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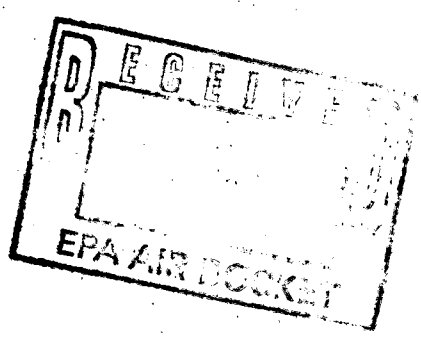


## Part II

# Environmental Protection Agency

**40 CFR Part 86**

**Revisions to Durability Procedures in the Federal Motor Vehicle Emission Certification Regulations; Proposed Rule**

**ENVIRONMENTAL PROTECTION AGENCY**

**40 CFR Part 86**

**[FRL-4125-3]**

# Control of Air Pollution From New Motor Vehicles and New Motor Vehicle Engines; Proposed Regulations for Light-Duty Vehicle and Light-Duty Truck 1994 and 1995 Model Year Durability Testing Procedures and 1994 and Later Model Year Allowable Maintenance

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

**ACTION:** Notice of proposed rulemaking (NRPM).

**SUMMARY:** This action proposes revisions to durability procedures in the Federal motor vehicle emission certification regulations. These revisions apply to model year 1994 and 1995 light-duty vehicles (LDVs) and light-duty trucks (LDTs). The Agency also proposes revisions to the allowable maintenance provisions for model year 1994 and later LDVs and LDTs. The proposal establishes durability procedures for the certification of vehicles subject to the Tier 1 emission standards rulemaking published on June 5, 1991.[1] The proposed durability procedures are in large part consistent with those adopted by the State of California. The aim is to minimize near-term cost and leadtime burdens, while assuring no loss in the technical validity of the certification durability assessment. The proposed new allowable maintenance regulations generally extend maintenance intervals for LDVs in response to the longer Tier 1 definition of LDV useful life and update the provisions applicable to LDTs.

The main purpose of this rulemaking is to provide interim revisions to the current durability procedures; durability testing procedures for the 1996 and later model years will be proposed in a separate notice and will address technical and procedural improvements to the durability program that are currently undergoing evaluation by the Agency. The proposed new allowable maintenance regulations generally extend maintenance intervals for LDVs in response to the longer Tier 1 definition of LDV useful life and update the provisions applicable to LDTs.

**DATES:** Written comments on this NPRM must be submitted on or before June 15, 1992.

EPA will conduct a public hearing on this NPRM on May 15, 1992.

**ADDRESSES:** Written comments should be submitted (in duplicate if possible) to: EPA Air Docket, Attention Docket No. A-90-24, USEPA, room M-1500, 401 M Street SW., Washington, DC 20460. The public hearing will be held at 9 a.m. in the Ulrich Conference Center, Lobby E, Dominos' Farm, 24 Frank Lloyd Drive, Ann Arbor, Michigan 48106.

Materials relevant to this proposed rulemaking are available for inspection in Docket No. A-90-24, located at the above address on the first floor of Waterside Mall, from 8:30 a.m. to 12 noon and from 1:30 to 3:30 p.m. Monday through Friday. A reasonable fee may be charged by EPA for copying docket materials.

**FOR FURTHER INFORMATION CONTACT:** James A. McCargar, Certification Division, U.S. Environmental Protection Agency, Motor Vehicle Emission Laboratory, 2565 Plymouth Road, Ann Arbor, Michigan 48105. Telephone (313) 668-4244.

**SUPPLEMENTARY INFORMATION:**

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## I. Background

### *A. Durability Procedures*

The Clean Air Act prohibits manufacturers of new motor vehicles from selling or introducing such vehicles into commerce in the United States unless the vehicles are covered by a certificate of emissions conformity. The Environmental Protection Agency (EPA) is charged with the responsibility of granting certificates of conformity based upon testing that verifies the emission durability of the vehicle; that is, the ability of the vehicle's design to conform with applicable emission standards for its useful life.

Because certification is a prerequisite for introduction into commerce, and because reasonable leadtime is required by manufacturers to guarantee the marketability of their products, the process of demonstrating emission durability necessarily begins well prior to production. For LDVs, EPA's current durability procedures require manufacturers to accumulate mileage on preproduction vehicles to simulate in-use operation over a 50,000-mile LDV useful life. These vehicles are termed durability data vehicles (DDVs); the mileage accumulation cycle is commonly referred to as the Automotive Manufacturers Association (AMA) cycle.

Data generated during periodic emission tests on the DDVs are regressed and used to calculate multiplicative deterioration factors (DFs), which quantify the degradation of vehicle emissions as a linear function of accumulated mileage. Currently for LDVs, the DFs are applied to test data on low-mileage vehicles (referred to as emission data vehicles, or EDVs) to calculate the projected emissions or "certification emission levels" at 50,000 miles. The calculated certification level must not exceed the applicable 50,000-mile emission standard in order for EPA to issue a certificate of conformity for the engine family represented by the DDVs and EDVs.

Current EPA regulations permit manufacturers to request use of alternative cycles for whole-vehicle mileage accumulation on LDVs.[2]

[1] 56 FR 25714 (June 5, 1991).

[2] 40 CFR 86.092-26(a)(2).

Historically, EPA has approved a number of manufacturers' requests for minor modifications to the AMA schedule, requests prompted by unique aspects of their test tracks or their desire to use mileage accumulation dynamometers in place of test track operation. The Agency has also received a limited number of manufacturer requests to employ whole-vehicle accumulation cycles that are significantly different (in average speed, acceleration rates, or maximum speeds, for example) from the current cycle. Agency policy has been to approve such requests only if the manufacturer provides strong evidence that the cycle will generate DFs that are substantially more representative of in-use deterioration. To date, the Agency has denied all requests to employ significantly different AMA cycles because they failed to meet this criterion.

For a variety of reasons, no DDV mileage accumulation cycle—including the AMA cycle—can precisely predict in-use deterioration. Therefore, the AMA cycle has historically served as a standard for what the Agency considers to be an acceptable level of performance from a durability program based on whole-vehicle mileage accumulation.

For model year (MY) 1984 and later LDTs, EPA regulations have permitted a manufacturer to develop (and essentially self-approve) its own method for generating DFs for LDTs, subject to good engineering practice. The regulations state that such procedures (including the selection of components, systems and/or vehicles to be tested) are expected to predict in-use deterioration.[3] In practice, most manufacturers combine engine families into larger groupings; DDVs representing these groupings are typically run to some mileage in excess of 50,000 miles but less than LDT full useful life; data from periodic emission tests are extrapolated to the full-useful life mileage to permit calculation of the DFs.[4]

Soon after the manufacturers certified their first LDTs using the self-approved durability program, EPA became concerned that some resulting DFs were significantly lower than expectations for actual in-use deterioration of LDTs with 120,000-mile useful lives. In some cases, the values even fell short of predictions based on data for LDVs run for 50,000 miles on the AMA cycle. With input from EPA and with increased manufacturer experience with the program, the Agency believes that manufacturers now submit LDT DFs that are at least as representative of in-use deterioration as DFs that would be generated from a program based on AMA mileage accumulation.

The cost of the durability program for both LDVs and LDTs to both the manufacturers and EPA is reduced significantly by permitting manufacturers to use durability data from previous years or from other engine families when seeking certification of new families. Under 40 CFR 86.094–24(f), manufacturers may use data generated by one test vehicle to represent data in a different engine family, if certain design similarities exist. This is termed "carryover" when applying data from one model year to the next, or "carryacross" when applying data from one engine family to another within the same model year.[5]

The Agency has established specific policies for the use of carryover data.[6] The Agency has historically allowed carryover when the older data have met all requirements of the current model year certification program. Technically, only emission test data, and not DFs, are carried over; new DFs are calculated from those data. However, the practical effect is to carry over the DF if no changes in requirements have occurred from one year to the next.

The current EPA durability procedures have been an effective element of EPA's motor vehicle emission control program. Deterioration factors calculated for DDVs run on the AMA cycle or derived by other means in the LDT durability program consistently reflect degradation of emissions with mileage. Manufacturers must therefore strive to minimize that degradation, as well as hold down the base emission levels of their low-mileage EDVs, in order to ensure the compliance of the certification values calculated for each family. In addition, accumulation of mileage by the DDVs provides valuable information on the physical durability of individual emission-related components, because these components are exercised during the operation of the DDV.

On November 15, 1990, the President signed into law the Clean Air Act Amendments of 1990 (hereafter referred to as the CAAA, or the Amendments).[7] The Amendments modified the definitions of motor vehicle useful life, adding a 10-year/100,000-mile "full" useful life for LDVs, adding a 5-year/50,000-mile "intermediate" useful life for LDTs, and truncating the full useful life of the lighter (less than 6000 lb gross vehicle weight) LDTs at 10 years, 100,000 miles. The Agency published final regulations promulgating new "Tier 1" emission standards at the revised useful life levels on June 5, 1991.[8] As required, the Tier 1 standards are implemented on a phased-in basis; that is, minimum percentages of a manufacturer's fleet in a given model year must meet the new Tier 1 standards, and the balance may certify to the older "Tier 0" standards. The phase-in for LDVs and light LDTs begins in model year 1994 (MY1994) and reaches 100 percent in MY1996; phase-in of the heavy LDTs begins in MY1996 and reaches 100 percent in MY1997.

