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Control of Emissions of Air Pollution From New Motor Vehicles: In-Use Testing for Heavy-Duty Diesel Engines and Vehicles; Proposed Rule

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 86

[OAR–2004–0072; AMS–FRL–7672–8]

Control of Emissions of Air Pollution From New Motor Vehicles: In-Use Testing for Heavy-Duty Diesel Engines and Vehicles

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice of proposed rulemaking.

SUMMARY: We are proposing to establish a manufacturer-run, in-use emissions testing program for 2007 and later model year heavy-duty diesel vehicles. The ground-breaking in-use test program will require the engine manufacturers to measure exhaust emissions from their diesel engines using portable emissions measurement systems. Also for the first time, all manufacturers will be regularly providing EPA with a significant quantity of emissions data generated from engines used in regular service, which EPA will evaluate to ensure the engines comply with specified emissions requirements. The proposed rule is a result of an agreement between EPA and the Engine Manufacturers Association. This proposal advances EPA's clean diesel activities by helping to ensure that the benefits of more stringent emission standards are realized under real-world driving conditions.

DATES: *Comments:* Comments must be received on or before August 16, 2004. See Section IV for more information about written comments.

Hearings: We will hold a public hearing on July 15, 2004. The hearing will start at 10 a.m. local time. If you want to testify at the hearing, notify the contact person listed below at least ten days before the hearing. See Section IV for more information.

ADDRESSES: Submit your comments, identified by Docket ID No. OAR–2004–0072, by one of the following methods:

1. Federal eRulemaking Portal: *http://www.regulations.gov.* Follow the on-line instructions for submitting comments.

2. Agency Web site: *http://www.epa.gov/edocket.* EDOCKET, EPA's electronic public docket and comment system, is EPA's preferred method for receiving comments. Follow the on-line instructions for submitting comments.

3. Mail: Air Docket, Environmental Protection Agency, Mailcode: 6102T, 1200 Pennsylvania Ave., NW., Washington, DC, 20460, Attention Docket ID No. OAR–2004–0072. Also send your comments to: Carol Connell, U.S. Environmental Protection Agency, 2000 Traverwood Drive, Ann Arbor, Michigan, 48130, Attention Docket ID No. OAR–2004–0072.

4. Hand Delivery: EPA Docket Center, (EPA/DC) EPA West, Room B102, 1301 Constitution Ave., NW., Washington, DC., Attention Docket ID No. OAR–2004–0072. Such deliveries are only accepted during the Docket's normal hours of operation from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays, and special arrangements should be made for deliveries of boxed information.

Instructions: Direct your comments to Docket ID No. OAR–2004–0072. 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.epa.gov/edocket*, 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 EDOCKET, regulations.gov, or e-mail. The EPA EDOCKET and the federal regulations.gov websites are ''anonymous access'' systems, 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 EDOCKET or 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.

Docket: All documents in the docket are listed in the EDOCKET index at *http://www.epa.gov/edocket.* Although listed in the index, some information is not publicly available, *i.e.*, CBI or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the Internet and will be publicly available only in hard copy form. Publicly available docket materials are available either electronically in EDOCKET or in hard copy at the Air Docket, EPA/DC, EPA West, Room B102, 1301 Constitution Ave., 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.

Hearings: We will hold a public hearing at the following location: U.S. Environmental Protection Agency, 1310 L Street, NW., Washington, DC, 20460, Telephone: (202) 343–9540, Fax: (202) 343–2804.

See Section IV, ''Public Participation'' below for more information on the comment procedure and public hearings.

FOR FURTHER INFORMATION CONTACT: U.S. EPA, Office of Transportation and Air Quality, Assessment and Standards Division hotline at (734) 214–4636 or *asdinfo@epa.gov.*, or alternatively Carol Connell (734) 214–4349 or *connell.carol@epa.gov*.

SUPPLEMENTARY INFORMATION:

Regulated Entities

This action would affect you if you produce or import new heavy-duty diesel engines which are intended for use in highway vehicles such as trucks and buses, or produce or import such highway vehicles, or convert heavy-duty vehicles or heavy-duty engines used in highway vehicles to use alternative fuels.

The following table gives some examples of entities that may have to follow the regulations. But because these are only examples, you should carefully examine the regulations in 40 CFR parts 86. If you have questions, call the person listed in the **FOR FURTHER INFORMATION CONTACT** section of this preamble:

Category	NAICS codes [a]	SIC codes [b]	Examples of potentially regulated entities
Industry	336112 336120	3711	Engine and Truck Manufacturers.
Industry	811112 811198	7533 7549	Commercial Importers of Vehicles and Vehicle Components.

[a] North American Industry Classification System (NAICS).
[b] Standard Industrial Classification (SIC) system code.

How Can I Get Copies of This Document and Other Related Information?

Docket. EPA has established an official public docket for this action under Docket ID No. OAR–2004–0072. The official public docket consists of the documents specifically referenced in this action, any public comments received, and other information related to this action. Although a part of the official docket, the public docket does not include Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. The official public docket is the collection of materials that is available for public viewing at the Air Docket in the EPA Docket Center, (EPA/DC) EPA West, Room B102, 1301 Constitution Ave., NW., Washington, DC. The EPA Docket Center 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 Reading Room is (202) 566–1742, and the telephone number for the Air Docket is (202) 566–1742).

Electronic Access. You may access this **Federal Register** document electronically through the EPA Internet under the ''**Federal Register**'' listings at *http://www.epa.gov/fedrgstr/*.

An electronic version of the public docket is available through EPA's electronic public docket and comment system, EPA Dockets. You may use EPA Dockets at *http://www.epa.gov/edocket/* to submit or view public comments, access the index listing of the contents of the official public docket, and to access those documents in the public docket that are available electronically. Once in the system, select ''search,'' then key in the appropriate docket identification number.

Certain types of information will not be placed in the EPA Dockets. Information claimed as Confidential Business Information (CBI) and other information whose disclosure is restricted by statute, which is not included in the official public docket, will not be available for public viewing in EPA's electronic public docket. EPA's policy is that copyrighted material will not be placed in EPA's electronic public docket but will be available only in printed, paper form in the official public docket. To the extent feasible, publicly available docket materials will be made available in EPA's electronic public docket. When a document is selected from the index list in EPA Dockets, the system will identify whether the document is available for viewing in EPA's electronic public docket. Although not all docket materials may be available electronically, you may still access any of the publicly available docket materials through the docket facility identified in Section IV.

For public commenters, it is important to note that EPA's policy is that public comments, whether submitted electronically or in paper, will be made available for public viewing in EPA's electronic public docket as EPA receives them and without change, unless the comment contains copyrighted material, CBI, or other information whose disclosure is restricted by statute. When EPA identifies a comment containing copyrighted material, EPA will provide a reference to that material in the version of the comment that is placed in EPA's electronic public docket. The entire printed comment, including the copyrighted material, will be available in the public docket.

Public comments submitted on computer disks that are mailed or delivered to the docket will be transferred to EPA's electronic public docket. Public comments that are mailed or delivered to the Docket will be scanned and placed in EPA's electronic public docket. Where practical, physical objects will be photographed, and the photograph will be placed in EPA's electronic public docket along with a brief description written by the docket staff.

For additional information about EPA's electronic public docket visit EPA Dockets online or see 67 FR 38102, May 31, 2002.

Outline of This Preamble

I. Overview

This section provides a summary of the proposed manufacturer-run, in-use Not-to-Exceed (NTE) testing program for on-highway, heavy-duty diesel vehicles and engines. It also contains background on the genesis of this proposal, an

overview of the origin and application of EPA's NTE emission standards, a brief description of our current in-use NTE testing program, and our future plans for establishing a manufacturer-run, in-use NTE test program for nonroad diesel engines. More detailed information on the NTE standards for heavy-duty diesel engines is contained in the Technical Support Document accompanying today's action, in addition to Section II. F. 1. of this preamble.

A. What Is EPA Proposing?

We are proposing to establish a manufacturer-run, in-use NTE testing program for vehicles with heavy-duty diesel engines, beginning in calendar year 2005. There will be a pilot program in calendar years 2005 and 2006. Beginning in calendar year 2007, the full in-use testing program will begin and will apply to 2007 and later model year engines. The proposed program addresses a long standing need to monitor the emissions performance of the engines installed in these on-highway vehicles when they are operated under a wide range of real world conditions. It is specifically intended to monitor compliance with the NTE exhaust emission standards and to help ensure that heavy-duty diesel engines will comply with all applicable emission standards (*e.g.*, including those based on the Federal Test Procedure (FTP)) throughout their useful lives. Background on our NTE standards is presented in Sections I.B. and C. of this Preamble.

The new testing program will require engine manufacturers for the first time to assess in-use exhaust emissions from heavy-duty diesel vehicles using onboard, portable emission measurement systems during typical operation on the road. Previously, engine emissions testing involved removing the engine from the vehicle and testing the engine in a laboratory on an engine dynamometer. Starting in the mid-1990s, EPA facilitated research into portable systems by developing and using prototype systems on a more limited basis in its compliance programs. Vehicles were instrumented with portable systems to measure their emissions performance during real-world operating conditions. It became clear that these systems offered advantages over conventional approaches to assess in-use exhaust emissions from engines for design improvement, research, modeling, and compliance purposes.

Under the proposed program, we will designate a certain number of heavy-duty diesel engine families for testing. Generally, no more than 25 percent of a manufacturer's engine families would be designated in any single year. We expect manufacturers will use their existing customer relationships and create new lines of communication with customers to recruit appropriate test vehicles from fleets or individual owners. Each selected vehicle will be equipped with a portable emission measurement system and driven by its normal operator, with a normal payload, over its regular driving route. All data and test results will be reported to EPA on a regular basis. The manufacturer of a designated heavy-duty engine family will pay for all of the expenses associated with the planning, vehicle procurement, testing, and data reporting.

We have designed a two phase test program. In the first phase of testing (Phase 1) the manufacturer will test a minimum of five and a maximum of 10 vehicles per engine family selected for testing. If five out of the first five vehicles, or five out of the first six vehicles pass a specified vehicle pass criteria, or vehicle testing criteria, no further testing or other data relating to that diesel engine family will be required from the manufacturer that year. However, we may choose that engine family for testing again in a later year. If the above conditions are not met, then a total of 10 vehicles will be tested in Phase 1. If eight out of the 10 vehicles pass the vehicle testing criteria, no further testing or other data relating to that diesel engine family will be required from the manufacturer for that year.

In all other cases, we will decide on a course of action depending on the number of vehicles from the designated engine family that fail to pass the vehicle testing criteria and other factors. In making our decision, we will thoroughly review the test results, consult with the engine manufacturer, allow the manufacturer to provide additional data, and consider other pertinent information. The action may include, but is not limited to, one of the following:

1. No further action because no significant nonconformance issues are indicated;
2. Initiate the second phase of testing (Phase 2); or
3. Seek some form of remedial action.

If five or fewer of the Phase 1 test vehicles satisfy the vehicle pass criteria, EPA may require the manufacturer to conduct Phase II testing. If only six or seven of the Phase I test vehicles pass the vehicle pass criteria, EPA may require the manufacturer to conduct Phase II testing under these regulations if the manufacturer agrees to perform such testing. However, if Phase 2 testing is conducted for any reason, even if the manufacturer elects to pursue the next phase of testing voluntarily, we may direct that up to 10 additional vehicles be tested. In this phase, we may also focus testing on one or more engine configurations within the engine family. Additionally, we may specify certain driving routes or other driving conditions (*e.g.*, geographic conditions or time of year). The purpose of these additional specifications is to better understand how widespread or under what conditions the Phase 1 test vehicles are failing to pass the vehicle pass criteria. In those instances, the specifications would be based on the Phase 1 test conditions that indicated a potential nonconformity.

