positive value. Second, select the calculation method that has the lowest or minimum positive value. Third, and finally, use the results from that method to determine the final measurement accuracy margin.

The cooperative test program for PM as described in the MOA is complete and a final report has been issued.<sup>9</sup> Two PEMS units from different manufacturers were evaluated in the validation phase. When the predicted results from the model simulations for one of the PEMS units was compared to the mobile emissions laboratory results, the model did not validate for PM. It was determined from analyzing the results, that the PEMS exhibited a negative bias that was more pronounced during the validation tests when compared to the model development tests. The model did validate for the PEMS from the other manufacturer. Based on these results for that instrument, EPA, ARB, and EMA selected the final measurement allowance value and agreed to conclude the test program. We are proposing to adopt the resultant final emission measurement accuracy margin of 0.006 g/bhp-hr for PM. The derivation of this value is documented in the final report referenced above.

## 3. Delaying the Enforceable PM Program from 2009 to 2011

As described above, the PM accuracy margin test program has been completed. However due to unexpected delays in beginning the test program, issues in the development of PM PEMS technology, and other challenges in conducting the work, the program took two years longer than originally anticipated. Accordingly, in-use test program regulations require that the first two years of the previously adopted enforceable program, which was originally scheduled for the calendar

<sup>3</sup> The interim additive accuracy margins for the pilot programs are: NMHC = 0.17 g/bhp-hr, NO<sub>x</sub> = 0.50 g/bhp-hr, CO = 0.60 g/bhp-hr, and PM = 0.10 g/bhp-hr.

<sup>4</sup> The final additive accuracy margins for the enforceable gaseous programs are: NMHC = 0.01 g/bhp-hr, NO<sub>x</sub> = 0.15 g/bhp-hr, and CO = 0.25 g/bhp-hr.

<sup>5</sup> See "Memorandum of Agreement, Program to Develop Emission Measurement Accuracy Margins for Heavy-Duty In-Use Testing," dated May 2005. A copy of the memorandum is available in the public docket for this rule and at the EPA/OTAQ Web site (<http://www.epa.gov/otaq/hd-hwy.htm>).

<sup>6</sup> See "Memorandum of Agreement, Program to Develop Emission Measurement Accuracy Margins for Heavy-Duty In-Use Testing," dated May 2005. A copy of the memorandum is available in the public docket for this rule and at the EPA/OTAQ Web site (<http://www.epa.gov/otaq/hd-hwy.htm>).

<sup>7</sup> See "Control of Emissions of Air Pollution From New Motor Vehicles: In-Use Testing for Heavy-Duty Diesel Engines and Vehicles," 70 FR 34624 (June 14, 2005).

<sup>8</sup> See "Test Plan to Determine PEMS Measurement Allowance for the PM Emissions Regulated under the Manufacturer-Run Heavy-Duty Diesel Engine In-Use Testing Program, for the U.S. Environmental Protection Agency, California Air Resources Board, and Engine Manufacturers Association", dated November 11, 2008 (published by EPA August 2010), EPA report number: EPA-420-B-10-901. A copy of the report is available in the public docket for this rule and at the EPA/OTAQ Web site (<http://www.epa.gov/otaq/hd-hwy.htm>).

<sup>9</sup> See "PM PEMS Measurement Allowance Determination: Final Report," U.S. Environmental Protection Agency, June 2010 (published by EPA August 2010), EPA report number: EPA-420-R-10-902. A copy of the report is available in the public docket for this rule and at the EPA/OTAQ Web site (<http://www.epa.gov/otaq/hd-hwy.htm>).

year 2009, be placed into abeyance for two years. Hence, we are proposing that the enforceable PM program will now begin in 2011 calendar year.

As already noted, the current in-use test program regulations require that the PM pilot program, which began in the 2007 calendar year, be continued for an additional two years through calendar year 2010. This would result in four years of pilot testing for PM. However, our current assessment shows that such extended pilot program testing is unnecessary as described below.