When promulgating that rule, EPA noted that the longer Tier 1 useful life levels made some sections of current EPA durability regulations obsolete. For example, current regulations call for DDVs to accumulate 50,000 miles of service, whereas the Tier 1 certification standards for MY1994 LDVs apply for a 100,000 mile useful life. However, the 180-day statutory deadline for promulgation of the Tier 1 standards did not provide sufficient time to develop and promulgate revised durability procedures at that time. Instead, the Agency committed to promulgating the necessary durability program revisions in a separate rule. Today's notice initiates that process, but must be viewed in the context of an ongoing EPA evaluation of the light-duty durability program.

Prior to passage of the Amendments, EPA had considered revising the light-duty durability program for a variety of reasons. Although the program has generated emission control benefits, both EPA and the manufacturers believed that the current durability program could be improved to provide more accurate and cost-effective predictions of actual in-use emission deterioration. On that basis, EPA published a Notice of Public Workshop (NPW) on December 21, 1990, critiquing the current durability program and outlining a framework for a revised program.[9] Some of the limitations in the

[3] See, for example, 40 CFR 86.092–24(c)(2).

[4] For a more complete description of the certification durability process for both LDVs and LDTs, refer to EPA's 21 December 1990 Notice of Public Workshop on revisions to the durability program, 55 FR 52277.

[5] For ease of presentation in the remainder of the preamble, the term "carryover" will be used to refer to both carryover and carry-across, except where the distinction between the two concepts is important in the given context.

[6] "General Criteria for the Carryover and Carry-Across of Certification Data and the Carryover of Fuel Economy Data for Light-Duty Vehicles and Light-Duty Trucks," Advisory Circular 17F of the Office of Mobile Sources, U.S. EPA, November 28, 1982.

[7] Public Law No. 101–549, 104 Stat. 2399.

[8] 56 FR 25724 (June 5, 1991).

[9] 55 FR 52277 (December 21, 1990).

current program discussed in the notice were the short time period (typically four to six months) in which 50,000 miles must be accumulated on the DDVs, the prototype nature of the DDV, and evidence that the AMA mileage accumulation schedule is less severe than actual in-use operation. Some manufacturers had indicated in discussions with EPA that their desire for greater confidence in the in-use performance of their designs had prompted them to conduct additional programs assessing the emission control durability, beyond the requirements of EPA's durability program.

These topics were discussed and expanded upon in the subsequent public workshop, held on January 30, 1991. The focus was on improvements to the light-duty durability procedures to address both Agency and manufacturer concerns about the current procedures, and on reconciling those improvements with the new Tier 1 emission and useful life requirements. At least one manufacturer projected that at least 24 months' leadtime before the start of production would be required to implement an LDV durability program based on Tier 1 full-life mileage accumulation. Several vehicle manufacturers expressed concerns about the leadtime required to implement revised durability procedures and sought consistency with the durability program employed by the State of California.

Historically, California required manufacturers to accumulate 50,000 miles on the AMA cycle to demonstrate durability for LDVs and LDTs. Between the 1980 and 1993 model years, however, the California Air Resources Board (CARB, or the Board) adopted a series of more stringent tailpipe standards and revised useful life definitions that also prompted changes in their durability procedures. The new California standards and useful life levels applicable in the next several model years are now identical in almost all respects to the Federal standards and useful life mandated by Congress in the 1990 Amendments. However, the California analogues to most of the Federal Tier 1 standards are scheduled to be phased-in one year earlier than Tier 1, beginning with the 1993 model year.

The primary CARB durability program now calls for mileage accumulation with the AMA cycle to the appropriate full useful life. The program has no manufacturer self-approved DF program analogous to the Federal LDT durability program. However, CARB does provide several options which could reduce the burden of their durability program while maintaining or improving the expectation that in-use performance is appropriately assessed. One option allows a manufacturer to seek approval to terminate mileage accumulation and emission testing after conducting the AMA cycle for, at minimum, three-quarters of the full useful life, if it provides sufficient other evidence of full-life durability. Thus, the minimum mileage accumulation (using EPA definitions for the vehicle categories) would be 75,000 miles for LDVs and light LDTs [10] and 90,000 miles for heavy LDTs.[11] If CARB approves the request, the manufacturer may then extrapolate a regression line determined from the test results over the period of AMA mileage accumulation to the full useful life. Another option allows approval of alternative durability procedures in place of the full-life or extrapolated mileage accumulation approaches, if the manufacturer provides evidence showing the alternatives will result in accurate prediction of in-use deterioration.

Several manufacturers have entered negotiations with CARB regarding acceptable alternative durability procedures. One such agreement was finalized between CARB and General Motors (GM) Corporation on May 31, 1990 for certain specific engine families.[12] The GM alternative procedure is based on a demonstration acceptable to CARB that emission deterioration in the GM systems is attributable solely to the oxygen sensor and catalyst; that is, the engine-out emissions of these specific emission control systems do not deteriorate. Under the agreement with CARB, GM will subject the catalytic converter and oxygen sensor to bench aging procedures designed to cause the emission deterioration expected on actual in-use vehicles during their full useful life. Deterioration factors will be determined from back-to-back emission tests conducted on a vehicle with the new and aged components installed. General Motors must also provide information demonstrating that components other than the catalyst and oxygen sensor are durable.

In support of its request for alternative durability procedures, GM provided data to CARB linking their bench procedures to actual in-use emission data. However, CARB required additional assurances to validate the procedures. Thus, a key provision in the final agreement between CARB and GM is GM's commitment to the future testing of in-use vehicles from each engine family as a "reality check" of the alternative durability procedures. The results will be provided to CARB with the understanding that future improvements to the procedures will be developed if inadequacies are discovered. Additionally, GM agreed to reimburse CARB for the cost of any recall testing that resulted in a mandatory recall of GM vehicles certified under the alternative procedures.

The staffs at EPA and CARB coordinated closely during the negotiations on alternative durability procedures under the CARB regulations, prompted by both groups' common interest in improving durability procedures. In preparation for the January 1991 workshop, Agency staff also met with representatives from several vehicle manufacturers to discuss the possibility that EPA might promulgate an alternative durability option similar to that adopted by CARB. In particular, GM sought EPA rulemaking that would permit the procedures approved under its agreement with CARB to be applied for Federal certification as well.

The Agency's December 1990 workshop notice and subsequent public workshop contained considerable discussion on bench testing procedures backed up by a reality check. The EPA indicated a strong interest in developing regulations that might allow such testing. At the same time, EPA expressed a desire to refine the provisions for the reality check that were included in the agreement between CARB and GM. The Agency sought suggestions for specific criteria to judge failure of the reality check and for remedies to be required in the event of such failure. The intent was to clarify up front the risks and responsibilities of a manufacturer when electing the alternative procedure path and to avoid future disputes on the adequacy of a manufacturer's alternative program. Putting uniform criteria in place for assessing the adequacy of the reality checks could also facilitate smooth implementation of alternative durability programs and avoid the resource and leadtime impacts on both EPA and manufacturers from negotiating the design of the reality check on a case-by-case basis.

Following the January 1991 workshop, the Agency started developing draft

[10] A light LDT is defined as any LDT rated up through 6000 lbs. GVWR.

[11] A heavy LDT is defined as any LDT rated greater than 6000 lbs. GVWR.

[12] See correspondence from K.D. Drachand, Chief of the Mobile Source Division, CARB to Samuel A. Leonard, GM Environmental Activities Staff, May 31, 1990, CARB Ref No. C-90-34, EPA Docket A-90-24, item II-D-2.

revisions to the light-duty durability program that would address both the new useful life requirements mandated by the Amendments and the objective of providing alternatives to conventional AMA-based mileage accumulation. Further contacts with vehicle manufacturers explored the reality check issues discussed above. Contract work was undertaken to examine alternatives to the modes of the current AMA cycle. The practical aspects of manufacturer leadtime and coordination with the California program were also considered.

In this process, the Agency concluded that the time needed to resolve key technical issues associated with a new durability program would not allow sufficient leadtime for manufacturers to prepare for the 1994 and 1995 model years. The EPA is at this time proposing an interim durability program, applicable only to the 1994 and 1995 model years.

Section II of this preamble outlines the proposal. Section III lists EPA's objectives in the rulemaking, explains the options considered, and provides detail on important elements of the option proposed. The final sections of the preamble discuss the environmental and economic aspects of the proposal and address certain administrative requirements.

### *B. Allowable Maintenance Regulations*

Current EPA regulations specify that before a manufacturer performs maintenance on vehicles or components used in determining DFs, it must demonstrate that the maintenance is "technologically necessary to assure in-use compliance with emission standards." [13] The Agency has promulgated a list of emission-related components and systems together with the shortest "allowable maintenance intervals" considered technologically necessary. The intervals are also the shortest intervals at which a manufacturer can require owners to perform emission-related maintenance as a condition of continued Federal emission warranty coverage.

The Agency may establish more restrictive (i.e., longer) allowable maintenance mileage intervals, if it determines that more frequent maintenance is not technologically necessary. The Agency may also add to the list of emission-related components and systems for which minimum intervals are prescribed. [14] Historically, EPA has set new allowable maintenance intervals on the basis of the longest interval that any manufacturer recommends for a given component. [15]

Consistent with the Tier 0 definitions of useful life, the current LDV regulations only specify allowable maintenance intervals through 50,000 miles. For this action, the Agency has reexamined LDV allowable maintenance intervals based on the adoption of 100,000-mile useful life for Tier 1 LDVs. Full-life allowable maintenance intervals already exist for Tier 0 LDTs, because full useful life definitions applied to these vehicles before adoption of the 1990 Amendments. As part of today's Notice, however, EPA considered limited adjustments to the LDT allowable maintenance intervals and additions to the list of maintained components. In this process, the Agency reviewed the allowable maintenance requirements in the California emission control program, which has implemented some full useful life requirements in advance of the Federal government.