As with Phase 1 testing, any remedial action we may choose to pursue based on Phase 2 testing will be made only after a thorough review of the test results, consultation with the engine manufacturer, and consideration of other pertinent information.

The proposed in-use testing program is primarily designed as an information-gathering program that will inform EPA's decision-making. The results of in-use testing for any particular engine family will not necessarily lead to, or necessarily insulate an engine family from, appropriate remedial actions, depending on the particular results of the testing and other information in EPA's possession. However, EPA believes that the results of the in-use testing and information gathered by the program will be a critical resource for EPA in determining how to direct our limited resources.

We expect that the wealth of in-use test data generated by the proposed program will have a number of valuable uses in addition to monitoring heavy-duty diesel engines for NTE compliance purposes under the program. For example, though EPA would not engage in routine NTE testing of engines or engine families that satisfy the Phase 1 test criteria unless new information indicates that a nonconformity exists, we may use the in-use data along with other information to make independent evaluations about the possible need to pursue further testing or actions. We may also use the information in the development of in-use emission factors for emissions and air quality modeling. Further, manufacturers have told us that they expect the proposed program will fortify the traditional laboratory-based engine development process. This will be done by enhancing a manufacturer's ability to evaluate the performance of the engine and emissions control system

under real world operating conditions and use, the results of which may be used to create cleaner and more durable future engine designs. Finally, the in-use test data will also be available to the public for review and analysis.

The proposed in-use NTE testing program will be fully enforceable beginning in 2007. To ensure a successful launch of this new program, we are also proposing a mandatory pilot program for calendar years 2005 and 2006 using only the first phase (Phase 1) of testing. During these two years both EPA and the heavy-duty diesel engine manufacturers will gain valuable experience with the in-use testing protocols, and the generation, interpretation, and reporting of in-use emissions data. If an engine family fails to meet the vehicle pass requirements of Phase 1 testing under the pilot program, we will not pursue any form of remedial action based solely on that data. However, we may utilize such information in conjunction with our own test data and other information to assess or pursue any enforcement or remedial action that otherwise may be authorized during that time.

B. Background on the Origins of This Proposal

On October 6, 2000, we published a final rule that promulgated new emission standards for on-highway heavy-duty engines. See 65 FR 59896. The final rule included new standards, applicable to 2007 and later model year heavy-duty diesel engines, called NTE standards. These standards are designed to apply under any conditions reasonably expected to occur during normal vehicle use. The test procedure for the NTE standards is different from most previous test procedures in that it is not based on a rigidly timed test cycle, but instead allows testing at a wide, though bounded, range of engine and ambient conditions that can occur in normal vehicle operations.

These NTE standards, as well as other provisions of the final rule, were particularly designed to ensure that engines and vehicles manufactured to meet the FTP standards over the engine certification test cycle in the laboratory continued to effectively control emissions under any conditions reasonably expected to occur during normal vehicle use. The final rule described our concerns regarding additional factors that may jeopardize the emission reductions expected in-use from the standards promulgated in that rule. See 65 FR at 59910 (October 6, 2000). Among these factors was the absence of an effective in-use compliance program for heavy duty engines and vehicles. We noted that we had received broad support from states, environmental organizations, and industry to move forward with developing a proposal to address this issue. The Engine Manufacturers Association (EMA) committed to work diligently and cooperatively with EPA and the California Air Resources Board (CARB) to resolve the open questions in a timely fashion. See 64 FR 58472, 58514 (October 29, 1999).

EMA and certain individual engine manufacturers challenged EPA's adoption of NTE standards in several rules.[1] EPA, CARB and the engine manufacturers, as well as state and environmental organizations, engaged in lengthy and ultimately productive discussions to settle these challenges and to go forward with a regulatory program that included robust measures to ensure that emission controls implemented to meet EPA and CARB standards remain effective under all normal vehicle operation. One result of these discussions was the identification of the basic program elements for a manufacturer run, in-use NTE testing program, and an agreement to go forward with a rulemaking to implement such a program for on-highway heavy-duty diesel engines.[2] Today's proposal initiates this rulemaking process.

C. Historical Context

1. Genesis and Description of NTE Standards

Traditionally, heavy-duty diesel vehicles and engines have been certified to exhaust emission standards in the laboratory. More specifically, the engine is tested separately from the vehicle using an engine dynamometer and a prescribed ''driving cycle.'' Monitoring for compliance with the applicable emission standards during the life of these vehicles (*i.e.*, in-use) was also determined by removing the engine from the vehicle and then testing it using the same laboratory measurement procedures. Several years ago we became concerned that in-use emissions might inappropriately exceed the applicable standards when engines were operated under conditions not found during traditional laboratory testing (*i.e.*, off-cycle emissions). An investigation into off-cycle emissions performance confirmed that advances in engine technology had allowed some manufacturers to design engines with control strategies which resulted in substantially greater levels of emissions during typical real-world operating conditions than were emitted during the laboratory testing cycle required for certification.

To close the gap between laboratory and real world emissions performance, and to deter manufacturers from using such strategies in the future, we developed NTE emission standards for heavy-duty diesel engines. The NTE requirements establish an area or zone under the torque curve of an engine where emissions must not exceed a specified value for any of the regulated pollutants.[3] The provisions also define a specific range of operating conditions, *i.e.*, temperature, altitude, and humidity. The test itself does not involve a specific driving cycle of any specific length, *i.e.*, mileage or time, rather it involves all driving that could occur within the bounds of the NTE control area. The vehicle (or engine) is operated under conditions that may reasonably be expected to be encountered in normal vehicle operation and use, including operation under steady-state or transient conditions and under varying ambient conditions. Within the NTE control area, emissions must not exceed a specified multiple of the underlying FTP standards. For heavy-duty diesel engines, this multiple is generally 1.25 or 1.50 times the applicable FTP standards.

Initially, the NTE requirements were a key provision in consent decrees with several manufacturers of heavy-duty diesel engines that resulted from the investigation described above. This new requirement became effective in 1998 for most manufacturers involved in those consent decrees, and by November 2002 had been applied for such manufacturers to the NO_X standards set to go into effect in model year 2004. NTE requirements are currently being used as a screening tool for 2004 through 2006 model year engines not covered by the consent decrees. The NTE requirements will be mandatory for all 2007 and later heavy-duty diesel engines. We also promulgated NTE

[1] See *International Truck et al.* v. *EPA*, (DC Cir Nos. 00–1510 and 00–1512); *EMA et al* v. *EPA* (DC Cir. Nos. 01–1129 and 02–1080); *International Truck* v. *EPA*, No. 01–1137; *EMA* v. *EPA*, (DC Cir. No. 00–1066); and *EMA* v. *EPA*, (DC Cir. No. 03–1007)

[2] See Final Settlement Agreement, dated June 3, 2003, in the cases cited above.

[3] Torque is a measure of rotational force. The torque curve for an engine is determined by an engine ''mapping'' procedure specified in the Code of Federal Regulations. A graphical representation of the NTE control area is contained in the Technical Support Document accompanying this proposed rule.

standards for certain other mobile sources.[4]

The NTE test can be conducted in an emissions testing laboratory using an appropriate dynamometer or while the vehicle is being used on the road. It is this last feature that makes NTE testing a very powerful in-use compliance monitoring tool. In-use testing and compliance become much easier with the NTE standards since emissions may be sampled during normal vehicle use on the road using portable emission measurement systems. As already mentioned, traditional laboratory engine testing over a very specific driving schedule requires the engine be removed from the vehicle rendering in-use testing prohibitively cumbersome and expensive. Further, engine-based testing cannot account for the drive train and sensor interactions which occur during normal vehicle operation. As such, testing during normal vehicle use, using an objective numerical standard, makes enforcement easier and provides more certainty of what is occurring in-use versus a fixed laboratory procedure.

2. Current EPA In-Use NTE Testing

We have been conducting our own in-use NTE testing of heavy-duty diesel engines for the past three years. Over that period, an average of 40 on-highway vehicles were tested annually. Vehicles are procured through the voluntary participation of commercial and municipal fleets and emissions are tested during normal service operation. Portable emission measurement systems are installed on-site at the fleet's facility before the vehicle begins its service day. EPA uses a prototype portable sampling system which measures hydrocarbons (HC), carbon monoxide (CO), and oxides of nitrogen (NO_X). Our experience with this program has aided us in developing today's proposal for a manufacturer-run, in-use NTE test program.

3. Plans for Nonroad Diesel Engine In-Use NTE Testing

We recently promulgated NTE requirements that accompany our new transient-cycle emission standards for nonroad diesel engines. This new test cycle will be phased into the certification requirements between 2011 and 2013, depending on an engine's horsepower rating. The NTE provisions are similar to those described in this notice for on-highway heavy-duty diesel engines. Presently, we are developing an outline for a proposed manufacturer-run, in-use NTE test program for nonroad diesel engines covered by the new requirements. We expect this program will have similar characteristics to today's proposal, but will address some unique issues pertaining to the nonroad market. Among these are such things as the widely varying power ranges of nonroad engines, including those much smaller and much bigger than highway engines), and broad array of equipment applications that may use the same engine type or model. We anticipate publishing a proposed rulemaking for public comment near the beginning of 2005.

D. California's Intent To Adopt an In-Use NTE Test Program

California's involvement in the development of this program was critical in assuring that engine manufacturers are subject to a consistent national in-use NTE test program. CARB intends to adopt an identical program for 2007 soon after EPA completes its final rule for this program. EPA and CARB expect to coordinate in the annual selection of engine families to be in-use tested and to work together in determining whether Phase 2 testing is warranted for families where the number of passing engines in Phase 1 does not automatically lead to no further testing. CARB has its own authority and decision process in determining remedial action for failing families, but CARB expects to work with EPA and the manufacturers in this process in 2007 and subsequent model years.

II. Details of the Proposal

This section presents the details of our proposal for a two phase in-use NTE testing program for heavy-duty diesel vehicles. It focuses primarily on the fully enforceable program that will begin with the 2007 model year. A number of the special program features for a pilot program during 2005 and 2006 calendar years are also described. Key aspects of the pilot program are further summarized in II. M. of this section.

A. Applicability

The proposed requirements apply to diesel engines certified for use in heavy-duty vehicles with gross vehicle weight ratings (GVWR) greater than 8,500 pounds, except that the requirements do not apply to any heavy-duty diesel vehicle that was certified using a chassis dynamometer under our CAP 2000 certification program, including medium-duty passenger vehicles with GVWRs of between 8,500 and 10,000 pounds. The manufacturer of heavy-duty diesel engines subject to the proposed program is responsible for all of the costs associated with project planning, vehicle procurement, testing, and reporting.

We are proposing a fully enforceable, two-phase test program for heavy-duty diesel engines beginning with the 2007 model year. We are also proposing a mandatory pilot program for calendar years 2005 and 2006. Under the pilot program, 2002 through 2006 model year vehicles may be tested. The pilot program will utilize only the first phase of the two-phase program developed for 2007 and later model years.

B. Engine Family Selection

1. Number of Engine Families

EPA currently estimates that 96 heavy-duty diesel engine families are being certified by 14 manufacturers that would potentially be eligible for in-use testing under this proposed program. Our goal in deciding how many engine families should be tested each year is to conduct enough testing to assure in-use compliance with the applicable emission standards, while at the same time keep the program from being overly burdensome for the engine manufacturers. We believe that our proposed approach satisfies this objective.