The intent of the original two-year pilot program for PM was to make certain that engine manufacturers had adequate real-world operational experience, *i.e.*, from recruiting vehicles to submitting test reports to EPA, to ensure a successful start of the subsequent fully enforceable program.<sup>10</sup> Manufacturers have reached the May 31, 2010 reporting deadline for the 2007 calendar year PM pilot program. Also, engine manufacturers have completed a substantial amount of in-use testing for gaseous pollutants, *i.e.*, NMHC, CO, and NO<sub>x</sub>. More specifically, two years of gaseous emissions pilot testing (2005 and 2006 calendar years) and two years of the fully enforceable program (2007 and 2008 calendar years) for these pollutants have been completed. Gaseous pollutant in-use testing is in many ways complementary to PM in-use testing because nearly all aspects of the test regime are the same. Even certain parts of the portable emission measurement system instrumentation are used to measure both types of pollutants. Engine manufacturers, therefore, have already had a substantial amount of experience conducting all aspects of in-use testing. As a result, we have concluded that the original intent for conducting the PM pilot program will be achieved by retaining the requirement for two years of pilot testing rather than expanding it to four years. Therefore, we are proposing not to extend the PM pilot testing program beyond its initial requirement of two years of testing.

As a result of the proposal to delay the enforceable program for PM until the 2011 calendar year and the proposal not to extend the two-year pilot program, we need to reassess the schedule for conducting the required tests for the pilot program. Two considerations are especially important here. First, there is no apparent advantage to require that engine

manufacturers conduct testing over a single, consecutive two-year period, *e.g.*, calendar years 2007 and 2008. Second, there may be a benefit to allowing each manufacturer to decide which two years out of the four possible years to conduct its PM pilot testing. This is because the PM PEMS technology has continued to improve and mature as a result of the ongoing cooperative test program for developing the final PM accuracy margin. As result, a manufacturer may benefit from an additional flexibility in selecting when to complete the PM pilot program in order to gain experience with PEMS that will be more like the instrumentation they may use for the proposed 2011 enforceable program. Therefore, we are proposing to allow each manufacturer to report test results in any two out of the potentially four calendar years for completing its testing obligations under the PM pilot program.

Finally, we previously designated the engine families for the 2007, 2008, and 2009 calendar years that each engine manufacturer must test, and we have recently designated engine families for the 2010 calendar year program. Given the new flexibility in choosing which two of the four years to fulfill their testing obligations for the PM pilot program, we are proposing that each engine manufacturer must notify EPA by letter to the Agency's designated compliance officer to explicitly identify both: (1) The designated calendar year(s) where in-use PM pilot program testing will be forgone, and (2) the designated calendar year(s) when their obligations for PM pilot testing will be completed. We are proposing that this notification must be provided to the Agency by January 7, 2011 and must be quickly updated if planned testing changes for any calendar year.

#### 4. Removing the PM Accuracy Test Program From the Regulations

We are taking this opportunity to delete the references in § 86.1935 that pertain to the final report for PM emission accuracy margin and the consequences that would ensue if the report was delayed beyond certain dates. These provisions are no longer needed because accuracy margin for PM pollutants are being promulgated in this Direct Final Rule. This will result in removal of § 86.1935 from the regulations in its entirety and any references made to § 86.1935 throughout 40 CFR part 86.

#### B. Revisions to 40 CFR 1033.150 To Allow the Use of Earlier Model Year Switch Engines With Equivalent Emission Controls

Section 1033.150(e) allows the use of certified 2008 and later nonroad engines in switch locomotives. We are proposing to extend the allowance to include nonroad engines produced in model years before 2008 as long as they were certified to the same standards as 2008 engines. This extension will not have any emissions impact since the engines will be required to have the same emission controls with or without the revisions.