## II. Proposed Regulations

### *A. Proposed Revisions to Durability Procedures*

The Agency proposes to adopt modified versions of the current durability procedures for use in certifying MY1994 and MY1995 LDVs and LDTs. Much of the structure of the current program remains intact. For example, final certification values will continue to be determined by applying multiplicative DFs to low-mileage emission test results on EDVs.

The AMA cycle is carried forward in its historical form as the standard EPA-defined procedure for LDV mileage accumulation, although manufacturers retain the option to petition EPA for use of alternative mileage accumulation procedures. For Tier 0 LDVs, the duration of AMA mileage accumulation remains at 50,000 miles. The standard LDV durability program still employs preproduction DDVs, [16] and retains the existing option for manufacturers to apply for an "alternative durability program" based in large part on data from production DDVs. [17]

For LDTs, manufacturers continue to develop and submit DFs based on their own service accumulation and vehicle/component selection methodologies, consistent with good engineering practice. [18] Thus, EPA does not dictate a standard service accumulation methodology or preproduction durability test vehicle requirement for LDTs. The existing "alternative durability program" option based on production DDVs has been deleted for LDTs. Promulgation of the self-approval program for LDTs in 1985 made this earlier alternative essentially moot, and no LDT manufacturer currently employs the option.

Several new durability program elements are proposed for MY1994 and MY1995. First, the duration of AMA mileage accumulation for Tier 1 LDVs certified under the standard EPA-defined LDV program is set at 100,000 miles.

Manufacturers may request approval to terminate DDV mileage accumulation and emission testing on Tier 1 LDVs at any point beyond 75,000 miles and to calculate 100,000-mile DFs based on extrapolations from those test data. The manufacturer's request for approval must include information demonstrating the durability of the vehicle's emission control components and systems at or beyond the full useful life. The Agency will approve such requests based primarily on evaluations of the linear correlation of the test data, the impact of outlier data, the maintenance history of the DDV, and the supplemental data provided by the manufacturer to substantiate satisfactory 100,000-mile component durability. However, other information may also be considered.

Second, the Agency proposes to add a new alternative durability program option for LDVs and LDTs, based on alternative service accumulation methodologies. This alternative service accumulation option involves submission by the manufacturer, for the Administrator's approval, of an alternative durability program, including (i) the alternative service accumulation procedure, (ii) the selection method for vehicles and components, (iii) the procedures for determining the deterioration factor, (iv) an in-use verification program (the "reality check"), as well as (v) data on the durability of all emission-related components. If the manufacturer's proposed alternative durability program is satisfactory to the Administrator, all necessary aspects of the alternative

[13] See 40 CFR 86.090-25(b)(2).

[14] Ibid.

[15] See 45 FR 63738 (September 25, 1980). "With proper emphasis placed on durable, low-maintenance designs * * * manufacturers will opt for the best available technology (from a maintenance perspective) for their emission related components. Thus, the minimum level of maintenance currently required for an item should be a lower limit for * * * the interval."

[16] See proposed § 86.094-13(c), "Standard AMA Durability Program."

[17] See proposed § 86.094-13(d), "Production AMA Durability Program."

[18] See proposed § 86.094-13(f), "Standard Self-Approval Durability Program."

durability program will be included in a written agreement between the manufacturer and EPA. The Agency recognizes that manufacturers may develop ongoing improvements to their in-use verification testing programs. Therefore, the Agency is proposing that the manufacturer and EPA may agree to amend the in-use verification portion of the initial agreement, if the manufacturer demonstrates and the Agency determines that the amended agreement will improve the in-use verification portion of the agreement.

Any certificate of conformity issued by EPA, based on such an alternative durability program, will be conditioned on full compliance by the manufacturer with the terms of the written agreement. If the manufacturer fails to fully execute its terms, including the in-use verification program, then the manufacturer will be viewed as failing to comply with the conditions upon which the certificate has been issued. As a result, the vehicles or trucks originally covered by the certificate will instead not be covered by the certificate, and the manufacturer may be subject to the imposition of civil penalties. As explained in Part IV. C regarding the in-use verification program, the Agency expects to exercise its enforcement discretion in determining whether civil penalties are appropriate.

Under this option, manufacturers may submit service accumulation procedures for individual components or systems rather than for whole DDVs. The basis for such procedures may be bench cycling or aging techniques that simulate in-use aging and operating environments. Various conditions, including the following, must be met for the Agency to issue a certificate under this program:

1. The manufacturer demonstrates to the satisfaction of the Administrator that such procedures will result in deterioration factors that are representative of actual in-use deterioration.

2. The manufacturer provides data that shows to the satisfaction of the Administrator that all emission-related components are designed to properly operate for the useful life of the vehicles in actual use (or such minimum intervals, as specified in allowable scheduled maintenance regulations).

3. The manufacturer agrees to an in-use verification program, acceptable to the Administrator, that includes an agreement to recruit and test in-use vehicles in subsequent years to validate that the alternative procedures accurately predict the deterioration of the vehicle's emissions in actual use of the applicable useful life. The design of such an in-use reality check, including the design of the vehicle sample, the criteria to be used in evaluating the results of the vehicle testing, and the remedies for failure to satisfy those criteria will be specified in an agreement entered into by EPA and the manufacturer prior to certification. Execution of the terms in the agreement, including completion of the reality check, will be a condition of certification.

A final change included in the proposed interim procedures for MY1994 and MY1995 is a provision for a manufacturer to request alternative mileage intervals between test points for durability data vehicles. This is expected to facilitate common testing with CARB.

For the convenience of readers, EPA is centralizing many of the durability requirements into a single section, proposed 40 CFR 86.094–13, "Light Duty Exhaust Durability Programs."

### *B. Proposed Revisions to Allowable Maintenance Intervals*

The Agency is also proposing revisions to the allowable maintenance regulations, applicable to MY1994 and later LDVs and LDTs. For all LDTs, three modifications are proposed: the maintenance interval for exhaust gas recirculation (EGR) systems and idle mixture adjustments increases from 50,000 miles to 100,000 miles, and a new supercharger interval is established at 100,000 miles. The maintenance intervals for all LDVs are proposed to match the complete list of LDT intervals, as revised. A table showing all changes to the current list of allowable maintenance intervals is contained in section III.

## III. Objectives and Discussion of Alternatives Considered

### *A. Objectives*

The Agency's key objective in promulgating interim durability procedures is to provide the regulations necessary for vehicle manufacturers to certify their MY1994 and MY1995 light-duty fleets in a timely and cost-effective fashion, while meeting or exceeding the ability of the current durability program to assure in-use emission compliance. The program allows manufacturers to adopt alternative procedures that improve upon the current durability provisions, prior to EPA promulgation of the long-term durability program applicable to MY1996 and beyond. Finally, EPA seeks to smooth the transition from the interim procedures to the long-term durability program where possible. In pursuing these objectives, EPA is constrained by the minimal leadtime before manufacturers must begin their MY1994 durability programs.

### *B. Rationale for Promulgating Interim Procedures*

As stated in the background section, the Agency must promulgate revised durability procedures because the mileage requirements in the current regulations were made obsolete for some MY1994 and 1995 vehicles by the new Tier 1 useful life provisions in the 1990 Amendments. Promulgation of the revisions must occur promptly because the Tier 1 requirements commence with MY1994 and manufacturers require significant leadtime prior to production to execute the durability program. The Agency has elected to promulgate interim durability procedures because the leadtime available for promulgating the necessary procedures applicable to MY1994 Tier 1 vehicles is not sufficient to allow consideration of ongoing efforts by the Agency and the vehicle manufacturers to develop improvements to those procedures. The likelihood that such improvements can be finalized for MY1996 leads EPA to limit the applicability of the interim procedures to MY1994 and MY1995.

Comment from manufacturers on the leadtime issue weighed heavily in this decision by EPA. For current 50,000-mile DDVs, many manufacturers start accumulating miles on the earliest portions of their test fleets approximately 18 months before the beginning of production. This time includes three to eight months of actual mileage accumulation and DDV emission testing. The balance of the time is spent finalizing vehicle calibrations and then accumulating mileage and performing emission tests on EDVs. Some DDVs may start earlier and some later, depending on the size of the manufacturer's test fleet and its capacity to run concurrent test vehicles.

For Tier 1 engine families, the leadtime requirements would be more demanding if the only option were to run 100,000 miles of AMA mileage accumulation on all DDVs, in addition to spending the time that might be needed to finalize calibrations under the more stringent standards. Manufacturers stated in the January 1990 public workshop that between 18 and 24 months of leadtime would be needed to conduct a Tier 1 certification with a durability program based on full-life mileage accumulation. Based on a nominal start of MY1994 production in July or August of 1993, some manufacturers have already begun

AMA mileage accumulation on DDVs targeted at MY1994 certifications. Clearly, no time is available for EPA to develop, and then manufacturers to consider, proposals which would mandate significant changes to the procedures for the 1994 model year.

Hence, a regulation is needed which will provide the necessary coverage of the new useful life requirements, minimize the necessary leadtime, and smooth the transition from the established durability program. Today's proposal meets this objective by allowing the maximum use of current Federal procedures, by facilitating the use of data which will already be available from the CARB MY1993 program, and by providing manufacturers with the option to begin alternative, improved durability programs.

Nevertheless, the Agency has objectives for improvements in its programs that extend beyond the pending model years. As mentioned in the background section, EPA seeks to expand the availability of alternative durability programs, but to do so in a manner that optimizes both Agency and manufacturer resources, while improving the program's predictions of actual in-use deterioration. The Agency is also investigating modifications to the AMA mileage accumulation cycle. A more effective long-term durability program will likely incorporate elements such as these.