As a general premise, we think it is reasonable to test all of a manufacturer's heavy-duty diesel engine families over a four-year period. So, we propose to designate up to 25 percent of a manufacturer's total number of engine families for testing per calendar year. The number of engine families that are tested in a given year will be based on the actual number of engine families certified by that manufacturer in that year, rounded up or down as appropriate. However, for the purpose of calculating the number of engine families certified in a given year, we propose to only include engine families with a production volume greater than 1,500 engines. This designation strategy will provide in-use test data for most of the diesel engine population and, at the same time, not overburden manufacturers that have several small production engine families. If a manufacturer has three or fewer engine families that exceed the annual 1,500 engine production limit, including

[4] The use of NTE testing as a screening tool for 2004–2006 on-highway heavy-duty diesel engines is discussed in Advisory Circular 24–3. The final rule applying the NTE to 2007 and model year engines is published at 65 FR 59896 (October 6, 2000). Other final rules promulgated by EPA extended the NTE approach to new marine compression-ignition engines at or above 37 horsepower, 64 FR 73300 (December 29, 1999) and 67 FR 68242 (November 8, 2002); and to a new and more stringent phase of on-highway heavy duty engine standards 66 FR 5002 (January 18, 2001).

when a manufacturer has no families with production levels above that limit, we propose testing only one engine family per year.

We also propose to cap the maximum number of families designated for testing over any four-year period to the average number of families for that manufacturer over that four-year period, rounding up or down as appropriate.

Several examples showing how many engine families we can designate each year for testing under the proposed in-use, manufacturer-run program are provided below. The illustrations are arranged in an increasing order of complexity. Additional examples and other relevant information are presented in the Technical Support Document for today's proposal.

The first two examples illustrate how we would calculate the annual number of engine families for testing using the 25 percent per year limit for engine families above the 1,500 units per year level, and when a manufacturer only has engine families with annual production less than 1,500 units per year. First, Manufacturer A has 12 certified engine families in production in a given model year, and only 8 out of the 12 families have annual productions levels of over 1,500 engines. Then the maximum number of engine families we can designate for in-use testing from Manufacturer A in that calendar year is 2 (*i.e.*, 25 percent of 8 engine families). Second, Manufacturer B has 8 engine families, all with annual production less than 1500 engines. In this situation, we are limited to selecting only 1 engine family for testing in that calendar year.

The next two examples are somewhat more complex. The first of these examples shows how the four-year limitation (*i.e.*, cap) on the maximum number of designated engine families works with a constant number of engine families over time. First, Manufacturer C has 3 engines families in production in each of four consecutive years, or an average of 3 engine families per year over a four-year period. Additionally, all the families have annual production volumes over 1,500 units. In this situation, 1 engine family per year can be designated for testing in three of the four calendar years. However, no family can be selected in one of the four years because the number of families tested would otherwise exceed the average number of families produced over the four-year period. Second, Manufacturer D produces 7 engine families each year during a four-year period and all the families are over 1,500 units per year. In this situation, we can select up to 2 engine families per year under the 25 percent annual limit (*i.e.*, 25 percent of 7 families is 1.75, which rounds up to 2). So, 2 engine families can be designated for testing in three of the four calendar years, but only 1 family can be tested in a fourth year because the four-year cap on the maximum number of engines tested would otherwise be exceeded.

The last example is the most complex. It once again illustrates how the four-year cap on the maximum number of designated engine families applies, but in this case for a scenario were the number of engine families varies over time, and when the fully enforceable program is just beginning (*i.e.*, the 2007 calendar year). Manufacturer E produces 6 engine families in the 2004 through 2009 model years and 7 engine families in the 2010 through 2014 model years. We can order testing for 2 engine families each in 2007, 2008 and 2009 under the 25 percent annual limit (*i.e.*, 25 percent of 6 families is 1.5, which rounds up to 2 using standard rounding practices).[5] In 2010, however we cannot order testing of any families because the average number of certified families in the four years preceding testing (including the current model year) is 6.25, rounded down to 6. Since we have already tested 6 engine families in the previous three years, we cannot test another engine family in the fourth year because the total number of engine families in the four-year period would be greater than the average number of engine families produced in the past four years (*i.e.*, 6). In 2011, we can order the testing of 2 families under the 25 percent annual limit. Here, the average number of engine families in the four years preceding testing (including the current model year) is 6.5. This rounds down to 6, again using standard rounding practices. Since we have only tested 4 engine families in the previous three years, we can test another 2 engine families in the fourth year. For 2012 the average number of engine families in the four-year period is 6.75 (6 families in model year 2009 and 7 families in model years 2010 through 2012). Rounding up from 6.75, we can order testing for 7 engine families in the four-year period prior to 2012. Since we have only ordered testing for 4 families in the previous three years, we can order testing for 2 families under the 25 percent annual limit in 2012. Similarly, we can order the testing of 2 families in 2013. However, in 2014, we can order testing for only 1 engine family because the average number of families produced in the applicable four-year period is 7 and we have already ordered testing for 6 engine families in the previous three years.

After the number of engine families that are eligible for in-use testing is determined for a calendar year, we may select any engine family for testing that a manufacturer has in production that model year, or any other engine families produced by the manufacturer in previous model years covered by the testing program. We also reserve the right to designate any engine family previously tested under this program in a subsequent calendar year. This will allow us to evaluate the emission performance of heavy-duty diesel vehicles as they accumulate mileage over a number of years. It will also allow us to assess a manufacturer's remedy of any previous nonconformance problem, which was discovered under the proposed in-use testing program. When evaluating past model years for testing, we will also consider such factors as the likely number of vehicles remaining in service and their perspective mileage relative to their certified useful life.

In order to provide manufacturers with adequate lead time to properly plan and conduct testing under the proposed program, we propose that in-use testing of any engine family be completed and reported to EPA within 18 months. (See Section II. K. of this preamble for more information on reporting requirements.) The 18-month testing period begins from the date EPA officially notifies the manufacturer that an engine family has been designated for in-use testing. We intend to make our engine family selections by approximately June 30 of each calendar year. Waiting until the mid-point of the calendar year to select engine families for testing increases the likelihood that EPA will be able to choose from a manufacturer's entire product offering for that same model year. Typically, all of a manufacturer's engines for a given model year are covered by a certificate of conformity by the mid-point of that same calendar year. For example, all 2007 model year engines are expected to be certified, in most cases, by the June 30, 2007. This also allows EPA to calculate the number of engine families to be ordered for testing in a given calendar year without having to continually update that number and order further testing. In the event one or more engine families are certified by a

[5] See, ''Guide for the Use of the International System of Units (SI), NIST Special Publication 811, 1995 Edition, National Institute of Standards and Technology, U.S. Department of Commerce.'' Under the rounding convention contained in this reference, when the first digit discarded is exactly 5, the last digit retained should be rounded upward if it is an odd number, but no adjustment made if it is an even number.

manufacturer after June 30, we will update our calculation of the number of engine families we can order tested in that calendar year and, if appropriate, order further testing. We still may select any engine family by the end of that calendar year for testing, including the newly certified family, with the understanding that the manufacturer has 18 months from the date of selection to complete testing.

We will use the most recent and accurate sales information to identify engine families with annual U.S.-directed production volumes of 1,500 engines or less when determining the potential number of engine families we may require a manufacturer to test in any year. When an engine family has reached the end of its production, the actual sales for an engine family that is already required to be submitted to EPA at the end of each model year as part of the certification program will be used for this purpose. If the engine family has not ended production and final sales are not available, then we may use the sales projection that is provided as part of a manufacturer's certification application.

2. Treatment of Nonconforming Engine Families

A manufacturer may be required to test a number of engine families that exceeds the numerical limits described in Section II. B.1. above, if there is clear evidence of an emissions nonconformity with respect to one or more of that manufacturer's families. More specifically, we propose that an engine family for which such a determination is made may be designated for testing in the manufacturer-run, in-use NTE testing program in any subsequent year without counting toward the otherwise applicable limit on the number of families we may select in any year.

For the purposes of the proposed in-use testing program only, if an engine family was subject to a recall action (voluntary or mandatory), that failure is clear evidence of a nonconformity for any carryover engine family produced in a prior or subsequent model year.[6] [7] The remedied engine family may have been normally selected for testing under the proposed in-use testing program, but did not pass the vehicle pass criteria and was subject to a recall action. Alternatively, the remedied family may have been recalled based the results of an EPA in-use testing program. This linkage of carryover engine families helps ensure that manufacturers will be sufficiently motivated to remedy in a timely manner any noncompliance which is strongly suspected to cut across multiple engine families. As with other aspects of this program, we will consult with the manufacturer when contemplating a determination of clear evidence. An engine family selected using the ''no count'' designation may have never been tested under the proposed manufacturer-run, in-use NTE testing program, or it may have been tested but no remedial action was initiated based on the test results.

3. Small or Unavailable Engine Families

We recognize the possibility that a manufacturer may find it difficult or impossible to locate a sufficient number of vehicles from a designated diesel engine family to complete testing even after a diligent and good faith recruiting effort. This might especially happen for families with limited sales, or if a significantly older model year is designated for testing. Of course, we will attempt to avoid such an outcome in our engine family selection process. However, if a manufacturer encounters this problem and cannot complete either the Phase 1 or Phase 2 testing in the time frame or manner required, we propose that the manufacturer may ask us to modify the testing requirements for such engine family or designate a different diesel engine family for testing.

C. Phase 1 Testing Scheme

1. Focus of Initial Testing

The first phase of testing, Phase 1, is intended to quickly screen a designated heavy-duty diesel engine family for conformity with the applicable NTE standards. If enough of the engines tested from the family pass the initial screening, no additional testing is required of that family under the in-use testing program in that year. If the early test results from Phase 1 indicate a potential nonconformity, then several more vehicles will be tested to generate additional information regarding the significance of any potential problem, or whether more testing in the next phase of the program, Phase 2, is needed to further evaluate the emissions performance of that engine family.

2. Engine Family Evaluation Criteria and Outcomes

For Phase 1 testing, we propose that a manufacturer test a minimum of five and a maximum of 10 different vehicles within a designated engine family. The exact number of vehicles depends on how many of the tests exceed a specified numerical emissions limit, or the vehicle pass criteria (see Section II. E. for a description of the vehicle pass criteria). We believe that requiring up to 10 vehicle tests will provide sufficient information for us to decide if further testing or other information is needed to better evaluate a potential nonconformity, or if some form of remedial action may be warranted. This level of testing is intended to provide a quick indication of an engine family's emissions compliance without being overly burdensome to engine manufacturers. Our proposed multi-step engine family evaluation criteria and the outcomes associated with how many vehicles pass the in-use testing requirements at various levels within the testing hierarchy are described below.

A manufacturer will initiate Phase 1 by testing 5 vehicles. If all five satisfy the vehicle pass criteria (*i.e.*, 5 out of 5 pass), testing stops and no other action is required of the manufacturer for that diesel engine family under the program for that year. If only one of the initial test vehicles fails the vehicle pass criteria, the manufacturer will test another vehicle. The manufacturer may stop testing if the sixth vehicle satisfies the vehicle pass criteria (*i.e.*, 5 out of 6 pass). In the event that neither of the above conditions are met (*i.e.*, 4 or fewer out of 6 pass), the manufacturer must test a total of 10 vehicles.