#### C. Revision of 40 CFR Part 1065 To Clarify the Requirements for PM PEMS Testing

We are taking this opportunity to propose minor technical amendments to 40 CFR part 1065 that are mostly related to the requirements for in-use PM instrumentation and that arose from knowledge gained during the accuracy margin laboratory and field work mentioned in Section A. above. The proposed changes are specified in the following paragraph. The reasons for these proposed revisions are detailed in a separate document.<sup>11</sup> The proposed amendments have no effect on the stringency of the regulations, but simply improve and increase testing efficiency, allow new measurement techniques, or otherwise clarify the regulatory requirements.

*The proposed amendments are as follows:*

1. We propose to remove the requirement to control dilution air temperature for in-use testing;
2. We propose adding an in-use filter face velocity specification;
3. We propose adding an in-use filter face temperature specification;
4. We propose specifying that there is no requirement for control of humidity control for in-situ PM analyzers;
5. We propose allowing the use of a fixed molar mass for the dilute exhaust mixture for field testing;
6. We propose deleting the frequency and rise/fall time specs for inertial batch PM analyzers;
7. We propose adding a statement that field testing applies at any ambient temperature, pressure and humidity, unless otherwise specified in the standard setting part (*e.g.*, 40 CFR part 86 for heavy-duty highway engines);
8. We propose adding language to state that EPA approves of electrostatic

<sup>10</sup> See "Control of Emissions of Air Pollution From New Motor Vehicles: In-Use Testing for Heavy-Duty Diesel Engines and Vehicles, 70 FR 34614 (June 14, 2005).

<sup>11</sup> See "List of Part 1065 Changes Resulting from HDIUT PM MA Program", dated June 2010. A copy of this list is available in the public docket for this rule.

deposition technique for PM collection and that the technique must meet 95% collection efficiency, as validated by the manufacturer;

9. We propose excluding PM PEMS from the system-response and updating-recording verification requirements;

10. We propose clarifying when an HC contamination check of the sampling system should take place;

11. We propose allowing the use of a PM loss correction to account for PM loss in the inertial balance, including the sample handling system for in-use testing only;

12. We propose making a clarification on how to handle positive displacement pump (PDP) pressure calibrations at maximum pressure;

13. We propose allowing a restart of the hot portion of the transient test if the hot start was void;

14. We propose making some language changes to make the language used more consistent throughout the document; and

15. We propose correcting typographical errors.

#### *D. Revision of 40 CFR 1065.140 To Allow the Use of Partial Flow Dilution Systems for Laboratory Transient Test Cycle PM Measurement*

We are proposing to make changes to 40 CFR part 1065.140(d) to allow the use of partial flow sampling systems for measurement of PM during transient test cycles for laboratory testing.

PM measurement has been traditionally performed using a full flow dilution tunnel where the entire amount of engine exhaust gas is collected and made available for sampling. With this sampling method, commonly referred to as a constant volume sampler (CVS), the size of the dilution tunnel depends on the exhaust gas volume, thus the greater the volume of exhaust gas emitted from the engine, the larger the dilution tunnel must be. As an alternative, a partial-flow dilution tunnel allows sampling of part of the total exhaust flow, which reduces the size of the sampling system. One of the drawbacks to partial flow sampling systems in the past was that the flow controllers did not have a fast enough response time to accurately respond to the changing exhaust flow rates during a transient cycle. Thus partial flow sampling systems were only allowed for use during steady-state cycle testing. Recent advancements in the development of fast response flow control systems, along with the advancement in the understanding of PM formation characteristics have made partial flow sampling systems a viable technology for use in transient

applications when compared to the CVS reference method.

We currently allow the use of partial flow sampling systems for measurement of PM for steady-state and ramped modal cycle (RMC) testing and have put specifications in place in 40 CFR 1065.140(e) with respect to dilution air temperature, minimum dilution ratio, filter face temperature, and residence time to control PM formation. These specifications have further worked to improve the accuracy of partial flow systems when compared to the CVS.