If EPA were in a position to propose the details of its desired long-term program today, there might be sufficient leadtime to implement the changes for the 1995 model year. However, additional time is needed to develop such details, allow sufficient public comment, and analyze and respond to the comments. By the time such a process could be completed, EPA forecasts that insufficient leadtime would remain for MY1995 implementation. Additionally, it is burdensome for manufacturers to adopt rapid successive changes to the certification program. Hence, EPA is proposing that the interim program extend through the 1994 and 1995 model years.

The Agency has designed the interim program for consistency with the new CARB durability program, required for certification of MY1993 and later California "Tier 1" vehicles. This, in effect, gives the manufacturers a three-year period where the substance of the interim program will apply.

*C. Tier 1 Light-Duty Vehicles*

The Agency considered a number of options for the interim Tier 1 LDV durability program:

(1) Require AMA mileage accumulation to the new Tier 1 LDV useful life of 100,000 miles;

(2) Unconditionally accept extrapolation of 50,000-mile AMA data to the 100,000-mile useful life;

(3) Adopt the current LDT durability program for LDVs;

(4) Permit either 100,000-mile AMA mileage accumulation or conditional extrapolation of data from lesser AMA mileage; and,

(5) Permit the mileage accumulation procedures of the fourth option, but also allow alternatives to full-vehicle service accumulation, in conjunction with an in-use reality check.

Based on comments from the January 1991 workshop, EPA believes that some manufacturers would prefer the simplicity and certainty associated with the first Tier 1 LDV option. Nevertheless, doubling the current LDV mileage accumulation requirement could have a proportional impact on the cost and time required to conduct the program. The Agency believes that mandating full-life AMA mileage accumulations would not generate the most timely and cost-effective program, and such an action would be inconsistent with the objective of permitting manufacturers to improve upon the current program in anticipation of the MY1996 and later program.

On the other hand, simply extrapolating the data currently obtained from the 50,000-mile AMA program to 100,000 miles, as in the second option, is unlikely to maintain or exceed the level of in-use predictability of the current program. Indeed, one motivation for adopting 100,000-mile standards is the expectation that the durability performance of a vehicle on its second 50,000 miles may be worse than the performance on the first.

The third option is potentially less likely to meet the same objective of in-use predictability. As noted in the December 1990 workshop notice, the flexibility afforded manufacturers in the current LDT durability program has, in its early years, apparently generated DFs that are less predictive of in-use deterioration than the current LDV program DFs. Permitting the same LDT approach to be applied, unmodified, to MY1994 and MY1995 LDVs could compromise the quality of the LDV program, rather than maintain or increase that quality.

If appropriate conditions could be determined for extrapolating mileage accumulation data, the fourth option could potentially answer the concerns outlined above for the first two options. The Agency believes that such conditions exist, based on the approach taken by CARB to the same issue. As outlined in the background section, CARB permits extrapolation if mileage accumulation equivalent to three-quarters of the applicable useful life has been completed, if the test data over that interval meet certain linearity criteria, and if additional information on component durability is provided by the manufacturer. A more detailed discussion of this topic may be found in the issues section following.

Even if the Agency were to permit some form of conditional extrapolation of mileage accumulation data, EPA wishes to encourage the development of alternative durability programs based on manufacturer-designed service accumulation methods that are verified through data from in-use testing. The Agency sees the potential for increased accuracy in the durability projections themselves as well as the potential for manufacturer cost savings. The former potential arises in part because the Agency would seek substantial evidence of the likely success of the procedures before granting approval.

Based on the preceding rationale, the Agency has determined that the fifth option is the most reasonable approach to the interim durability procedures for the Tier 1 LDVs. Thus, as cited in Section II, the standard EPA-defined Tier 1 LDV durability program calls for 100,000 miles of AMA mileage accumulation, but manufacturers may seek approval to curtail that accumulation at or beyond 75,000 miles.[19] The current alternative durability program based on production DDVs would continue in place.[20] In addition, manufacturers may seek approval of alternative durability procedures based on service accumulation methodologies of their own design, but subject to approval by the Administrator of program elements that must include demonstration of the likely in-use representativeness of the DFs, demonstration of full-life component durability, and manufacturer commitments to perform an in-use reality check.[21]

*D. Tier 1 Light-Duty Trucks*

Because phase-in of the Tier 1 standards for the heavy LDTs does not

[19] See proposed § 86.094-13(c).

[20] See proposed § 86.094-13(d).

[21] See proposed § 86.094-13(e), "Alternative Service Accumulation Durability Program."

begin until MY1996, the only Tier 1 LDTs affected by the proposed interim durability procedures are the light LDTs. As noted earlier, the Tier 1 rule changed useful life definitions for these vehicles to be consistent with the Tier 1 LDVs—lowering the full-life interval from 120,000 to 100,000 miles and adding a 50,000-mile intermediate useful life.

For these trucks, EPA considered the following options:

(1) Retain the current LDT durability program (based on manufacturer self-approved procedures and DFs) intact, except for the required modifications to the useful life definitions;

(2) Match the Tier 1 LDT durability program to the chosen Tier 1 LDV option;

(3) Adopt a hybrid of the current LDT and new Tier 1 LDV programs.

The Agency believes that at least some manufacturers would prefer the first option, and are planning against that possibility for certification of their MY1994 fleets. However, one concern with this option is the risk that manufacturers, faced with the tighter Tier 1 standards, may once again be unable to achieve a level of in-use predictability comparable to an AMA-based durability program. This would be inconsistent with the Agency's objective of maintaining or improving upon the effectiveness of the current durability program when implementing the interim procedures. If this option were to be adopted, EPA would plan to heighten its scrutiny of the technical adequacy of manufacturer's LDT durability programs, based on the requirement that those programs be based on good engineering judgment. Thus, for example, EPA could compare data from CARB LDTs, where 75,000-mile AMA durability demonstrations are the minimum, against manufacturer self-approved submittals for Federal certification. Good engineering practice would not have been followed if systematically lower DFs than analogous DFs based on the CARB data were submitted for EPA certification.

If EPA were to adopt the second option, many LDT manufacturers may be unable to meet the three minimum requirements proposed for the LDV alternative service accumulation option in the interim model years. These manufacturers would be forced to implement the AMA-based durability program, which could actually represent a loss of program effectiveness for manufacturers with reasonable LDT durability program designs. The Agency does not wish to force this situation.

Nevertheless, EPA sees some advantages in permitting manufacturers to adopt the explicit requirements of the Tier 1 LDV alternative durability program for their LDTS. Under the current regulations, LDT manufacturers can employ alternative service accumulation approaches, but EPA approval of the approaches and execution of an in-use reality check would not be required. If manufacturers would be prepared to pursue these requirements for their Tier 1 LDTs and if the programs demonstrate superior in-use projections of deterioration, these approaches would meet EPA's objective of allowing manufacturer flexibility where improvements to current procedures should result.

In addition, the Agency currently expects the LDT durability program to change beginning with MY1996. To the extent that the alternative durability option also serves as the model for similar provisions in the long-term (MY1996 and later) EPA durability program, the data and experience gained by LDT manufacturers in the interim model years could significantly improve their chances for approval of MY1996 alternative programs or carryover of MY1994 or MY1995 LDT data.

On this basis, the proposed interim procedures include the option for Tier 1 light LDT manufacturers to either continue with the current LDT program (with an increased level of EPA scrutiny) [22] or to adopt alternative durability programs with an in-use reality check, consistent with the LDV model discussed previously.[23]

*E. Tier 0 Light-Duty Vehicles and Trucks*

The useful life levels and durability requirements for Tier 0 vehicles and trucks were unaffected by the Amendments and by promulgation of the Tier 1 rule. With these vehicles disappearing rapidly as the Tier 1 standards phase in, and with the likelihood that many Tier 0 vehicles will be certified based on carryover of earlier emission data, EPA has concluded that mandating changes to the Tier 0 durability procedures would not be consistent with the Agency's cost-effectiveness objective. The Agency sees the same advantages as cited above for light LDTs in permitting manufacturers to certify Tier 0 vehicles using alternative durability procedures and a reality check. The Agency believes manufacturers would gain experience in implementing a program approach that the EPA expects to play an important role for MY1996 and beyond. The option for such alternative procedures is therefore included in the proposed regulations applicable to the Tier 0 vehicles.[24]

## IV. Discussion of Issues

*A. Extrapolation of Mileage Accumulation Data to Full Useful Life*

Current EPA regulations provide for the Administrator to approve mileage accumulation at levels less than the vehicle useful life if the resulting procedure otherwise meets the objective of the durability program.[25] In preparing the current proposal, the Agency has considered whether this option should be maintained or qualified in light of the new 100,000-mile Tier 1 standards applicable to LDVs.

Historically, the imposition of each new set of emission standards has led to a transition period during which vehicle manufacturers perfect the systems intended to guarantee compliance with the new requirements. Certification data submitted by the manufacturers during these transition periods normally lack counterparts in earlier certifications. Thus, the Agency has traditionally scrutinized such data with particular care. Similar conditions should prevail as vehicle manufacturers seek to demonstrate durability of their Tier 1 LDVs measured against the 100,000-mile Tier 1 standards, when only 50,000-mile durability demonstrations were required of their Tier 0 predecessors.

Left unchanged, current regulations would permit a manufacturer to petition the Administrator to extrapolate 50,000-mile durability data to the new 100,000-mile LDV useful life. The Agency believes such an approach would not meet the objectives of the LDV durability program, because it is precisely the region above 50,000 miles that has not previously been subject to control. The lack of new data would inhibit EPA's ability to execute its oversight function, and the risk of improperly certifying a nonconforming family could be substantial.