Various outcomes are possible based on the observed number of vehicle passes or failures from the Phase 1 testing, as well as other supplemental information. If all four of the additional test vehicles met the vehicle pass criteria and only two of the original six test vehicles exceeded the criteria (*i.e.*, 8 out of 10 pass), testing stops and no other action is required of the manufacturer for that diesel engine family under the program for that year. When six or seven of the 10 test vehicles satisfy the vehicle pass criteria (*i.e.*, 6 or 7 out of 10 pass), the manufacturer must join EPA in follow-up discussions to determine whether any further testing, investigations, data submissions, or other actions may be warranted. In such

[6] Manufacturers designate carryover engine families during the certification process. The carryover designation indicates that the engine family for which a certificate is being requested is nearly identical to an engine family which has been previously certified. In such instances, the emissions results from the previously certified engine family are directly applied or carried over to the engine family for which a certificate is being requested.

[7] Section 207(c) of the Clean Air Act (CAA) authorizes EPA to require manufacturers to recall vehicles or engines for the purpose of remedying noncompliance with EPA regulations that occur during the regulatory useful life of the vehicle or engine. EPA may only require a recall when the noncompliance involves a substantial number of a class or category of vehicles or engines which have been properly maintained and used. (See CAA Section 207(c)). The procedures EPA uses to administer emissions recalls are described in 40 CFR part 85, subpart S.

a case, three outcomes are possible. First, we may ultimately decide not to take further action if no significant nonconformity is indicated after a thorough evaluation of the causes or conditions that caused vehicles in the engine family to fail the vehicle pass criteria, and a review of any other supplemental information obtained separately by EPA or submitted by the manufacturer shows that no significant nonconformity exists. Testing would then stop and no other action is required of the manufacturer for that diesel engine family under the program for that year. Second, we may seek some form of remedial action from the manufacturer based on our evaluation of the Phase 1 test results and review of other supplemental information. Third, and finally, the engine manufacturer may undertake Phase 2 testing, if both EPA and the manufacturer agree this is the best course of action. Of course, a manufacturer may always voluntarily conduct Phase 2 testing.

In the event that fewer than six test vehicles comply with the vehicle pass criteria (i.e., 5 or fewer out of 10 pass), the manufacturer must consult with EPA just as when six or seven out of 10 pass as described above. Once again, EPA may decide not to take further action if no significant nonconformity is indicated. If a possible nonconformity is indicated, the consultation may lead us to mandate Phase 2 testing even if the manufacturer does not voluntarily elect to do so. In situations where a significant nonconformity is observed during Phase 1 testing, we may order a recall action for the diesel engine family in question if the manufacturer does not voluntarily initiate an acceptable remedial action.

D. Phase 2 Testing Scheme

1. Initiation and Focus of Additional Testing

The primary purpose of our proposed Phase 2 test program is to gain further information regarding the extent to which, and under what conditions, the vehicles from the designated engine family are failing to pass the vehicle pass criteria. If appropriate, we may direct a manufacturer's testing to focus on certain test conditions or a subclass of engines within the designated heavy-duty diesel engine family as outlined below. As described previously, EPA and the manufacturer may agree that it is appropriate to initiate Phase 2 testing if six or seven of the 10 test vehicles in Phase 1 satisfy the vehicle pass criteria. Phase 2 testing may also be mandated by us in the event that only five or fewer of the test vehicles in Phase 1 meet the vehicle pass criteria. (See Section II.C. for additional information regarding the conditions under which Phase 2 may be initiated.)

2. Number of Engines and Test Conditions

We propose to require a manufacturer to test up to 10 vehicles from the designated heavy-duty diesel engine family under Phase 2. We may, at our discretion, require the testing of fewer than 10 vehicles. A pass/fail determination for each vehicle will be made by comparing its measured emissions to the same vehicle pass criteria used in Phase 1. We believe that testing up to 10 additional vehicles under this phase of the program will provide valuable information regarding whether the engine family conforms with the applicable requirements.

We also propose that we may direct a manufacturer to test one or more specific engine and emission control or power configurations (i.e., subclasses) within the designated engine family. Additionally, we may specify certain driving routes or other driving conditions (e.g., temperatures, altitudes, geographic conditions, or time of year). As already discussed, the purpose of these additional specifications is to better understand the extent to which, and under what conditions, the vehicles in the engines family are failing to pass the vehicle pass criteria. Therefore, the specifications would be based on the Phase 1 test conditions that indicated a potential nonconformity.

We also request comment on whether EPA should similarly be allowed to direct a manufacturer to test specific engine configurations, test routes, and driving conditions for Phase 1 testing when we have particular information suggesting that these stipulations may help focus testing on areas where EPA has particular emission-related concerns. Such an initial focus may not only improve the overall effectiveness of the in-use program, and might reduce the number of tests a manufacturer may otherwise need to conduct if Phase 2 testing is conducted for any reason. Further, we request comment on the extent to which the manufacturer should be consulted in selecting the engine configurations or test conditions if EPA were to specify such test parameters in Phase 1.

E. Vehicle Pass Criteria

Generally, our proposed vehicle pass criteria involve measuring the emissions from the test engine each time it operates for 30 seconds or more in the NTE control area. The NTE control area is a defined range of engine operating conditions that are subject to the NTE emission standards (see Section I.C.1. of this preamble for more information on the NTE control area). Each excursion into the NTE control area for thirty or more seconds is called an NTE sampling event. The 30 second minimum is intended to moderate the influence of short-duration, high intensity emission spikes that do not have a significant bearing on overall, real-world emissions in the compliance determination. The average emission level of the NTE sampling event for each regulated pollutant is then compared to an NTE emission threshold. The NTE emission threshold is the sum of the applicable NTE standard, any in-use compliance margin already allowed by the regulations, and a proposed in-use measurement margin allowance. The vehicle pass criteria then require a comparison of the number of NTE sampling events that were below the NTE threshold to all of the sampling events from the test. The NTE threshold is further described in Section II. F. of this preamble. Also, for the first three years of the program, no sampling event may be higher than a specific maximum emission limit. The maximum emission limit for these engine families is described below.

More specifically, we propose that all valid NTE sampling events be used in the vehicle pass determination. A valid NTE event is any sample that meets the 30 second minimum period described above, excluding any engine operation that is exempt from the NTE standards under the existing regulations. NTE carve-out provisions either exclude certain operating points from the NTE engine control area or exempt engines from the NTE standards when operating in defined regions of the NTE engine control area. Currently, an engine may also be allowed to temporarily exceed the NTE standards under certain limited circumstances under the NTE deficiency provisions.[8] If 90 percent of the valid NTE samples on a time-weighted basis for any regulated pollutant are no greater than the applicable NTE threshold, then the test engine meets the vehicle pass criteria. However, model year 2007 through 2009 engines must meet certain additional requirements. For these years, 100 percent of the valid NTE samples for any regulated pollutant must also be less than two times (2X) the applicable NTE threshold, except when the engine is certified to a Family Emission Limit (FEL) for NO_X of 0.50 g/bhp-hr or less. In this case, 100 percent

[8] For more information on NTE control area limits and exclusions, see 65 FR 59912, 59914 (October 6, 2000), and 66 FR 5040 (January 18, 2001).

of the valid NTE NO_X samples must be less than two times the NTE threshold or less than 2.00 g/bhp-hr, whichever is numerically greater. While operation in the area of an approved deficiency or carve-out is excluded from being a valid NTE event for the purposes of this in-use testing program, manufacturers must still employ appropriate emissions control during operation in these regions as required by the prohibition against defeat devices. For any operation which occurs within the area of an approved NTE deficiency, EPA will compare the measured emissions results to the emissions estimates the manufacturer provided for that deficiency at the time of certification so we can determine whether the deficiency requirements have been met.

We believe that the 90 percent criterion provides a good indicator of compliance with the applicable emission standard, while at the same time allows for certain emissions behavior that may be very infrequent or unusual in nature and, therefore, atypical of overall in-use operation. We have fashioned the additional maximum NTE criteria for 2007–2009 model year engines because we believe it appropriately reflects the capability of current control technology when robustly designed and properly maintained. We do not envision any situation where the current technology could not be designed to avoid emissions above these maximum criteria, even in the atypical situations mentioned above. EPA will evaluate the need for, and level of, any such NTE maximum criteria for 2010 and later model year heavy-duty diesel vehicles based, in part, on data from the proposed in-use test program, the capability of technology used to comply with the 2010 model year requirements, and other relevant test information. If we decide that such criteria are appropriate based on this review, any new requirements will be established in a rulemaking action. If we take no action, the maximum NTE criteria will cease to exist after the 2009 model year.

The following multi-part methodology is proposed for determining if the engine complies with the 90 percent vehicle pass criterion for each regulated pollutant. First, find the average g/bhp-hr emission level for each valid NTE sample by dividing the total mass of measured emissions (e.g., grams) by the amount of work performed during the NTE event (e.g., brake horsepower-hour). (Note that this step is also used to determine compliance with the maximum NTE criteria for 2007–2009 model year engines as described above.) Second, determine for each valid NTE sampling event, whether the average emission level is less than or equal to the NTE threshold for each pollutant subject to an NTE standard. Third, calculate a time-weighted vehicle pass ratio, or the number of valid NTE sampling events that meet all applicable NTE thresholds compared to the total number of valid NTE sampling events, weighted by the time of each valid NTE event. To do this, begin by summing the time from each valid NTE sampling event whose average emission level is no greater than the NTE threshold for any pollutant, and then divide this value by the sum of the engine operating time from all valid NTE samples. The resulting value is the vehicle pass ratio. However, if any single valid NTE sampling event exceeds 600 seconds or 10 times the length of the shortest valid NTE event, the time contribution for that event must be limited to the smaller of 600 seconds or 10 times the shortest event for the above calculation. These conditions on the maximum allowable duration for any single NTE event are intended to prevent a small number of very long sampling events from inappropriately overwhelming the time-weighted results. The reader may refer to the Technical Support Document for today's proposal for a detailed example illustrating the above methodology.

We want to clarify that the vehicle pass criteria used for the manufacturer-run, in-use testing program do not correspond specifically to the criteria for showing compliance to the NTE standards. That is, the fact that a vehicle meets the vehicle pass criteria under this program does not mean that the vehicle passes the NTE standards, or that the engine family is in full compliance with the standards, and the use of these criteria to show a vehicle ''pass'' in this program does not indicate that the criteria would be appropriate for NTE testing in other contexts.

The vehicle pass criteria, along with the engine family evaluation criteria of the Phase 1 and Phase 2 test schemes (described later), are designed to help make the best use of manufacturers' and EPA's resources in determining what further action is appropriate regarding that engine family. Therefore, the vehicle pass criteria, the definition of a valid NTE sampling event, the criteria for moving from Phase I to Phase II, and all other aspects of the in-use testing program are solely for purposes of this manufacturer run, in-use test program and are not intended to revise, change, or interpret the NTE standards, the NTE test procedures, or to define compliance with the standards.

F. NTE Threshold Specification

The numerical value of the NTE threshold is defined as the applicable NTE standard, including any compliance margin already built into the standard for in-use testing, in addition to a new margin to account for the in-use measurement accuracy of the portable emission measurement systems. Therefore, these margins are added to the applicable standard or FEL to determine the numerical in-use compliance limit (*i.e.*, NTE threshold).

1. Not-to-Exceed Standards

NTE standards applicable to model year 2007 and later heavy-duty diesel engines apply to the exhaust emissions of non-methane hydrocarbons (NMHC), carbon monoxide (CO), particulate matter (PM) and oxides of nitrogen (NO_X) from these engines. The levels of the NTE standards for these pollutants are determined by applying a multiplier to the applicable FTP standard. The multiplier varies by pollutant and certification level, but it is generally either 1.25 times the FTP standard or 1.50 times the FTP standard. See 40 CFR 86.007–11(a)(4). For 2002–2006 model year engines tested under the pilot program, the applicable NTE limit used to develop the NTE threshold is 1.25 the FTP standard for that model year.