We initially proposed this allowance in the locomotive and compression-ignition marine engines less than 30 liters per cylinder NPRM, but did not finalize it due to concerns over the viability of partial flow systems in transient applications.<sup>12 13</sup> Since promulgating that rule, EPA has worked with industry to gain a better understanding of partial flow systems and the improvements that have been made over the past decade. We have also reviewed additional data supplied by engine and partial flow system equipment manufacturers showing comparisons between the traditional CVS and partial flow systems for PM measurement.<sup>14</sup> These data have shown that partial flow measurement of PM is a viable tool for measurement in transient applications and these systems can meet the dilution parameter control requirements in 40 CFR 1065.140 as well as the flow rate linearity requirements in 40 CFR 1065.307, Table 1, and the validation of proportional flow control requirement in 40 CFR 1065.545. Further, correlation testing involving partial flow systems and CVS based systems has shown that the partial flow method is equivalent to the CVS method via t- and f-test analysis. In light of these recent disclosures, EPA is proposing to allow the use of this measurement technique.<sup>15</sup>

<sup>12</sup> See "Proposed Rule: Control of Emissions of Air Pollution from Locomotives and Marine Compression-Ignition Engines Less than 30 Liters per Cylinder", 72 FR 34594 (April 3, 2007).

<sup>13</sup> See "Final Rule: Control of Emissions of Air Pollution from Locomotives and Marine Compression-Ignition Engines Less Than 30 Liters per Cylinder", 73 FR (May 6, 2008).

<sup>14</sup> See "Sierra Instruments Model BG-3 vs. CVS Multiple Engine Correlation Study", dated November 2009. A copy of this list is available in the public docket for this rule.

<sup>15</sup> Compliance evaluation when conducted by the Administrator, independent of the method for dilution, become the official results. Manufacturers should be prepared to demonstrate compliance with the full flow CVS even if initial certification was conducted using a partial flow dilution system. EPA will continue to use the CVS-based PM measurement method for our own compliance testing regardless of what method the manufacturer used to certify the engine.

#### *E. Revision of 40 CFR 86.1370 To Clarify How To Handle NTE Events During Regeneration*

We are proposing to further define how to handle regeneration events that occur during real world in-use NTE tests. The current text as it exists in 40 CFR 86.1370-2007(d)(2) has caused confusion with respect to determination of the NTE minimum averaging period.

This proposed revision would establish a new method to calculate the minimum averaging period. The intent here is to minimize the number of voided NTE events due to regeneration for systems that undergo frequent and/or infrequent regeneration, while ensuring that the NTE averaging time is appropriate based on the regeneration time.

The regeneration duty cycle fraction over the course of the entire test day can be determined by dividing the mean time of the complete regeneration events (state 2) by the sum of the mean time of the non-regeneration events (state 0) and the mean time of the complete regeneration segments including time in those segments where regeneration is pending (states 1 and 2).

To determine whether an NTE that includes a regeneration event is valid, the minimum average time is determined by summing the portion of the NTE event that occurs during regeneration and dividing by the fraction of time over the entire sampling period, *i.e.*, shift-day, that regeneration occurred for complete regeneration events. This latter term is referred to as the regeneration fraction. If the duration of the NTE is greater than or equal to this minimum average time, then the NTE event is valid.<sup>16</sup> For example, if an NTE event was 125 seconds long and contained 25 seconds of regeneration, and regeneration fraction was 0.24, the minimum averaging time for this NTE event is 104 seconds ( $25/0.24 = 104$ ). In this example, the NTE event would be valid.

#### *F. Revision of 40 CFR 1065.915 To Allow the Use of ECM Fuel Rate To Determine NTE Mass Emission Rate*

We are proposing to allow the use of fuel rate data that is available from the engine's electronic control module (ECM) along with other information, including the CO<sub>2</sub>, CO, and hydrocarbon emissions to calculate the requisite exhaust flow rate for mass emission rate determination. We believe that all large horsepower nonroad diesel engines will

<sup>16</sup> See, Letter from EMA to EPA, "Treatment of Overlapping NTE and Regeneration Events (July 29, 2009). A copy of the report is available in the public docket for this rule.