On the other hand, EPA accepts that high mileage deterioration may in some cases continue to follow a trend established by lower-mileage data. Confidence in this conclusion increases as more and more supporting test data are accumulated beyond 50,000 miles. The Agency is willing to consider that in some cases, with sufficient mileage accumulation data above 50,000 miles and with additional supporting data, such as evidence of the performance of individual emission components over

[22] See proposed § 86.094-13(f).

[23] See proposed § 86.094-13(e).

[24] See proposed § 86.094-13(e).

[25] 40 CFR 86.092-26(a)(4)(i)(A).

the full vehicle useful life, a case can be made that curtailing whole-vehicle mileage accumulation prior to full 100,000-mile useful life will not compromise the quality of the DFs obtained. Thus the current discretion of the Administrator to approve mileage accumulation below full useful life may still be appropriate in some circumstances.

A similar conclusion was reached by CARB when it adopted the extrapolation approach, outlined previously in the background section, based on accumulating a minimum of three-quarters of the applicable useful life. The Agency notes that some manufacturers have already completed MY1993 California DDVs using extrapolated data approved by CARB. The Agency also notes that consistency with CARB is one important factor in meeting the objective of allowing compliance by manufacturers in a timely and cost-effective manner.

On the above basis, EPA is proposing an extrapolation approach and regulatory language that parallel those adopted by the California program. As in California, EPA proposes that approval of extrapolation requests would not occur in advance of completing a minimum mileage accumulation of 75,000 miles, nor would approval be automatic.[26] The burden of proof would rest with the manufacturer to provide justifications for the extrapolation based on, for example, the general linearity and scatter of the actual data and reasonable explanations for all outlier data. To compensate for the mileage accumulation not performed, the manufacturer would also be required to provide supplemental data proving component durability at least equivalent to 100,000-mile durability. An example of information a manufacturer could supply would be complying data from 100,000-mile DDVs with substantially similar components. Data on the in-use reliability of substantially similar designs could also be submitted. The Agency believes that data from a larger database of vehicles with substantially similar components would significantly compensate for the reduction in component reliability data that would result from a 25,000-mile reduction in DDV mileage accumulation. The Administrator might also evaluate scheduled and unscheduled maintenance in making the determination to approve.

*B. Approval Conditions for Programs Based on Alternative Service Accumulation Methods*

Section II listed three of the basic conditions that EPA proposes must be met by any manufacturer seeking EPA approval to employ alternative service accumulation methods in their LDV durability programs. The first of these was a demonstration that the alternative procedures would generate DFs that are representative of actual in-use deterioration. Manufacturers face a higher standard here than with petitions for alternative whole-vehicle mileage accumulation cycles, which must meet or exceed the performance of the current EPA standard based on AMA mileage accumulation. Assuring in-use compliance is the purpose of assessing deterioration during certification; manufacturers take on the burden of demonstrating that this objective will be met as the logical consequence of their new-found flexibility to implement service accumulation procedures of their own design.

The second manufacturer requirement is to demonstrate full-life durability for all emission-related components on the vehicle being certified. Progressive, whole-vehicle emission deterioration may be simulated through bench aging of critical components; nevertheless, the ability of all other emission-related components to perform without failure for the vehicle useful life (or allowed maintenance interval) remains a critical certification requirement. The proposed regulations do not specify how manufacturers are to demonstrate component durability, allowing a number of options for manufacturers. For example, manufacturers might use data from substantially similar components on DDVs that have undergone actual mileage accumulation, data on the performance of components in the field, or manufacturer fleet data. The Agency will coordinate with CARB to ensure that relevant data from the respective organizations are brought to bear in evaluating manufacturer claims of component durability.

The third requirement associated with alternative service accumulation methods is performance of an in-use verification program, or reality check. The intent of this requirement is not to challenge the validity of certification emission values for families already certified; rather, it is to evaluate the alternative durability procedures themselves, providing an important feedback mechanism to bring about future improvements in the procedures.

Manufacturers could model their reality check program on the EPA Emission Factors program, recruiting vehicles from private owners for testing on the Federal Test Procedure, providing data that could be compared to the DFs for the test engine families that were determined at the time of certification.

The vehicles recruited for the in-use reality check must represent the range of vehicle configurations in each engine family employing the alternative service accumulation approach for determination of the DFs. The Agency notes that this approach differs from that of the California program, which requires only that the in-use vehicles recruited for the check represent the configuration actually used to determine the DF for each engine family. The broader requirement proposed by EPA reflects the Agency's desire to assure the representativeness of DFs determined with alternative service accumulation techniques. This is particularly the case for manufacturers who seek to use additive deterioration factors, an issue that will be discussed subsequently in this section. In all other significant respects, the Federal provisions proposed today are consistent with those considered and approved by the State of California.

The Agency considered, but has not proposed, uniform requirements for design of the reality check, the reality check evaluation criteria, and the remedial measures, that would be applicable to all manufacturers. The task of reconciling such program elements with the concerns of all manufacturers is too complex to resolve in the time remaining for completion of this rule for MY1994 certifications. On the other hand, EPA does not wish to preclude a manufacturer from approaching the Administrator with a proposal that contains all the necessary elements, which can be justified for its own vehicles, and which is clearly a directional improvement over other durability alternatives for predicting in-use deterioration accurately. Thus, for the interim program, the criteria to be applied in the reality check and the remedial measures for any deficiencies unearthed would be the subject of negotiation and agreement between EPA and the manufacturer at the time the alternative program was proposed. However, EPA expects to propose

[26] The California program permits the conditional extrapolation of data if mileage accumulation of at least three-quarters of the applicable useful life has occurred. For LDVs and light LDTs, which have 100,000-mile useful lives, a comparable Federal program would require the minimum mileage accumulation of 75,000 miles. For heavy LDTs, with a 120,000-mile useful life, the comparable Federal program would require a minimum 90,000 miles. This action proposes to leave in place the current program of manufacturer-developed LDT DFs and does not propose a standard mileage-accumulation based program for LDTs. Therefore, the minimum AMA mileage for extrapolation to full useful life is not at issue Federally for LDTs, as it is in California.

applying uniform reality check requirements to all manufacturers for the MY1996 and later rule.

*C. Enforcement Aspects of Programs Based on Alternative Service Accumulation Methods*

Given the critical feedback the in-use reality check might provide to a program based on alternative service accumulation methods in its infancy, EPA is compelled to ensure the fulfillment of the obligation to perform in-use testing. In cases where such a program is employed, certification is proposed to be conditioned upon the performance of an in-use reality check, according to a plan agreed upon by EPA and the manufacturer at the time of certification. Performance of the in-use reality check as agreed, regardless of its outcome, would satisfy this condition.

Under this proposal, a manufacturer's failure to fully execute the in-use verification program will be considered a failure to satisfy the conditions under which a certificate is issued. A vehicle will be considered to be covered by the certificate only if the manufacturer fulfills the conditions upon which the certificate was issued. Thus, failure to satisfy the conditions of the certificate may subject a manufacturer to the imposition of civil penalties. However, the Agency expects to exercise its enforcement discretion in determining whether civil penalties are appropriate. The EPA recognizes that circumstances may arise in which it becomes reasonable to terminate the in-use reality check before all agreed-upon testing would have been completed (e.g., if initial testing were to clearly demonstrate that the deterioration factor applied is unacceptable). The EPA also recognizes that a manufacturer, notwithstanding its best efforts, may fail to perform the required in-use reality check due to circumstances beyond its control. Thus, the Agency expects to consider all relevant factors when determining whether to view a vehicle as not being covered by a certificate based on failure of a manufacturer to fully execute the reality check condition of the certificate.

In addition to enabling future procedural improvements, the in-use reality check information will provide EPA with data regarding any emission problems which might warrant a remedy through recall. While EPA will not expect an advance agreement on the manufacturer's part to automatically recall vehicles based upon this information, such information could certainly assist EPA in better targeting its recall investigations and, hence, more expeditiously executing recall of vehicles found to be exceeding the standards in-use. This feature provides a strong incentive for manufacturers to put forth their best efforts and engineering judgment toward designing and implementing technically sound and credible alternative programs.

*D. Mileage Intervals Between Test Points*

Some differences exist between the current Federal and California procedures in terms of mileage intervals between emission tests for durability vehicles. The Agency requires, as a minimum, that manufacturers conduct two complete exhaust emission tests on a DDV: at a mileage not greater than 6250 miles and at the useful life mileage. If a manufacturer chooses to conduct additional emission testing at intermediate mileages, the resulting intervals between test points must all be equal. Test points prompted by scheduled maintenance are ignored in this determination, and the length of both the first and last test intervals may differ somewhat from the standard test interval.

California requires a 5000-mile initial test point and a final test at the useful life point and handles intermediate testing somewhat differently than EPA. Manufacturers must choose between an intermediate testing interval of 5000 miles and intermediate schedules of their own design but which are approved in advance by CARB. Normally, scheduled maintenance must coincide with one of the standard test points. If the latter option is chosen, the manufacturer must estimate the relative contribution of the test mileage intervals and the number of test points on the confidence level of the DF line slope. Approval of the manufacturer's schedule by CARB depends on satisfying criteria placed on this calculation.[27] The minimum number of intermediate test points under this option is one (the 50,000-mile point). If the criteria are met, the DF generated by the manufacturer's schedule can be expected to be at least as reliable as the DDV emission test schedule based on equal 5000-mile test intervals.

Based on the validity of the statistical relationships CARB employs, the Agency believes that the CARB test interval procedure option also provides reliability comparable or superior to the EPA equal-interval requirement. Therefore, EPA proposes that manufacturers may request advance approval by the Administrator of alternative test interval schedules.[28] This option should reduce the manufacturer's burden by allowing some DDV testing to be used for satisfying both Federal and CARB requirements.