The FTP standards for 2002 and 2003 model year heavy-duty diesel engines are contained in 40 CFR 86.099–11, except that those engine families subject to NTE requirements under the Consent Decrees would use an NTE threshold based on the FTP levels found in the appropriate Consent Decree. The standards for 2004 to 2006 model year heavy-duty diesel engines are contained in 40 CFR 86.004–11. Those for 2007 and later model years are shown in 40 CFR 86.007–11.

2. Existing In-Use Compliance Margins

We previously established compliance margins for in-use NO_X and PM emissions testing of 2007 to 2010 model year heavy-duty diesel engines. For NO_X, the margin varies by mileage from 0.10 to 0.20 g/bhp-hr for engines certified to an FEL no higher than 1.3 g/bhp-hr. For PM, the margin is 0.01 g/bhp-hr. (See 40 CFR 86.007–11(h) for more details.)

3. New Measurement Margin for Portable Measurement Systems

We are proposing a new ''accuracy'' margin for portable emission measurement devices that was developed after consultation with CARB and EMA. This allowance is designed to account for any differences between the accuracy of the measurement

instruments currently available for use on a vehicle and the accuracy of those available for use in a laboratory. The allowance also takes into account the different way in which emissions are calculated in a laboratory versus in the field. This margin has been structured to encourage instrument manufacturers to develop more and more accurate portable measurement systems in the future. To this end, we intend to adjust or phase-out such a margin through future rulemaking based upon improvements to the measurement equipment. Any future action, however, will not take effect prior to 2010. The adjustment or phase-out would apply to any engine tested after such a rule became effective.

Specifically, we propose a fixed margin of five percent, or 0.05 times the applicable NTE emissions standard, including any existing in-use compliance margin. The magnitude of this allowance was determined by taking into account the accuracy and repeatability specifications for laboratory instruments and field testing instruments that are proposed in the companion NPRM discussed in Section II.L of this preamble, which will revise the testing procedures under Part 1065 of our regulations. Essentially, we calculated the fixed allowance by subtracting the laboratory instrumentation compliance margin from the field instrumentation compliance margin. The step by step error propagation for accuracy and repeatability throughout the laboratory and field testing calculations is detailed in Chapter 3 of the Technical Support Document of this notice.

We propose a fixed allowance as a means to encourage measurement instrument manufacturers to build more accurate and repeatable instruments. A fixed allowance creates the same situation that already exists for laboratory measurement instruments, which encourages more accurate and repeatable instruments. That is, with no allowance or a fixed allowance, a more accurate and repeatable instrument will allow engine manufacturers to allocate a smaller fraction of their compliance margin to instrument error.

Another option we considered was a variable measurement allowance. This allowance would become smaller as accuracy and repeatability improved. However, this approach provides no incentive to procure a more accurate or repeatable instrument, because the investment in an improved system would net an unchanged compliance margin.

A final option we studied was a measurement margin that simply decreased over time. To justify such an approach, we would have to estimate the rate of improvement in accuracy and repeatability for a wide variety of measurement technology. If we overestimated the rate of instrument improvement, then no instrument would be commercially available to meet our specifications. Therefore, we feel that attempting to predict the rate of instrument improvement at this time would be counterproductive if engine manufacturers became exempt from having to measure certain emissions because instruments that meet our specifications were unavailable.

Based on the above, we believe that a fixed measurement margin appears to be the best way to encourage the development of more accurate and repeatable portable measurement systems. Again, we will revisit this issue in the future to determine if this margin should be reduced or eliminated based on technical advances in these devices.

We want to emphasize that although we are proposing a new measurement accuracy margin for the in-use NTE testing program, we are not making any broader commitments or statements regarding the need for such an accuracy margin, or one of this particular magnitude, generally for any other onboard testing or NTE testing. The need for accuracy margins for onboard testing will be determined as is appropriate for each situation, and improvements in the accuracy of measurement devices may lead to smaller margins, or no margins, being used in other contexts. Conversely, if the circumstance of a particular situation indicates that a larger margin is appropriate, we may decide to allow for a larger margin in that context.

G. Considerations in Deciding on Remedial Action

In determining whether to pursue some sort of remedial action following Phase 1 and Phase 2 testing, we will consider supplemental information obtained separately by us, or submitted by the engine manufacturer. This information could include emissions data from additional tests performed with onboard portable emissions measurement devices, as well as from testing conducted using engine dynamometers or chassis dynamometers. The information may include an evaluation of, among other things: the margin by which any exceedence was above the NTE threshold; the number of engines that showed exceedences; the frequency and duration of any exceedences as compared with the aggregate amount of time that all of the test vehicles were operated within the NTE zone; the emissions of the test vehicles over the entire test route, including average(s); the projected emissions impact of the exceedences; and the relationship of the exceedences at issue to the engine family's ability to comply with the applicable standards or FELs. We will also consider any other data or factors relevant to determining whether to pursue some form of remedial action.

H. Quantity of Data Collected

During the 2005 and 2006 pilot program, we are proposing that the minimum time for data collection from a test vehicle is one full shift (work) day of operation, provided that each test vehicle operates in non-idle modes for at least 3 hours during a typical shift day. Prior to the commencement of in-use testing, the manufacturer will screen-out from Phase 1 testing any vehicle that the manufacturer reasonably determines is unlikely to operate in non-idle modes for at least 3 hours over a full shift.

In the event that a selected test vehicle does not operate in non-idle modes for at least 3 hours over the full shift day, we are proposing that the vehicle must be tested over a second full shift day of operation. Testing shall not be required beyond the second full shift day even if that second day of testing also fails to yield, in the aggregate, 3 hours of vehicle operation in non-idle modes. In the event that no valid NTE sampling events are recorded from a selected test vehicle, that vehicle will be deemed to have satisfied the vehicle pass/fail criteria for the purposes of this in-use testing program. At their option, manufacturers may conduct in-use testing for a longer duration.

While we are proposing this method of data collection for the fully enforceable in-use testing program beginning with model year 2007, an evaluation of in-use test data prior to 2007 could change the final value for the data collection period. During 2005 and 2006, we will perform a statistical analysis, in collaboration with EMA, of the available in-use testing data, particularly the data generated under the proposed pilot program described below, to determine the necessary parameters of the test regime. The end result could be either a longer or a shorter period of data collection, or other revisions to the in-use NTE testing program. We will, if appropriate, amend the regulations based on the outcome of this analysis.

I. Screening, Adjustment, and Mileage of Test Vehicles

To help ensure that testing is conducted on a diverse sample of ''qualified'' vehicles, we are proposing a number of general pre-selection criteria for prospective test vehicles within a designated engine family. First, test vehicles must be obtained from at least two sources. We envision the most common source of engine will be fleet operators, but could also include independent operators. As stated previously, we believe manufacturers will be able to leverage existing relationships with its customers or use this program as an opportunity to strengthen those relationships. Second, manufacturers must screen each selected vehicle for proper use and maintenance and reject those vehicles which have not been properly maintained and used. Third, prospective test vehicles must be screened to identify those that are reasonably likely to operate in non-idle modes for at least 3 hours over the course of a full shift day (see Section II. H. of this preamble for more on the non-idle and shift day requirements). Fourth, vehicle engines that have been tampered with, rebuilt, or subjected to major repairs that could affect emissions, will not be used in testing. Fifth, test engines must have their adjustable parameters set to the specifications contained in the vehicle/engine maintenance manual (*i.e.*, set to spec). Sixth, manufacturers must establish appropriate means to ensure that test vehicles are operated only on diesel fuels meeting the requisite specifications for the model year in which they were emissions certified. Seventh, and finally, no prospective test vehicles may be rejected because of high mileage, except for those whose engines that exceed their regulatory useful life.

For the emissions results of the program to be useful, manufacturers must screen all candidate vehicles for compliance with the above general criteria. A candidate vehicle is any prospective vehicle that is identified as potentially fulfilling the requirements for the in-use testing program. We are requiring manufacturers to submit a general plan that describes how they will identify, locate, and screen vehicle for in-use testing. The general plan is intended to cover all engine families selected for testing by EPA. The plan must indicate whether the procurement and screening method may result in an emphasis on testing engines from a particular type of driving route or from a particular geographic area. The plan should identify business relationships, such as with vehicle manufacturers or fleet operators, used to recruit vehicles. Finally, the plan must describe the methods that will be used to gather available information about whether vehicles and engines meet the seven general vehicle criteria described above, including any forms or procedures that will be used.

For example, the plan could describe a questionnaire the manufacturer might require an interested vehicle owner or operator to complete about the candidate vehicle. The questionnaire could inquire about the maintenance and usage history of the vehicle, including fuel usage and current milage. The plan must describe the specific quantitative thresholds being used to accept individual vehicles for into the in-use testing program. The questionnaire would contain those quantitative thresholds beyond which a candidate vehicle would be eliminated from consideration for testing.

The vehicle acceptance criteria for proper maintenance and use must be derived from the emissions-related maintenance intervals and usage restrictions contained in the owner's manual supplied by the engine manufacturer. We expect the criteria could include a grace period which would be added to the manufacturer's maintenance interval. This grace period would be designed to reflect that it may not be practical for even owners of properly maintained and used vehicles to have maintenance performed by the required interval in every instance. For example, a typical oil change interval of 25,000 miles could be extended to an allowable period of 30,000 miles for the purposes of acceptance into the manufacturer in-use testing program. The grace period will be based on commonly accepted practice in the trucking industry will be established by the manufacturers in consultation with EPA and ARB. EPA and ARB will work with industry to develop the procurement and screening plans as well as the quantitative vehicle acceptance criteria. We believe it is most effective to develop those criteria separate from this proposal due to the complex and numerous possible situations that must be considered.

We anticipate the criteria contained in the plan could cover situations not specifically addressed by the above seven cases. For example, a vehicle's onboard diagnostics (OBD) system may have illuminated the malfunction indicator light (MIL) and the cause is found to be an electrical circuit discontinuity problem. If the discontinuity was relatively easy to repair and would have no long-term, detrimental effect on the engine or emissions system performance, the vehicle would not be automatically excluded from the proposed in-use testing program. A disconnected fuel level sensor or a glow plug would likely fall into this category. Conversely, a vehicle that has been misfueled with high-sulfur diesel fuel (*e.g.*, as evidenced by the fuel tank containing high-sulfur, off-highway diesel fuel), may in some cases accelerate engine or engine component degradation with an accompanying long-term, negative effect on emissions performance. In these cases, the vehicle might be excluded from the in-use testing program.

As this indicates, the presence of an OBD trouble code or an illuminated MIL is not automatic grounds for rejecting a candidate vehicle during screening, or eliminating a vehicle when preparing the vehicle for testing or testing the vehicle. OBD codes can contain valuable information regarding the vehicle's condition. An OBD code may indicate that the vehicle has been badly maintained, but it may also indicate a problem with a component of the emissions control system, or the code may be caused by another problem, or may be unclear. While exclusion of a vehicle based on poor maintenance is valid, the existence of a problem with the emissions system is not a proper reason to exclude the vehicle, in particular because it may provide exactly the type of information that this in-use testing program is designed to find. In general, EPA will allow a manufacturer to reject a candidate vehicle based on an OBD trouble code or MIL illumination if the code or MIL, and other relevant information, indicate that the vehicle has not been properly maintained and used or has been tampered with, misfueled, etc., consistent with the discussion above. However, a manufacturer should not otherwise exclude a vehicle based on an OBD trouble code or illuminated MIL. EPA will not generally approve a manufacturer's request to reject a vehicle for reasons other than those discussed above. The existence of a trouble code or MIL does not by itself justify rejection of the vehicle.