be equipped with ECMs that report fuel flow within the time frame proposed for implementation of the in-use testing program. The ECM fuel flow rate-based methodology currently requires prior EPA approval under 40 CFR 1065.915(d)(5)(iv). This pre-approval requirement is based on past concerns with respect to the accuracy of the ECM broadcast fuel flow rate when calculating brake-specific emission results in the absence of an exhaust flow measurement. However, more recent information from the cooperative in-use emission measurement allowance program for PEMS showed that emission calculations incorporating the ECM fuel rate yielded results comparable to those using approved calculation methodology.<sup>17</sup> Based on that study and the inclusion of ECM derived BSFC in the determination of the accuracy margin, we are proposing to eliminate the requirement that a manufacturer must have EPA approval to use this method to determine exhaust flow rates via an amendment to 40 CFR 1065.915.

*G. Revision of 40 CFR 1045.145 To Extend the Notification Deadline for Small-Volume Manufacturers of Marine SI Engines*

Our current regulations for sterndrive/inboard marine SI engines allow for delayed implementation of emission standards for small-volume manufacturers making sterndrive/inboard marine SI engines (see § 1045.145(a)). One requirement related to this delay is for the manufacturer to notify EPA before the standards take effect. However, we have learned that there are some small-volume engine manufacturers that have not yet learned about the new emission standards. We believe it is appropriate to extend the notification deadline for these manufacturers by one year to allow for further communications related to the new requirements. To accommodate the proposed later deadline, we are also proposing to add language in the regulation to clarify that manufacturers need to notify EPA before introducing such engines into U.S. commerce for them to have a valid temporary exemption. These proposed revisions address the logistical challenges related to implementing the new standards without changing the effective

implementation schedule of the original rule.

These proposed revisions address the logistical challenges related to implementing the new standards without changing the effective implementation schedule of the original rule.

*H. Revision of 40 CFR 1039.102 To Enable Phase Out of Tier 3 Diesel Engines*

When creating 40 CFR 1039.102 (69 FR 39213, June 29, 2004), we included provisions intended to allow engine manufacturers to use emission credits to continue producing a small number Tier 3 nonroad diesel engines after the Tier 4 standards began to apply. However, we now realize that the provisions may not work as intended because the Tier 4 averaging programs inadvertently do not allow manufacturers to show compliance with the applicable 0.19 g/kW-hr NMHC standard using credits. In today's rulemaking, we are proposing to amend this section to allow manufacturers to use credits to show compliance with alternate NO<sub>x</sub> + HC standards. The alternate NO<sub>x</sub> + NMHC standards for each power category would be equal to the numerical value of the applicable alternate NO<sub>x</sub> standard of § 1039.102(e)(1) or (2) plus 0.10 g/kW-hr. Engines certified to these NO<sub>x</sub> + NMHC standards may not generate emission credits. Since additional 0.10 g/kW-hr for the combined standard is less than the otherwise applicable NMHC standard, there would be a small environmental benefit when manufacturers choose to certify to the alternate standards.

*I. Revision of 40 CFR 1039.625 To Revise TPPEM Provisions for Special High-Altitude Equipment*

We have been made aware of a number of unique challenges involved in implementing Tier 4 requirements for certain specialized high-altitude equipment. In setting the Tier 4 standards in 2004, we anticipated that typical engineering challenges would arise in redesigning machines to use the new engines, and we restructured our transition program for equipment manufacturers, first established in the Tier 2/Tier 3 rule, to help manufacturers deal with these challenges. This important flexibility program has been highly successful. We do feel that a minor adjustment is warranted for the specialized high-altitude equipment identified.

This equipment is designed for use on snow and, for at least some of its operating life, at elevations more than 9,000 feet above sea level. The

applications are ski area snow groomers, both alpine and cross-country, and personnel transporters used in search and rescue operations, and maintenance of utility lines and towers.