As an alternative to this element of the proposal, the Agency has considered modifying existing EPA regulations to delete any mileage requirements on DDV testing at mileages intermediate to the two endpoints. This approach might be justified on the basis that EPA currently permits DDV testing at only the two mileage extremes, and if the presumption of linear deterioration is accurate, additional data from any intermediate mileages can only serve to improve statistical confidence beyond that obtained with the two-point linear regression. The Agency has not proposed this change, in the belief that existing policy imposed no additional cost burden on the manufacturers, and that once the decision has been made to test at a given number of intermediate test points, the confidence in the deterioration line is increased even more by spreading those points regularly across the full mileage range. However, EPA solicits comment on both the proposed option and the option to delete the intermediate mileage requirements. Of particular interest are the impact on manufacturer cost, the relevance of policy on removing outlier data, and any potential implications for the accuracy of the resulting DFs.

*E. Use of California Data*

With adoption of these proposed regulations, EPA expects that California certification data will frequently be carried over to satisfy Federal program requirements, consistent with the carryover provisions of current regulations described in the background section preceding. The proposed Federal options for full-life mileage accumulation, extrapolation of data after vehicles have accumulated 75,000 miles, and alternative service accumulation approaches are sufficiently similar to options in CARB's program that a manufacturer could conduct one durability evaluation to satisfy both California and Federal requirements for a given engine family.

Because EPA and California have very similar standards and regulations applicable to the MY1994 and MY1995 light-duty fleets, the carryover of data implies that many of the same DFs will be used in both programs. However, one aspect of CARB regulations differs from

[27] *California Exhaust Emission Standards and Test Procedures for 1988 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles.* State of California Air Resources Board, as amended January 22, 1990, p. III-1.

[28] See proposed § 86.094-26(a)(4)(i)(D).

the Agency's proposed regulations and could preclude carryover in specific circumstances. California allows "linecrossing": that is, cases where the line determined by the DDV test data may cross over the applicable emission standard prior to full useful life. The Agency has consistently prohibited linecrossing in certification, maintaining that all DDV data should substantiate the ability of the design to meet emission standards throughout the applicable useful life.

California has allowed linecrossing primarily to ease the burden on manufacturers of differences between the Federal and California emission standards. If a manufacturer intended to sell a design in California with a calibration differing only slightly from a design to be sold in other states, the situation could exist where a DDV that met numerically higher Federal standards could linecross the more stringent California standards. To prohibit linecrossing in this circumstance would mean a separate DDV would have to be run for California certification.

Although the 1990 Amendments have brought close compatibility between certain California and Federal motor vehicle emission requirements, CARB regulations still permit linecrossing in some circumstances (e.g., for data carried over from previous model year certifications) in MY1994 and MY1995. The Agency continues to believe that use of linecrossing durability data is inappropriate, and EPA proposes no change to its regulations in this regard. Further, with the matching of California and Federal standards, EPA does not believe any significant economic burden will result. However, comments are requested on the technical and economic appropriateness of this policy, particularly as it pertains to data carried over from previous model year certification programs.

Finally, comments are requested on the appropriateness of EPA's objective to facilitate maximum use of California durability data where technically appropriate and any recommendations to amend these proposed regulations to better meet that intent.

*F. Carryover to 1996 and Later Model Years*

The Agency intends to propose revised light-duty regulations for durability procedures applicable to MY1996 and beyond. The revised procedures should result in DFs that are more predictive of actual in-use performance than those generated under the current program and should optimize the use of Agency and manufacturer resources. Until those rules are finalized, the Agency can provide only limited guidance on the potential for carryover of data from the interim program (MY1994 and 1995) to the long-term one (MY1996 and beyond).

For MY1996 and later, the Agency expects to propose to either delete or replace the current AMA cycle used for whole-vehicle mileage accumulation. If this occurs, manufacturers which continue to use the current AMA mileage accumulation procedure should not expect to carry over data from the interim program to MY1996. In addition, the current alternative durability option based on production DDVs has historically been chosen by manufacturers on a very limited basis; EPA may propose deletion of this option from the long-term durability procedures.

On the other hand, EPA does anticipate proposing for MY1996 and beyond a version of the alternative durability option based on manufacturer-defined alternative service accumulation methods that is similar to the one proposed today. This alternative durability program should not differ in its underlying principles and structure from the one proposed today. As discussed previously, however, EPA expects to promulgate uniform requirements for MY1996 and beyond that each manufacturer will employ in the conduct of an in-use reality check. These will include criteria to be used when collecting and analyzing the in-use data and the remedial measures to be applied if the analysis fails to provide to the Administrator's satisfaction support for the manufacturer's claims for the in-use predictive power of its alternative program. During the model years of the interim program, manufacturers that implement a well-conceived alternative durability program based on alternative service accumulation methods will be in the best position to adapt and continue such programs into MY1996 and beyond.

Significant changes to the durability programs of some manufacturers will assuredly result from promulgation of the MY1996 and later rules. Today's interim durability procedures, including provisions for alternative durability programs and the ability to carry over California data, are intended in part to ease the transition from the current program to the long-term one. The Agency will work as expeditiously as possible to propose and finalize its long-term durability proposal and to assist manufacturers in integrating their plans for the interim and long-term programs.

*G. Administrator Approval of AMA Modifications*

The Agency has received a handful of manufacturer requests to approve alternatives to the AMA for whole-vehicle mileage accumulation that are not substantially similar to the AMA. Similar requests have recently been received and approved by CARB. Because of CARB's action and because of the potential cost impacts of certifying LDVs to the new Tier 1 useful life levels, EPA expects to see more such requests applicable to pending model years.

The Agency considered amending the current regulations to provide criteria for approval of alternative mileage accumulation driving schedules, but has proposed not to do so at this time. Current Agency advisory circulars cover cases where only minor modifications to the AMA are sought.[29] For more substantial revisions, the Agency is not prepared to specify schedule modifications that would always be considered significantly more likely than AMA to generate representative DFs (and therefore potentially acceptable) for every manufacturer's designs. To the extent that the Agency concludes from its technical analysis that generally applicable modifications to the AMA cycle are warranted, they will be considered as part of a revised AMA procedure in the MY1996 and later revised durability rulemaking.

For the interim rule, Agency policy on approval of alternative AMA schedules is unchanged. Approval by the Administrator will hinge on a demonstration by the manufacturer that the proposed schedule is substantially more effective in predicting in-use emission deterioration. Significantly amended replacements for the standard AMA that are justified solely on the basis of cost savings or on equivalence to the current AMA will not be approved. To the extent that such cycles merely accelerate the procedure rather than simulating more demanding operating conditions, they could actually suffer a shortfall in effectiveness relative to the current program. To some extent, EPA's concern in this regard increases as the cycle deviates more from the standard cycle. To safeguard the effectiveness of the program, the Agency will consequently scrutinize

[29] "Alternative Mileage Accumulation Procedure," Advisory Circular 37A of the Office of Mobile Sources, U.S. EPA, July 22, 1975; "Criteria for Determining the Acceptability of Mileage Accumulation on an Outdoor Chassis Dynamometer," Advisory Circular 35B, April 30, 1982.

justifications for alternative mileage accumulation cycles for evidence of still better correlation to in-use deterioration as the severity of the revision increases.

*H. Consideration of Additive Deterioration Factors*

In the past, some manufacturers have suggested that DFs should be calculated on an additive, rather than a multiplicative, basis. In this approach, a linear regression would still be performed on the DDV emission data, but the DF would be the difference between the emissions at the useful-life endpoint and the emissions at the 4000-mile point, rather than the ratio. The DF would be added to, rather than multiplied by, the EDV test result. The Agency reviewed this issue in the development of the current heavy-duty engine standards and test procedures and concluded that a multiplicative DF more accurately reflects the deterioration characteristics of actual systems using aftertreatment (e.g., catalyst) technology.[30]

Some commenters again raised the issue of additive DFs during and following EPA's January 1990 public workshop on revisions to the durability program. The new data provided at that time were limited to selected engine families of only a few manufacturers. The Agency finds the information insufficient to overturn the use of multiplicative DFs as the standard DF calculation methodology.

However, the Agency has proposed permitting use of additive DFs in the interim durability program in one limited circumstance—where a manufacturer has chosen the alternative durability option based on manufacturer-designed service accumulation methods, and where the additive DFs are an integral part of that program's design. Manufacturers selecting this path must demonstrate to EPA's satisfaction that additive DFs provide improved predictive accuracy. The Agency proposes to accept use of additive DFs under these circumstances in part because the manufacturers choosing the alternative service accumulation approach must commit to execute an in-use reality check. As with all other elements of Federally approved alternative service accumulation programs, the in-use reality check agreed upon by the manufacturer must adequately check the validity of the additive DFs for the range of vehicle configurations in the certified engine family, and not just the configurations used to generate the DF.

*I. Determination of Assigned Deterioration Factors for Small Volume Engine Families*

Current EPA regulations provide special certification procedures, including durability procedures, for small volume manufacturers (those with annual sales at or below 10,000 vehicles) and small volume families of large manufacturers (one or more families whose combined sales do not exceed 10,000 vehicles for a given manufacturer). In some circumstances, DFs for small-volume certifications are proposed by the manufacturer based on data from other engine families certified by that manufacturer in the past. In other cases, a manufacturer may use DFs assigned by EPA and determined from the Agency's own analysis of deterioration performance across the industry. In either event, some questions arise about how full-life DFs will be determined for small volume certification in MY1994, the first year of the Tier 1 phase-in.