Similarly, once a vehicle has been accepted into the program, the presence of an OBD trouble code or illuminated MIL would not be automatic grounds for eliminating a vehicle or aborting a test, once it has begun. If a code or MIL is discovered prior to testing, you can either test the vehicle with the code or you can ask for approval to remedy the cause of the code. We will generally allow manufacturers to remedy the cause of the code if it is related to

maintenance issues, but we will not allow manufacturers to remedy the code if the code is related to other concerns, or the cause of the code is unclear. If a code or illumination occurs after a test is started, the test must be completed without fixing the cause of the code. A manufacturer may remedy the cause of the code following the test and then retest the vehicle, but the original test will be the test used to determine compliance with the pass criteria. We will, however, consider the results of the retest in determining what further actions are appropriate.

In general, we do not anticipate significant maintenance and usage issues for the vehicles covered by this rulemaking. Trucks powered by heavy-duty diesel engines are typically revenue generating assets for businesses, and their proper maintenance and use are critical to minimizing operating costs. As such, many businesses establish sophisticated controls to ensure vehicles are operated and maintained per the engine manufacturer's specifications. Further, most electronically controlled heavy-duty diesel engines require minimal maintenance. Oil changes and valve lash adjustments are the most common maintenance items, although that could change with the advent of add-on emission controls such as exhaust gas recirculation (EGR) and aftertreatment systems.

EPA must approve the procurement and screening plan prior to any testing, as well as any deviations from the plan. Situations where the procurement and screening process results in an emphasis on a particular engine configuration, application or service class should be treated as a deviation from the plan. EPA has 14 working days from receipt of a request for a deviation to accept it. Otherwise, the deviation is considered acceptable.

Manufacturers must report information about the procurement and screening process used for any designated engine family, including copies of any questionnaires or other supporting documentation. Manufacturers may instead refer to the approved screening and procurement plan when the criteria being used is contained in that plan. Manufacturers must also notify EPA when a vehicle is rejected for some reason other than a failure to meet the approved criteria in the plan. Manufacturers must maintain all records which depict the responses of owners or operators interested in participating in the in-use test program and any other records, including forms, related to vehicle procurement and screening process.

We also expect manufacturers will also establish procedures and forms that will facilitate preparing any accepted vehicle for emissions testing. Any adjustments specified in those pre-test maintenance procedures would have to be derived from the maintenance schedule for normal vehicle operation contained in the owner's manual. A parameter may be adjusted only if it is outside of its adjustable range. In such a case, the adjustable parameter is to be set to the mid-point of its adjustable range, unless we grant a request to do otherwise. EPA must approve the adjustment of anything not considered to be an adjustable parameter.

EPA and ARB will work with manufacturers to develop general maintenance procedures and protocols. We believe it is most efficient for manufacturers to contact EPA prior to performing any maintenance designed to determine the cause of a failure to comply with the vehicle pass criteria. The manufacturer may choose to retest such a vehicle after it has performed any corrective actions, and EPA will consider the results of the retest when making a compliance determination about the engine family. However, we need to understand the nature of any adjustments performed prior to that test, and we request the opportunity to participate in the diagnostic process. We will continue to afford the same courtesy when conducting our in-use testing programs. Manufacturers are required to keep records of all maintenance and adjustments and report them to us.

J. Test Conditions

For all Phase 1 testing, we are proposing that test vehicles must to be operated over normal driving routes, carrying routine loads during normal atmospheric/environmental conditions, with the vehicle's normal owner/operator doing the driving. Our intent is to record the emissions from the test vehicles as they are used and operated on a normal day-to-day basis.

For Phase 2 testing, we are proposing to retain the discretion to direct engine manufacturers to use a generic or specific test route and other conditions that replicate those observed in the Phase 1 testing that indicated a potential nonconformity. These other conditions may include but not be limited to specifying the State and/or contiguous States in which testing must be performed, or specifying the time period (of no less than 3 months in duration during which the testing must be performed. (This latter condition may also be used to ensure prompt testing of Phase 2 vehicles or to ensure testing during periods of particular atmospheric conditions.) In deciding to make these elections, we will take into account lead time and vehicle availability constraints.

K. Reporting Requirements

1. Emission Test Results and Notification of Vehicle Failures

Manufacturers will report test data and other relevant information to EPA on a regular basis. Specifically, we propose that manufacturers send us reports for all engines tested during a calendar year quarter within 30 days after the quarter ends. Alternatively, manufacturers may send us a report for individual engines within 30 days after testing is completed. In the case of individual engine failures, manufacturers must report the emissions and engine data along with any diagnostic results and conclusions to EPA within 15 days of conducting the emissions test. The accelerated reporting period for failing vehicles is designed to afford EPA the opportunity to participate in the diagnosis of vehicle failures and any resulting follow-up activities. As mentioned previously, we propose that all testing be finished and reported for a heavy-duty diesel engine family within 18 months after we designate that family for testing.

These reports will be comprehensive in scope. Manufacturers will be asked to detail all emissions data, engine operating parameters, test conditions, test equipment specifications, vehicle and engine information generated during the manufacturer test program (*e.g.*, information on vehicle maintenance and usage history with reasons for rejected vehicles, restorative maintenance performed prior to testing), vehicle pass results, etc. Engine operating parameters include all relevant, readily available information that is electronically sensed, measured, calculated, or otherwise stored by the engine's onboard computer. This would normally include, but is not limited to, engine speed, engine torque, engine coolant temperature, and manifold absolute pressure, and any parameter sensed or controlled in order to modulate the emissions control system. It is necessary to report any parameters used to modulate the emissions control system so that we can readily identify operation where an approved deficiency or carve-out applies, and the state of the engine during that operation. Toward that goal, we are requesting comment on whether manufacturers should be required to explicitly identify when the engine is operating in the area of an approved carve-out or deficiency and

report that information as a data output to the portable emissions measurement systems. Flagging the presence of a carve-out or deficiency in such a manner would likely require minor revisions to the engine's on-board computer software. We envision the software revisions would be limited to manipulating already broadcast or stored parameters.

Engine manufacturers will follow a standardized, electronic reporting format. We intend to jointly develop the exact content and form of the reports with ARB and the engine manufacturers. Participation by ARB will ensure that the reporting requirements are nationally consistent when it establishes an in-use NTE testing program of its own. The reporting requirements are detailed in the regulatory text accompanying today's proposed rule. Additional details, including the final reporting format, will be published separately by EPA as a guidance document.

2. Carve Outs, Deficiencies, or Other NTE Control Area Exclusions

Depending on the applicable standards, several provisions in the existing heavy-duty diesel engine regulations allow a manufacturer to temporarily exceed the NTE standards under certain limited circumstances, or otherwise exclude defined regions of the NTE engine control zone from NTE compliance. We propose that these exceptions also be allowed in determining if a vehicle passes the vehicle pass criteria. However, all such exclusions and associated test data must be described and reported to EPA when reporting emission test results under the proposed program. (*See* 65 FR 59912 and 59914 (October 6, 2000), and 66 FR 5040 (January 18, 2001)).

L. Measurement of Emissions

We are proposing to adopt the test procedures in part 1065, subpart J, ''Field Testing'' for conducting any emissions testing required in this program, as well as any other onboard testing required for heavy-duty engines under part 86, subpart N. Note that we are proposing changes to the current version of part 1065, which are being published in a separate companion Notice of Proposed Rulemaking (NPRM) to this document.

Part 1065 was originally promulgated on November 8, 2002 (67 FR 68242), and was initially applicable to standards regulating large nonroad SI engines and recreational vehicles under parts 1048 and 1051. The recently promulgated nonroad diesel engine rule has also made part 1065 applicable to those engines. The test procedures currently in part 1065 are sufficient to conduct testing, but the new test procedure NPRM proposes to reorganize and add content to improve these procedures. The new content includes proposed procedures for measuring very low concentrations of emissions, using new measurement technology, and performing field testing. Regarding field testing, the companion rule proposes that in general, field testing equipment and measurement instruments meet the same specifications and performance checks that laboratory instruments meet. However, for field testing instruments, the test procedure rule proposes to allow certain deviations from the laboratory specifications. It proposes a procedure for preparing and conducting a field test, and additional drift and noise allowances for emissions analyzers. Comments regarding the test procedures proposed in the separate companion NPRM to this notice should be directed as comments toward that notice and not to this notice.

1. Pollutants

We are proposing to require the in-use measurement of all regulated pollutants for heavy-duty diesel engines: total hydrocarbons (THC), carbon monoxide (CO), oxides of nitrogen (NO_X), and particulate matter (PM). We are also proposing to require the measurement of carbon dioxide (CO_2) and oxygen (O_2) as a component of test measurement specifications and as a means of assuring quality control. Recognizing that experience may show that the effectiveness, durability and overall performance of new engine technologies and exhaust aftertreatment systems may demonstrate that in-use testing for certain pollutants is unnecessary, we will consider requests from the engine manufacturers to discontinue reporting and/or measurement of one or more pollutants from some or all engines based on future test experience. We are requesting comment on whether we should also require in-use measurement of non-methane hydrocarbons NMHC (or non-methane hydrocarbon equivalence (NMHCE) for methanol-fueled vehicles). The 2007 hydrocarbon standards for heavy-duty engines are written in terms of NMHC (or NMHCE) not THC. In addition, recent testing indicates that the traditional relationship of NMHC to THC in diesel exhaust (typically, NMHC is 98% of THC) is no longer applicable when aftertreatment like PM filters are used. Therefore, there is less of an exact correlation between THC and NMHC emissions and the traditional way of correlating such emissions in our regulations could lead to overestimation of NMHC emissions. Also, as discussed below, NMHC can be measured on-vehicle without significant further effort. As a result, we believe there may be strong reasons to require NMHC measurement, with little extra burden, and we request comment on whether the final regulations should require such measurement.

2. Portable Emission Measurement Systems

Portable emission measurement systems will be used to measure the emissions and activity of vehicles tested in this program. These systems have been under development for a little over ten years. The technologies used in these systems have been shown in studies conducted by EPA, CARB, and product manufacturers to be effective in general at accurately measuring emissions from in-use motor vehicles under the various conditions that could be expected in this test program. Portable units are already commercially available for use in the 2005 to 2006 pilot program from a number of manufacturers that measure gaseous emissions at the required levels. Particulate measurement technology, which is available from equipment manufacturers today, has been tested in the laboratory environment with good results. Although this demonstrates that the overall technology is available, more work is needed to demonstrate its accuracy and efficacy in the laboratory and in the field for the purposes of this program. In addition, work is continuing to miniaturize the on-board sampling devices and develop suitable exhaust dilution sampling techniques and hardware.

We are confident that portable systems with the capability to measure PM emissions at the exhaust concentrations associated with the 2007 and later model year standards will be readily available for the fully enforceable in-use program starting in 2007. Further, we think it is possible that these systems will be available in time to start the 2005 pilot program. For this reason, we are proposing that particulate emissions be measured in the pilot program along with gaseous emissions. Nonetheless, we recognize that development work on PM measurement technology remains to be done.

EPA intends to be fully involved in the continued development of portable PM measurement systems and will continue to carefully monitor the work being done by others in the time between this proposal and the subsequent final rulemaking. In order to

help us with this assessment and defining the final requirements, we request comments in this area. If EPA determines that these systems are not available for the start of the 2005 pilot program, we may consider delaying the PM requirement until 2006 or 2007, or temporarily relaxing the equipment measurement tolerances.