One manufacturer of this equipment, has identified a number of technical issues specific to the equipment, including:<sup>18</sup>

1. *Reliability*: The performance of the new engine and aftertreatment components is untested at high altitudes in winter conditions. Engine operating temperatures may be elevated at higher altitudes with potential impacts on engine performance and reliability;

2. *Cold Starting*: Diesel cold starting is aggravated at high altitudes due to lower oxygen availability. No-start situations for high-altitude equipment may be life threatening;

3. *Engine power*: The degree to which a Tier 4 engine's power is reduced, *i.e.*, derated, with increasing altitude is unproven. Excessive derate would hinder the vehicles' snow grooming function and performance;

4. *Particulate filter regeneration*: These machines operate for long periods traveling downhill with little engine load. Regeneration must be validated;

5. *Functioning in extreme conditions*: Snow groomers must reliability push and grind snow and ice in extreme conditions, including while moving up and down steep grades; and

6. *Weight*: The added weight of Tier 4 aftertreatment and cooling components will directly affect ground pressure, which can hamper a snow groomer's essential function.

In identifying these issues, the manufacturer stated that it expects two, possibly three, winters of prototype testing are needed to work through these issues and believes that flexibility in the use of exemptions provided by the Tier 4 transition program is key to enabling this. We have evaluated the technical issues, and have concluded there are likely to be some unique challenges in implementing Tier 4 for high-altitude equipment of this type.

In response, to provide modest but meaningful additional flexibility, we are proposing to remove the single engine family restriction for the use of the small volume provision allowing 700 exempted units over seven years. This proposed additional flexibility would only apply for manufacturers of specialized high-altitude equipment (designed to commonly operate above 9,000 feet), and only in the first two model years of Tier 4 standards.

<sup>18</sup> E-mail from Jean-Claude Perreault, Prinoth Ltd, to Byron Bunker, U.S. EPA, "Prinoth technical information", June 8, 2010.

<sup>17</sup> See "Determination of PEMS Measurement Allowances for Gaseous Emissions Regulated under the Heavy-Duty Diesel Engine In-Use Testing Program, dated April, 2007. A copy of the report is available in the public docket for this rule and at the EPA/OTAQ Web site (<http://www.epa.gov/otaq/hd-hwy.htm>).

Afterward, the single engine family restriction would apply. In no case would the 700 unit maximum over seven years be exceeded.

We do not expect that this change will result in a significant negative impact on any engine or equipment manufacturers. Engine manufacturers are already expecting to produce some Tier 4 engines for the transition program, and the number of additional exempted engines will be relatively small. Equipment manufacturers can either take advantage of this change, or are already able to exempt the same number of affected machines for several years under the existing transition program provisions.

We also believe the impact of this proposed modification on Tier 4 environmental benefits will be negligible, given that: (1) It only applies to the small volume portion of the transition program, (2) the total U.S. annual sales of specialized high-altitude equipment is, at most, a few hundred, (3) much of this equipment operates for only a part of the year, (4) the modification only applies in the first two Tier 4 model years, and does not increase the overall exemption limit of 700 over seven years.

#### *J. Revision of 40 CFR 1054.101 To Clarify Prohibitions Related to Handheld Small SI Engines Installed in Nonhandheld Equipment*

The existing regulations related to emission standards for nonroad spark-ignition engines below 19 kW specifically prohibit the sale of nonhandheld equipment equipped with handheld engines. The regulations in § 1054.101 state that handheld engines may not be installed in nonhandheld equipment, but the regulatory text does not state that this is prohibited under § 1068.101 or identify which penalty provisions apply. In this rule we are proposing to add a statement to § 1054.101(e) to describe how this action violates the prohibited acts identified in § 1068.101, consistent with the regulations under 40 CFR part 90.

#### *K. Revision of 40 CFR 1042 Appendix II To Correct Time Weighting at Mode for Engines Certifying to the E2 RMC Cycle*

The existing regulations contain an error in the time at mode for each steady-state point when certifying an engine to the E2 ramped modal cycle (RMC). When the E2 RMC cycle was generated, the times at mode were not correct based on the weighting of the discrete-mode cycle. In this notice we are proposing to correct the time at mode for all four steady-state portions of the E2 RMC cycle to correspond with

the mode weighting for the discrete-mode test.