The Tier 1 standards are not phased-in for small volume manufacturers; thus, no small volume manufacturer must produce Tier 1 LDVs until MY1998, but in that year, all LDVs must comply with the new standards. For these manufacturers, DF determinations in the period of the interim durability procedures would continue to be made based on a 50,000-mile useful life; small volume manufacturers who choose to certify to the Tier 1 standards in advance of the MY1996 requirement must certify using DFs derived in accordance with the procedures described in § 86.094–14(c)(7)(i)(C).

On the other hand, designated small-volume families of a large manufacturer must be counted in that manufacturer's determination of Tier 1 phase-in compliance during MY1994 and 1995. Thus, some such families may be certified to Tier 1 standards and may require determinations of full-life DFs. The Agency anticipates that manufacturers will obtain the necessary historical data for these determinations from California, where full-life Tier 1 standards will be implemented one-year in advance of the Federal Tier 1 standards. Similarly, EPA expects to base its determinations of assigned DFs on the basis of 1993 California data until early MY1994 Federal data become available.

*J. Allowable Maintenance Revisions*

The Agency proposes revisions to the current list of emission-related components and the allowable maintenance intervals for those components on the basis that shorter intervals are not technologically necessary. Four circumstances, sometimes taken in combination, were considered relevant to the determination that the proposed interval was justified: circumstances if the proposed interval for the applicable component (1) is justified on purely technical grounds; (2) exists in current Federal LDT regulations and is proposed for application to the control of LDV emissions in substantially similar circumstances; (3) is justified based on the length of the recommended minimum maintenance intervals of the affected manufacturers; and (4) has been promulgated and implemented in the California allowable maintenance regulations without a feasibility-based challenge by the manufacturers.

Table 1 shows the proposed revisions to the light-duty allowable maintenance intervals, together with the applicable rationale for each revision. All intervals except the oxygen sensor are proposed to be the new LDV and light LDT full useful life level of 100,000 (100K) miles. The LDV oxygen sensor interval is proposed at 80,000 (80K) miles, the current level applicable to oxygen sensors in LDTs. These intervals are the minimum levels at which adjustment, cleaning, repair, or replacement of the indicated component or system can occur. The interval listed for each component or system also applies to any directly related component of that system (such as a filter, valve, sensor, or actuator). Where an interval is proposed where none was applicable before, the table entry indicates "NA."

[30] 48 FR 52170 (November 16, 1983). For more detailed information, refer to the Summary and Analysis of Comments for this rule, EPA Docket Nos. A–81–11, A–81–20, and OMSAPC–79–1.

TABLE 1—PROPOSED REVISIONS TO LIGHT-DUTY ALLOWABLE MAINTENANCE REGULATIONS

| Vehicle group | Component or system | From (K) | To (K) | Rationale [1] |
|---|---|---|---|---|
| Otto-cycle LDT | Supercharger | NA | 100 | (1, 4) |
| | Exhaust gas recirculation (EGR) system | 50 | 100 | (1, 4) |
| Diesel-cycle LDT | Supercharger | NA | 100 | (1, 4) |
| | Exhaust gas recirculation (EGR) system | 50 | 100 | (1, 4) |
| | Fuel injector tip (cleaning only) | 50 | 100 | (3) |
| | Catalytic converter | NA | 100 | (1, 4) |
| Otto-cycle LDV | Carburetor | 50 | 100 | (2, 4) |
| | Catalytic converter | 50 | 100 | (2, 4) |
| | Exhaust gas recirculation (EGR) system | 50 | 100 | (1, 4) |
| | Air injection reaction (AIR) system | 50 | 100 | (2, 4) |
| | Fuel injectors | 50 | 100 | (2, 4) |
| | Electronic control unit (ECU) | 50 | 100 | (2, 4) |
| | Oxygen sensor | 50 | 80 | (2) |
| | Evaporative emission canister | 50 | 100 | (2, 4) |
| | Turbocharger | 50 | 100 | (2, 4) |
| | Supercharger | NA | 100 | (1, 4) |
| Diesel-cycle LDV | Exhaust gas recirculation (EGR) system | 50 | 100 | (1, 4) |
| | Fuel injectors | 50 | 100 | (2, 4) |
| | Turbocharger | 50 | 100 | (2, 4) |
| | Electronic control unit (ECU) | 50 | 100 | (2, 4) |
| | Particulate trap or trap oxidizer system | 50 | 100 | (2, 4) |
| | Fuel injector tip (cleaning only) | NA | 100 | (3) |
| | Catalytic converter | NA | 100 | (1, 4) |
| | Supercharger | NA | 100 | (1, 4) |

[1] (1) technical grounds; (2) current Federal LDT requirement; (3) current manufacturers interval; (4) current CARB requirement.

Most of the changes to the LDV allowable maintenance intervals are simple extensions of the current 50,000-mile intervals to the intervals currently applicable to the comparable components on LDT's. In the case of the oxygen sensor, this reflects a change from 50,000 miles to 80,000 miles. In all other cases where the change brings about LDV conformity with the existing LDY intervals, the change is from 50,000 miles to 100,000 miles. The fact that these components function in the LDT environment without maintenance, together with the fact that the LDV and LDT environments for these components are substantially similar, demonstrates that shorter intervals are not technologically necessary.

The 80,000-mile oxygen sensor interval differs from CARB requirements, which allow no oxygen sensor maintenance below 30,000 miles, but conditional use of intervals between 30,000 and 100,000 miles. Intervals between 30,000 and 50,000 miles are acceptable to CARB if production vehicles are equipped with a resetting maintenance indicator that alerts the vehicle operator each time the interval has elapsed and if the manufacturer pays for the first replacement.[31] Maintenance between 50,000 miles and 100,000 miles is acceptable to CARB, conditioned only on the presence of the resetting maintenance indicator on production vehicles. However, the Agency believes that all manufacturers currently certify CA vehicles with a 100,000-mile level for oxygen sensors, and they intend to continue this practice. The Agency solicits comments or data on whether this is, in fact, the case. The Agency is therefore considering adopting a 100,000-mile interval for oxygen sensors, applicable to both LDVs and LDTs, in the final rule.

The proposed interval for superchargers (applicable to all four categories of vehicles in the table) matches the existing LDT interval for turbochargers. A supercharger is substantially similar in function to a turbocharger, but the former component functions in the less demanding environment of the intake air stream, while the latter operates in high-temperature exhaust. A less stringent interval would not be justified for the comparable component functioning in a less-stringent environment.

The full-life maintenance interval for EGR systems was made possible in the CARB regulations, and now in the proposed EPA regulations, by technological advances in engine and EGR system design, and in the formulation of fuels. The engines themselves have lower engine-out emission levels than their counterparts of a decade or more ago. Reductions in the sulfur content of diesel fuel mandated to begin October 1, 1993, promise to reduce particulate levels in the engine-out emissions of diesel-cycle vehicles. In gasoline-fueled engines, more $NO_x$ control is accomplished through improved formulations in three-way catalysts. As a consequence, contemporary designs rely less on EGR for control of $NO_x$. A smaller percentage of the exhaust must be ported to the EGR valve, the exhaust itself is cleaner, and design improvements maintain higher temperatures in the EGR flow to discourage deposition. In addition, contemporary EGR valves are electronically actuated, providing greater precision, as well as avoiding problems with mechanical components (such as leaking vacuum diaphragms) as found in earlier EGR system designs. Together these factors lower the level of deposits in the valves and reduce the need for maintenance. The Agency understands that at least some manufacturers are proceeding with MY1993 California durability demonstrations with the expectation that no maintenance of the EGR system will be required before 100,000 miles.

Extension of the catalytic converter intervals for Otto-cycle LDVs is justified by the existing full-life interval for catalysts on Otto-cycle LDTs, as discussed above. In the diesel-cycle LDV and LDT environments, manufacturers employ catalytic converters for control of particulate, as an alternative to trap oxidizers. The current trap oxidizer interval for LDTs is 100,000 miles, and EPA maintains that the technological feasibility of particulate control in light-duty applications is thus demonstrated at the 100,000-mile level. Manufacturers seeking to replace trap oxidizers with catalysts in their diesel applications

[31] The maintenance indicator differs from a malfunction indicator, which is part of the onboard diagnostic system.

should thus achieve the comparable level of maintenance-free performance.

The cleaning of diesel-cycle LDV and LDT fuel injectors are the remaining entries in Table 1 where EPA proposes a requirement that is more stringent than the CARB requirement (100,000 miles, as opposed to 12,500 miles). In current EPA regulations, the cleaning of fuel injector tips for diesel-cycle LDTs is set at 50,000 miles, while all other fuel-injector-related maintenance cannot occur until at least 100,000 miles. The Agency considered setting the diesel-cycle LDV interval for fuel injector tip cleaning at the current LDT level. However, EPA believes that no current light-duty manufacturer includes an injector cleaning requirement below 100,000 miles. On that basis, the LDT interval is proposed to increase from 50,000 miles to 100,000 miles. Given that the LDT application of diesel fuel injection systems is at least as demanding as the LDV application, the Agency concludes that shorter allowable maintenance intervals are not technologically necessary for the LDVs. Table 1 therefore reflects the change to the 100,000-mile tip cleaning interval for both diesel-cycle LDVs and LDTs. This change brings the intervals for tip cleaning and other fuel injector maintenance into conformity; thus, the regulations themselves delete the separate entry for tip cleaning.

In all cases from the table except three (the fuel injector tip-cleaning interval for diesel-cycle LDVs and LDTs, and the oxygen sensor interval for Otto-cycle LDVs), the changes to the allowable maintenance intervals are further justified because the proposed levels have already been implemented in CARB's allowable maintenance regulations; acceptance of, and compliance with, these regulations by manufacturers supports the contention that shorter intervals are not technologically necessary.