The Technical Support Document (Chapter 2) that accompanies today's proposal contains more information on the status and development of portable emission measurement systems, including efforts to miniaturize and improve the accuracy of these units.

Also, as the Technical Support Document indicates, our measurement instrumentation requirements specify that onboard measurement systems must be accurate such that they are no more than 5 percent less accurate than laboratory measurements. As noted above, we have added a 5 percent measurement margin to the NTE Threshold under this program to account for these accuracy considerations.

M. 2005 and 2006 Pilot Program

To ensure a successful launch of the fully enforceable program in 2007, we are proposing a more limited mandatory pilot program for calendar years 2005 and 2006. Under the pilot, we will designate engine families for testing as described in Section II. B. of this preamble. In all likelihood, we will select 2002 through 2006 model year engines for testing under the pilot program. After receiving our selections, manufacturers will then conduct in-use testing based on the Phase 1 testing criteria according to the scheme set forth in Section II. C. of this preamble. During these two years both EPA and the heavy-duty diesel engine manufacturers will gain valuable experience with the in-use testing protocols, and the generation, interpretation, and reporting of in-use NTE emissions data.

The evaluation of these data for compliance purposes is limited to screening for exceedences of the FTP certification standards as well as the potential use of defeat devices as outlined in prior Agency guidance. The pilot program data could also be used to screen consent decree engines certified to pull ahead NTE requirements for compliance with the applicable NTE limits. If the pilot program test results clearly show that the designated heavy-duty diesel engine family passes the Phase 1 testing criteria (*i.e.*, 5 out of 5, 5 out of 6, or 8 out of 10 vehicles pass), no further testing will be is required of that engine family in that year. If the designated engine family does not clearly pass the test criteria (*i.e.*, 7 or fewer out of 10 vehicles pass) we will not pursue any form of remedial action based solely on that data. However, we may utilize these latter test results in conjunction with our own test data and other information to assess or pursue any appropriate enforcement or regulatory action.

N. Implications for Other EPA Programs

1. EPA Testing and Supplemental Information

EPA reserves its preexisting authority to conduct repeat testing or initiate our own in-use testing of a manufacturer's heavy-duty diesel engine family. The purpose of this testing would be primarily to verify and supplement, not duplicate, the testing program to be conducted by manufacturers. Therefore, we do not intend to conduct routine in-use NTE testing of engines or engine families that satisfy the Phase 1 testing criteria, unless new information indicates that a potential nonconformity exists. We will also inform and invite the affected manufacturer to observe any in-use testing that we may conduct which is related to this program.

2. Selective Enforcement Audit (SEA) Testing

We will limit the existing SEA program after full implementation of the manufacturer-run, in-use program solely to instances where credible evidence indicates the existence of a nonconformity. Such evidence may include: past noncompliance occurring in new engines or very early in the life of in-use engines, a manufacturer's quality assurance/quality control (QA/QC) reporting that identifies or otherwise indicates a problem, a significant number of consumer complaints or defect reports, or test data of any type.

In general, we anticipate that a robust, mature manufacturer-run in-use program would significantly reduce the role SEA plays in EPA's compliance program. Assembly line emissions audits ensure that the prototype emission control designs approved during the certification process successfully transfer into mass produced engines. More specifically, SEAs evaluate whether manufacturers' design enough compliance margin into the certified emissions levels to account for the emissions variability inherent to the design and manufacture of a particular engine and emissions control system.

It is expected that the in-use program will require manufacturers to target emissions performance with enough compliance margin below the standards to account for expected in-use deterioration, and that this margin will exceed normal emissions variability experienced in new engines. The use of aftertreatment as the primary means for emissions control is expected further to reduce EPA's reliance on SEAs as a compliance tool. These systems typically function at high efficiency levels and without catastrophic failure on newer engines. If problems were to occur, it is often only apparent after the aftertreatment-equipped engine has been in service for some period of time. During SEA testing, the aftertreatment system will have experienced little mileage accumulation and, therefore, is expected perform at essentially undeteriorated levels. For these reasons, EPA believes SEA testing will be less critical for a vigorous enforcement program.

As mentioned previously, there are circumstances where SEAs would still be warranted. Those situations typically involve known or expected problems which occur relatively early in the engine's useful life, but have not been remedied by the manufacturer. In those cases, it is less expensive and more effective to remedy the problem well in advance of in-use testing. EPA is also interested in occasionally conducting SEAs for small engine families that may not be the focus of testing under the manufacturer-run, in-use testing program.

3. Deterioration Factor Testing

Under our current emissions certification program requirements, manufacturers of heavy-duty diesel engines are allowed considerable flexibility in generating deterioration factors (DFs). The regulations only generally specify how to stabilize the engine system prior to conducting the durability testing. All other aspects of generating DFs, such as the durability test cycle and the duration of the testing, are left to the good engineering judgment of the engine manufacturer. Given this latitude, manufacturers have settled on a fairly standard set of methodologies for generating DFs.

Deterioration factors are generated in the laboratory using an engine dynamometer. After the engine is stabilized, it is exercised over a durability driving cycle for a period of time or mileage established by the engine manufacturer as mentioned previously. Emissions are measured over this cycle at intervals specified by the engine manufacturer. The measured emissions are plotted as a function of time or mileage and a statistical curve

fitting method is used to calculate emissions deterioration over time. Since the emission tests are not typically performed to the end of engine's useful life, the curve-fit is extrapolated to estimate useful life emissions. Either the measured initial, early-life emissions are subtracted from the extrapolated useful life emissions (additive DF), or the useful life emissions are divided by the early-life emissions (multiplicative DF), depending on the emissions control technology, to calculate the DF and arrive at the official deteriorated certification test results.

The 2004 and 2007 low emission standards required for heavy-duty diesel engines has placed the efficacy of how these traditional DF methodologies are developed and applied under increased scrutiny by both EPA and the engine manufacturers. The reasons are twofold. First, aftertreatment and add-on emissions control technologies such as cooled-EGR are more prone to deterioration compared to past engine designs. Second, compliance with the emissions standards becomes more sensitive to the uncertainty in the emissions trends resulting from these common DFs methods as the stringency of the standards increases. In the past, manufacturers could target emissions far enough below the relatively relaxed emissions standards in order to account for the inherent DF variability. The increased stringency of the 2004 and 2007 standards have reduced those traditional compliance margins, leaving less headroom to account for DF uncertainty. Exacerbating the issue is the traditional use of multiplicative DFs which mathematically result in a larger deteriorated emissions value compared to an additive approach.

The most likely solution for addressing the loss in confidence with current DF methods in the near term is for EPA and the engine manufacturers to work cooperatively to establish more robust accelerated DF methodologies in the laboratory. This would provide more certain deteriorated certification emission results. Discussions on such a solution have already started on an informal basis with individual manufacturers and will become more structured with industry in the near future.

As a longer term approach, it may be possible to reduce or eliminate the current laboratory-based DF methods by using the test results generated as part of the proposed manufacturer-run in-use testing program or test data from other in-use testing that utilizes portable emission measurement systems to more accurately predict in-use deterioration. For example, a manufacturer may be able to demonstrate that DFs generated from the in-use data are superior predictors of useful life deterioration, or at least correlate well with the more traditional laboratory approach to developing these factors. To this end, we intend to assess the generation and submission of DFs based on the proposed 2005 and 2006 pilot program. We will examine potential ways to diminish or eliminate burdens on manufacturers of generating and submitted DFs, while still generating DFs that accurately predict in-use deterioration. Any appropriate revisions for generating DFs would be promulgated in a subsequent rulemaking action, particularly in the rulemaking reexamining the accuracy margin discussed in II. F. above.

O. Limitations of Warranty Claims

An exceedence of the NTE found through the in-use testing program is not by itself sufficient to show a breach of the warranty under section 207(a)(1)(A) or (B). A breach of this warranty would also require either: (1) That, at the time of sale, the engine or vehicle was designed, built and equipped in a manner that does not conform in all material respects reasonably related to emission controls to the engine as described in the application for certification and covered by the certificate, or (2) a defect in materials and workmanship of a component or part that causes the vehicle or engine to fail to conform to the applicable regulations for its useful life. To the extent that in-use NTE testing does not reveal such a material deficiency at the time of sale in the design or manufacture of an engine compared to the certified engine, or a defect in the materials and workmanship of a component or part, test results showing an exceedence of the NTE by itself would not show a breach of the warranty under section 207(a)(1).

III. Economic Impacts

The costs associated with our proposal to implement a manufacturer-run, in-use NTE testing program for heavy-duty diesel engines depends primarily on how many vehicles are eventually tested under the Phase 1 and 2 testing schemes. This is difficult to estimate because the actual number for each designated engine family depends on how may vehicles pass, or fail, the vehicle pass criteria at various points in the tiered testing design. It is also highly dependent on the how manufacturers chose to conduct the test program and the availability of test vehicles. Obviously, it is difficult to project these variables for an all new program. However, based on our experience with in-use emissions testing, including the development and use of portable measurement systems for compliance testing, we identified a set of reasonable testing scenarios that allow us to estimate the potential costs associated with the proposed program.

Our analysis shows a total cost of approximately $870 thousand to $1.0 million per year for the case where no manufacturer must test more than the minimum number of vehicles under Phase 1 (*i.e.*, 5 vehicles per engine family). If all manufacturers were to test the maximum number of vehicles required under Phase 1 (*i.e.*, 10 vehicles per engine family), the total cost could range from $1.1 to $1.4 million per year. In the most unlikely worst case scenario where all manufacturers must test the maximum vehicles in Phase 1 and 2 (*i.e.*, 20 vehicles per engine family), the total cost could range from $1.5 to $2.0 million per year. Our best estimate of the overall cost of the proposed program is $1.0 million per year for the entire industry. The Technical Support Document for this proposal contains a detailed description of our economic analysis.

Overall, while not insignificant, these costs are quite low compared to other in-use compliance programs, and especially in comparison to a more traditional in-use testing program where the engine must be extracted from the vehicle and tested on an engine dynamometer in the laboratory.

IV. Public Participation

We request comment on all aspects of this proposal. This section describes how you can participate in this process.

A. How and to Whom Do I Submit Comments?

We are opening a formal comment period by publishing this document. We will accept comments for the period indicated under **DATES** above. If you have an interest in the program described in this document, we encourage you to comment on any aspect of this rulemaking. We request comment on various topics throughout this proposal.

Your comments will be most useful if you include appropriate and detailed supporting rationale, data, and analysis. If you disagree with parts of the proposed program, we encourage you to suggest and analyze alternate approaches to accomplish these same goals described in this proposal. You should send all comments, except those containing proprietary information, to our Air Docket (see **ADDRESSES**) before

the end of the comment period. You should also send a copy to the Contact Person listed above (see **FOR FURTHER INFORMATION CONTACT**).

You may submit comments electronically, by mail, or through hand delivery/courier. To ensure proper receipt by EPA, identify the appropriate docket identification number in the subject line on the first page of your comment. Please ensure that your comments are submitted within the specified comment period. Comments received after the close of the comment period will be marked ''late.'' EPA is not required to consider these late comments. If you wish to submit CBI or information that is otherwise protected by statute, please follow the instructions in Section IV.B. Do not use EPA Dockets or e-mail to submit CBI or information protected by statute.