### **V. Statutory and Executive Order Reviews**

#### *A. Executive Order 12866: Regulatory Planning and Review*

This proposed action is not a “significant regulatory action” under the terms of Executive Order (EO) 12866 (58 FR 51735, October 4, 1993) and is therefore not subject to review under the EO. EPA is taking direct final action on several revisions to EPA’s mobile source emission programs standards and test procedures. This proposed rule merely contains several minor and noncontroversial technical amendments to EPA’s mobile source emission programs as described in the Summary and Section IV. Details of the Proposed Rule.

#### *B. Paperwork Reduction Act*

This proposed action does not impose an new information collection burden under the provisions of the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq.* Burden is defined at 5 CFR 1320.3(b). It merely contains several minor and noncontroversial technical amendments to EPA’s mobile source emission programs as described in the Summary and Section IV. Details of the Proposed Rule. Therefore, there are no new paperwork requirements associated with this proposed rule.

#### *C. Regulatory Flexibility Act*

The Regulatory Flexibility Act (RFA) generally requires an agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act or any other statute unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small organizations, and small governmental jurisdictions.

For purposes of assessing the impacts of this proposed rule on small entities, a small entity is defined as: (1) A small business that meet the definition for business based on SBA size standards at 13 CFR 121.201; (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.

After considering the economic impacts of today’s proposed rule on

small entities, I certify that this action will not have a significant economic impact on a substantial number of small entities. This proposed rule will not impose any new requirements on small entities.

EPA has determined that it is not necessary to prepare a regulatory flexibility analysis in connection with this proposed rule. It merely contains several minor and noncontroversial technical amendments to EPA’s mobile source emission programs as described in the Summary and Section IV. Details of the Proposed Rule. We have, therefore, concluded that today’s proposed rule will not affect the regulatory burden for all small entities and will not have a significant economic impact on a substantial number of small entities.

#### *D. Unfunded Mandates Reform Act*

This proposed rule contains no federal mandates for state, local, or tribal governments as defined by the provisions of Title II of the UMRA. The proposed rule imposes no enforceable duties on any of these governmental entities. Nothing in the proposed rule would significantly or uniquely affect small governments. EPA has determined that this proposed rule contains no federal mandates that may result in expenditures of more than \$100 million to the private sector in any single year. It merely contains several minor and noncontroversial technical amendments to EPA’s mobile source emission programs as described in the Summary and Section IV. Details of the Proposed Rule. We have, therefore, concluded that today’s proposed rule will not effect the regulatory burden for all small entities and will not have a significant economic impact on a substantial number of small entities. See the direct final rule EPA has published in the “Rules and Regulations” section of today’s **Federal Register** for a more extensive discussion of UMRA policy.

#### *E. Executive Order 13132: Federalism*

This proposed rule does not have federalism implications. It will not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132. This proposed rule merely contains several minor and noncontroversial technical amendments to EPA’s mobile source emission programs as described in the Summary and Section IV. Details of the Proposed Rule. We have, therefore, concluded that today’s proposed rule will not affect

the regulatory burden for all small entities and will not have a significant economic impact on a substantial number of small entities. See the direct final rule EPA has published in the “Rules and Regulations” section of today’s **Federal Register** for a more extensive discussion of Executive Order 13132.

*F. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments*

This proposed rule does not have tribal implications. It will not have substantial direct effects on tribal governments, on the relationship between the Federal government and Indian tribes, or on the distribution of power and responsibilities between the Federal government and Indian tribes, as specified in Executive Order 13175. This proposed rule does not uniquely affect the communities of Indian Tribal Governments. Further, no circumstances specific to such communities exist that would cause an impact on these communities beyond those discussed in the other sections of this rule. This proposed rule merely contains several minor and noncontroversial technical amendments to EPA’s mobile source emission programs as described in the Summary and Section IV. Details of the Proposed Rule. We have, therefore, concluded that today’s proposed rule will not affect the regulatory burden for all small entities and will not have a significant economic impact on a substantial number of small entities. Thus, Executive Order 13175 does not apply to this rule. See the direct final rule EPA has published in the “Rules and Regulations” section of today’s **Federal Register** for a more extensive discussion of Executive Order 13132.

*G. Executive Order 13045: Protection of Children From Environmental Health and Safety Risks*

This proposed rule is not subject to the Executive Order because it is not economically significant, and does not involve decisions on environmental health or safety risks that may disproportionately affect children. See the direct final rule EPA has published in the “Rules and Regulations” section of today’s **Federal Register** for a more extensive discussion of Executive Order 13045.

*H. Executive Order 13211: Actions That Significantly Affect Energy Supply, Distribution, or Use*

This proposed rule is not a “significant energy action” as defined in

Executive Order 13211, “Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use” (66 FR 28355, May 22, 2001) because it is not likely to have a significant adverse effect on the supply, distribution or use of energy. This proposed rule merely contains several minor and noncontroversial technical amendments to EPA’s mobile source emission programs as described in the Summary and Section IV. Details of the Proposed Rule. We have, therefore, concluded that today’s proposed rule will not affect the regulatory burden for all small entities and will not have a significant economic impact on a substantial number of small entities.

*I. National Technology Transfer and Advancement Act*

This proposed rule does not involve technical standards. This proposed rule merely contains several minor and noncontroversial technical amendments to EPA’s mobile source emission programs as described in the Summary and Section IV. Details of the Proposed Rule. We have, therefore, concluded that today’s proposed rule will not affect the regulatory burden for all small entities and will not have a significant economic impact on a substantial number of small entities. Thus, we have determined that the requirements of the NTTAA do not apply. See the direct final rule EPA has published in the “Rules and Regulations” section of today’s **Federal Register** for a more extensive discussion of NTTAA policy.

*J. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations*

EPA has determined that this proposed rule will not have disproportionately high and adverse human health or environmental effects on minority or low-income populations because it does not affect the level of protection provided to human health or the environment. See the direct final rule EPA has published in the “Rules and Regulations” section of today’s **Federal Register** for a more extensive discussion of Executive Order 13045.

*K. Statutory Authority*

The statutory authority for this action comes from 42 U.S.C. 7401–7671q.

**List of Subjects**

*40 CFR Part 86*

Environmental protection, NTE, Administrative practice and procedure, Confidential business information, Labeling, Motor vehicle pollution, Reporting and recordkeeping requirements.

*40 CFR Part 1033*

Environmental protection, Administrative practice and procedure, Confidential business information, Incorporation by reference, Labeling, Penalties, Railroads, Reporting and recordkeeping requirements.

*40 CFR Part 1039*

Environmental protection, Administrative practice and procedure, Air pollution control, Confidential business information, Imports, Incorporation by reference, Labeling, Penalties, Reporting and recordkeeping requirements, Warranties.

*40 CFR Part 1042*

Environmental protection, Administrative practice and procedure, Air pollution control, Confidential business information, Imports, Incorporation by reference, Labeling, Penalties, Vessels, Reporting and recordkeeping requirements, Warranties.

*40 CFR Part 1045*

Environmental protection, Administrative practice and procedure, Air pollution control, Confidential business information, Imports, Incorporation by reference, Labeling, Penalties, Reporting and recordkeeping requirements, Warranties.

*40 CFR Part 1054*

Environmental protection, Administrative practice and procedure, Air pollution control, Confidential business information, Imports, Labeling, Penalties, Reporting and recordkeeping requirements, Warranties.

*40 CFR Part 1065*

Administrative practice and procedure, Air pollution control, Reporting and recordkeeping requirements, Research.

Dated: October 29, 2010.

**Lisa P. Jackson,**  
Administrator.

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