B. How Should I Submit CBI To the Agency?

Do not submit information that you consider to be CBI electronically through EPA's electronic public docket or by e-mail. Send or deliver information identified as CBI only to the following address: U.S. Environmental Protection Agency, Assessment and Standards Division, 2000 Traverwood Drive, Ann Arbor, MI, 48105, Attention Docket ID No. OAR–2004–0072. You may claim information that you submit to EPA as CBI by marking any part or all of that information as CBI (if you submit CBI on disk or CD ROM, 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 CBI). Information so marked will not be disclosed except in accordance with procedures set forth in 40 CFR part 2.

In addition to one complete version of the comment that includes any 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 and EPA's electronic public docket. If you submit the copy that does not contain CBI on disk or CD ROM, mark the outside of the disk or CD ROM clearly that it does not contain CBI. Information not marked as CBI will be included in the public docket and EPA's electronic public docket without prior notice. If you have any questions about CBI or the procedures for claiming CBI, please consult the person identified in the **FOR FURTHER INFORMATION CONTACT** section.

C. Will There Be a Public Hearing?

We will hold one public hearing in Washington, DC. The hearing will be held on the following date and start at the following time, and continue until everyone present has had an opportunity to speak.

Hearing location	Date	Time
U.S. Environmental Protection Agency, 1310 L Street, NW., Washington, DC, Telephone: (202) 343–9540, Fax: (202) 343–2804.	July 15, 2004	10 a.m. EDT.

If you would like to present testimony at a public hearing, we ask that you notify the contact person listed above at least ten days before the hearing. You should estimate the time you will need for your presentation and identify any needed audio/visual equipment. We suggest that you bring copies of your statement or other material for the EPA panel and the audience. It would also be helpful if you send us a copy of your statement or other materials before the hearing.

We will make a tentative schedule for the order of testimony based on the notifications we receive. This schedule will be available on the morning of each hearing. In addition, we will reserve a block of time for anyone else in the audience who wants to give testimony.

We will conduct the hearing informally, and technical rules of evidence will not apply. We will arrange for a written transcript of the hearing and keep the official record of the hearing open for 30 days to allow you to submit supplementary information. You may make arrangements for copies of the transcript directly with the court reporter.

D. Comment Period

The comment period for this rule will end on August 16, 2004.

E. What Should I Consider as I Prepare My Comments for EPA?

You may find the following suggestions helpful for preparing your comments:

1. Explain your views as clearly as possible.
2. Describe any assumptions that you used.
3. Provide any technical information and/or data you used that support your views.
4. If you estimate potential burden or costs, explain how you arrived at your estimate.
5. Provide specific examples to illustrate your concerns.
6. Offer alternatives.
7. Make sure to submit your comments by the comment period deadline identified.
8. To ensure proper receipt by EPA, identify the appropriate docket identification number in the subject line on the first page of your response. It would also be helpful if you provided the name, date, and **Federal Register** citation related to your comments.

V. Statutory and Executive Order Reviews

A. Executive Order 12866: Regulatory Planning and Review

Under Executive Order 12866 (58 FR 51735, October 4, 1993), the Agency must determine whether the regulatory action is ''significant'' and therefore subject to review by the Office of Management and Budget (OMB) and the requirements of this Executive Order. The Executive Order defines a ''significant regulatory action'' as any regulatory action that is likely to result in a rule that may:

- Have an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, Local, or Tribal governments or communities;
- Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;
- Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs, or the rights and obligations of recipients thereof; or
- Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order.

EPA has determined that this rule is not a significant regulatory action under the terms of Executive Order 12866 and is therefore not subject to OMB review.

B. Paperwork Reduction Act

The information collection requirements in this proposed rule have been submitted for approval to the Office of Management and Budget

(OMB) under the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq.* The Agency proposes to collect information to ensure compliance with the provisions in this rule. Information-collection requirements related to engine manufacturers are in EPA ICR #1897.07. Section 208(a) of the Clean Air Act requires that manufacturers provide information the Administrator may reasonably require to determine compliance with the regulations; submission of the information is therefore mandatory. We will consider confidential all information meeting the requirements of section 208(c) of the Clean Air Act.

As shown in Table V–1, the total annual burden associated with this proposal is about 720 hours and $48,401, based on a projection of 14 respondents. The estimated burden for engine manufacturers is a total estimate for both new and existing reporting requirements. Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; and transmit or otherwise disclose the information.

TABLE V–1.—ESTIMATED BURDEN FOR REPORTING AND RECORDKEEPING REQUIREMENTS

Industry sector	Number of respondents	Annual burden hours	Annual costs
Engines	14	720	$48,401

An agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for EPA's regulations are listed in 40 CFR part 9 and 48 CFR chapter 15.

To comment on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including the use of automated collection techniques, EPA has established a public docket for this rule, which includes this ICR, under Docket ID number OAR–2004–0072. Submit any comments related to the ICR for this proposed rule to EPA and OMB. See **ADDRESSES** section at the beginning of this notice for where to submit comments to EPA. Send comments to OMB at the Office of Information and Regulatory Affairs, Office of Management and Budget, 725 17th Street, NW., Washington, DC 20503, Attention: Desk Office for EPA. Since OMB is required to make a decision concerning the ICR between 30 and 60 days after June 10, 2004, a comment to OMB is best assured of having its full effect if OMB receives it by July 12, 2004. The final rule will respond to any OMB or public comments on the information collection requirements contained in this proposal.

C. Regulatory Flexibility Act (RFA)

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 impact of today's rule on small entities, small entities are defined as: (1) A small business that is primarily engaged in the manufacturing of diesel engines as defined by NAIC codes 333618 with less than 1000 employees (based on Small Business Administration size standards); (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, EPA certifies that this action will not have a significant economic impact on a substantial number of small entities. This proposed rule will not impose any requirements on small entities. The test procedures that are established by this proposed rule pertain to heavy-duty diesel engine manufacturers. EPA has previously analyzed this category for impact on small entities when emission standards were finalized for this category of engines in October of 2000 (65 FR 59895, October 6, 2000). At that time, EPA noted that only two small entities were known to be affected. Those entities were small businesses that certify alternative fuel engines or vehicles, either newly manufactured or modified from previously certified gasoline engines. The test procedures proposed by this action do not pertain to the engines manufactured by these small businesses and recent analysis supports that there are no additional small businesses that would be impacted by this proposed action. We continue to be interested in the potential impacts of the proposed rule on small entities and welcome comments on issues related to such impacts.

D. Unfunded Mandates Reform Act

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), Public Law. 104–4, establishes requirements for federal agencies to assess the effects of their regulatory actions on state, local, and tribal governments and the private sector. Under section 202 of the UMRA, EPA generally must prepare a written statement, including a cost-benefit analysis, for proposed and final rules with ''federal mandates'' that may result in expenditures to state, local, and tribal governments, in the aggregate, or to the private sector, of $100 million or more in any one year. Before promulgating an EPA rule for which a written statement is needed, section 205 of the UMRA generally requires EPA to identify and consider a reasonable number of regulatory alternatives and adopt the least costly, most cost-effective, or least burdensome alternative that achieves the objectives of the rule. The provisions of section 205 do not apply when they are inconsistent with applicable law. Moreover, section 205 allows EPA to adopt an alternative other than the least costly, most cost-effective, or least burdensome alternative if the Administrator publishes with the final rule an explanation of why that alternative was not adopted.

This rule contains no federal mandates for state, local, or tribal

governments as defined by the provisions of Title II of the UMRA. The rule imposes no enforceable duties on any of these governmental entities.

EPA has determined that this rule contains no federal mandates that may result in expenditures of more than $100 million to the private sector in any single year. EPA believes that the proposal represents the least costly, most cost-effective approach to achieve the emission compliance goals of the rule. The costs associated with the proposal are discussed in the Draft Technical Support Document.

E. Executive Order 13132: Federalism

Executive Order 13132, entitled ''Federalism'' (64 FR 43255, August 10, 1999), requires EPA to develop an accountable process to ensure ''meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications.'' ''Policies that have federalism implications'' is defined in the Executive Order to include regulations that 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.''

Under section 6 of Executive Order 13132, EPA may not issue a regulation that has federalism implications, that imposes substantial direct compliance costs, and that is not required by statute, unless the Federal government provides the funds necessary to pay the direct compliance costs incurred by State and local governments, or EPA consults with State and local officials early in the process of developing the proposed regulation. EPA also may not issue a regulation that has federalism implications and that preempts State law, unless the Agency consults with State and local officials early in the process of developing the proposed regulation.

Section 4 of the Executive Order contains additional requirements for rules that preempt State or local law, even if those rules do not have federalism implications (*i.e.*, the rules 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). Those requirements include providing all affected State and local officials notice and an opportunity for appropriate participation in the development of the regulation. If the preemption is not based on express or implied statutory authority, EPA also must consult, to the extent practicable, with appropriate State and local officials regarding the conflict between State law and Federally protected interests within the agency's area of regulatory responsibility.

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.

Although Section 6 of Executive Order 13132 does not apply to this rule, EPA did consult with representatives STAPPA/ALAPCO, which represents state and local air pollution officials.

In the spirit of Executive Order 13132, and consistent with EPA policy to promote communications between EPA and State and local governments, EPA specifically solicits comment on this proposed rule from State and local officials.

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

Executive Order 13175, entitled ''Consultation and Coordination with Indian Tribal Governments'' (65 FR 67249, November 6, 2000), requires EPA to develop an accountable process to ensure ''meaningful and timely input by tribal officials in the development of regulatory policies that have tribal implications.''

This proposed rule does not have tribal implications as specified in Executive Order 13175. This rule will be implemented at the Federal level and impose compliance costs only on engine manufacturers and ship builders. Tribal governments will be affected only to the extent they purchase and use equipment with regulated engines. Thus, Executive Order 13175 does not apply to this rule. EPA specifically solicits additional comment on this proposed rule from tribal officials.

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

Executive Order 13045, ''Protection of Children from Environmental Health Risks and Safety Risks'' (62 FR 19885, April 23, 1997) applies to any rule that (1) is determined to be ''economically significant'' as defined under Executive Order 12866, and (2) concerns an environmental health or safety risk that EPA has reason to believe may have a disproportionate effect on children. If the regulatory action meets both criteria, section 5–501 of the Order directs the Agency to evaluate the environmental health or safety effects of the planned rule on children, and explain why the planned regulation is preferable to other potentially effective and reasonably feasible alternatives considered by the Agency.

This proposed rule is not subject to the Executive Order because it does not involve decisions on environmental health or safety risks that may disproportionately affect children.

The effects of ozone and PM on children's health were addressed in detail in EPA's rulemaking to establish the NAAQS for these pollutants, and EPA is not revisiting those issues here. EPA believes, however, that the emission reductions from the strategies proposed in this rulemaking will further reduce air toxic emissions and the related adverse impacts on children's health.

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

This 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.

I. National Technology Transfer Advancement Act

Section 12(d) of the National Technology Transfer and Advancement Act of 1995 (''NTTAA''), Public Law 104–113, section 12(d) (15 U.S.C. 272 note) directs EPA to use voluntary consensus standards in its regulatory activities unless doing so would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (*e.g.*, materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by voluntary consensus standards bodies. NTTAA directs EPA to provide Congress, through OMB, explanations when the Agency decides not to use available and applicable voluntary consensus standards.

This proposed rule is not related to any available and applicable voluntary consensus standards.

XI. Statutory Provisions and Legal Authority

Statutory authority for the proposed regulations is provided by the Clean Air Act, as amended, 42 U.S.C. 7401 *et seq.*, in particular, sections 202–208 of the Act, 42 U.S.C. 7521–7542.

List of Subjects in 40 CFR Part 86

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

Dated: June 3, 2004.

Michael O. Leavitt,

Administrator.

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