## V. Economic, Environmental, and Cost-Benefit Impacts

### *A. Economic Impacts*

The costs to the public will be any increased vehicle costs that are attributable to this proposed durability rule. The costs incurred by the manufacturers as a consequence of this proposed durability rule are limited to the costs of running the durability program itself and of reporting the results to EPA.[32]

The costs associated with running the durability program are considered to be costs of information collection, and they are therefore detailed in the Information Collection Request (ICR) for this rulemaking.[33] The total annual costs of the program are projected by determining the unit cost of running a single DDV and applying that cost to the number of DDVs projected for a given model year.

The unit cost of running a DDV is made up of several cost elements, including (1) acquisition of the DDV; (2) operating the DDV over the mileage accumulation cycle; (3) performing emission tests on the vehicle; (4) generating test reports; (5) generating reports on the DDV itself; and, (6) the storage of records on the vehicle. For LDVs, the second, third, and fourth cost elements increase under this proposal relative to the current durability program, as a consequence of the increase in the LDV useful life definition. For light LDTs, these same cost elements decrease, because the useful life of this subclass drops from 120,000 miles to 100,000 miles. The degree of increase or decrease is directly proportional to the change in the actual mileage accumulation performed. No heavy LDTs are required to meet the Tier 1 standards in the MY1994–MY1995 period, so their cost elements are unchanged.

In the new ICR analysis for this rule, EPA presumes that, because of the potential savings, essentially all manufacturers will exploit the proposed extrapolation option, and thus, actual mileage accumulation will be curtailed at 75,000 miles for both LDVs and light LDTs. On this basis, the average cost of running an LDV durability vehicle rises from the current level of $122,100 to $170,200. Assuming that the standard Self-Approval Durability Program utilizes abbreviated AMA mileage accumulation, the cost of running a light LDT durability vehicle drops from $198,000 to $170,200.

Projections for the number of engine families and the number of DDVs in the MY1994–MY1995 period were made in the Tier 1 ICR. The analysis projected an increase in the number of DDVs run from the current level of 98 (MY1990) to 152 DDVs in both MY1994 and MY1995. The Agency predicts that approximately 75 percent of these DDVs will be LDVs, 18 percent will be light LDTs, and the balance will be heavy LDTs. Division of the DDVs between Tier 0 and Tier 1 families was based on the phase-in percentages and an analysis of the manufacturers' historical behavior in carrying over emissions data from one model year to the next.

Two aspects of the current proposal, the use of California carryover data and the use of alternative durability programs, lend some uncertainty to the cost projections. Carryover of California data should now become a significant cost factor because promulgation of the Tier 1 rules by EPA brings the light-duty emission standards of the two jurisdictions into close conformity, and the provisions of this proposal were devised to increase consistency between the CARB and Federal durability programs. The California program phases in the Tier 1 standards one year in advance of EPA; many manufacturers are already running DDVs for demonstrating compliance with CARB's Tier 1 standards in MY1993. A manufacturer may seek to comply with the Federal Tier 1 phase-in requirements for MY1994 with the same engine families it certified to the MY1993 California standards. The ability to carry over California data in place of running new Federal DDVs could drive all the unit cost elements for the Federal DDVs to zero. Having already incurred the costs imposed by the California program to run Tier 1 DDVs, there is significant incentive for manufacturers to seek such carryover.

There is also incentive for the manufacturers to employ alternative durability programs based on new service accumulation methods. General Motors, for example, has predicted that it could perform a 100,000-mile alternative durability program at a cost that would be comparable to, or even less than, an AMA-based program at only half that mileage.[34] By extension, the 100,000-mile alternative durability program could achieve a cost savings relative to the extrapolated 75,000-mile AMA program. The magnitude of the savings should be at least the difference in the cost between the 75,000-mile extrapolated program and the current 50,000-mile program. Based on the unit

[32] Manufacturers may also incur costs in adding or modifying emission control devices in order to meet the Tier 1 emission standards over the applicable useful life levels; however, the Agency accounted for these costs in promulgating the Tier 1 standards themselves; see 56 FR 25724 and the Regulatory Impact Analysis for that rule (EPA Docket A-90-43, item II-F-6).

[33] Supporting Statement for the Amendment to the Information Collection Request Application for Motor Vehicle Emission Certification and Fuel Economy Labeling (OMB No. 2060-0104); Proposed Regulations for Light-Duty Vehicle and Light-Duty Truck 1994 and 1995 Model Year Durability Testing Procedures and 1994 and Later Model Year Allowable Maintenance; Certification Division, Office of Mobile Sources, U.S. Environmental Protection Agency, 22 October 1991.

[34] Correspondence from S.A. Leonard, Director, Automotive Emission Control, General Motors Environmental Activities Staff, to Robert E. Maxwell, Director, Certification Division, Office of Mobile Sources, U.S. EPA, August 14, 1990 (GM No. FE-4743).

costs for these programs cited above, the savings should therefore be approximately $48,100 per DDV.

With the basic framework for determining costs already established by the Tier 1 ICR, the major uncertainties in determining the incremental cost impacts of the durability proposal are therefore the degree to which manufacturers carry over California Tier 1 data for a given model year to Federal Tier 1 certifications in the next model year, and the degree to which manufacturers will choose to employ alternative durability programs.

Table 2 projects the change in the mean annual cost of the light-duty durability program for each of the two years of the interim procedures under a number of scenarios, with the MY1990 cost of $13.8 million as the baseline. Thus, if manufacturers carry over data for 50 percent of their California DDVs and employ no alternative durability programs, the mean annual cost of the program will increase by $1.3 million from the $13.8 million baseline dollars (to $15.1 million). Reductions in the program costs, which are shown in parentheses, occur under a number of the scenarios. For example, if manufacturers carry over 50 percent of their California families and employ alternative durability programs on 75 percent of the remainder, the program costs are estimated to decrease by a modest $0.7 million, to $13.1 million. It is important to note, however, that the savings under these scenarios are driven predominantly by the ability to carry over data from the California program, for which manufacturers will have already run durability vehicles due to the earlier phase-in of the California Tier 1 standards.

The ranges of the two variables were selected by EPA to represent the most extreme cases that might occur. In fact, the Agency believes that manufacturers will seek as much California carryover as possible, and will actually achieve on the order of 90 percent. Based on indications from the manufacturers of their intent to implement alternative durability programs in the applicable timeframe, the likely penetration rate will be between 25 percent and 50 percent. On this basis, the Agency expects the rule to generate a net savings to manufacturers of approximately $6.5 million.

TABLE 2.—MEAN ANNUAL CHANGE IN TOTAL COST OF THE LIGHT-DUTY DURABILITY PROGRAM IN MILLIONS OF DOLLARS ($M)

| California carryover (percent) | Alternative durability program penetration | | | |
|---|---|---|---|---|
| | 0% | 25% | 50% | 75% |
| 50 | $1.3 M | $.7 M | $.0 M | ($.7 M) |
| 80 | (4.4 M) | (4.7 M) | (5.0 M) | (5.3 M) |
| 90 | (6.3 M) | (6.4 M) | (6.6 M) | (6.7 M) |
| 100 | (8.4 M) | (8.4 M) | (8.4 M) | (8.4 M) |

Estimates of the per-vehicle impact of the proposed regulations may then be obtained by spreading the total cost of a given scenario across the projected new-vehicle fleet size, derived in the Tier 1 Regulatory Impact Analysis, of 12.6 million vehicles. The range of impacts thus obtained is an increase of 10.7 cents per vehicle for the highest-cost scenario (50 percent carryover; no alternative durability programs) to a decrease of 67 cents per vehicle for the lowest-cost scenario (full California carryover, with 75 percent alternative durability program penetration).

These proposed rules are designed to encourage manufacturers to pursue the alternative durability program path Federally, and due to consistency with CARB regulations, in California as well. To the extent that manufacturers use this rule as the basis for implementing alternative durability programs in California where they otherwise would not, manufacturers will also accrue savings in their California certifications that are attributable to the EPA action. The magnitude of these savings would be the unit savings of approximately $48,100 per DDV applied to each additional conventional DDV avoided in California through use of the alternative program. Although this factor is difficult to predict, it could generate additional savings of as much as $4 million, based on the highest carryover rate (100 percent) and the highest penetration rate (75 percent) from the EPA scenarios.

Even though the above analysis indicates a likely positive economic impact from the provisions of this proposal, the magnitude of that benefit is small compared to the related costs of the Tier 1 standards themselves. As noted in the Tier 1 Regulatory Impact Analysis, for example, EPA predicts an increase in LDV vehicle cost of $157 to provide the hardware necessary to meet the tighter standards over the longer useful life. The impact of the proposed durability rule is also considerably lower than would be expected to affect manufacturer pricing decisions; thus, no impact on the consumer is assessed.

The Agency has not included any increase or decrease in costs associated with the proposed allowable maintenance intervals. The Agency believes that no incremental costs will accrue to the manufacturers from these intervals, over and above any redesign costs that have already been addressed through the costs of conformance with the existing Tier 1 tailpipe regulations. However, EPA solicits comment on the accuracy of this conclusion in the context of this proposed rule.

*B. Environmental and Cost-Benefit Impacts*

The emission benefits of the Tier 1 standards and the revised useful life definitions were analyzed in conjunction with the Tier 1 rule. The current proposal provides revisions to the testing and administrative procedures that are necessary to determine compliance with the rules already promulgated. No environmental benefit is claimed for these administrative procedures, beyond that already accounted for in the Tier 1 rule.

As noted in the preamble to that earlier rule, Congress mandated the Tier 1 standards and useful life levels in the 1990 Amendments; in so doing, it implicitly judged that the economic, environmental, and cost-benefit implications of those requirements were acceptable. The analysis above indicates that the economic impacts of this new proposal will not change the cost portion of the Tier 1 cost-benefit relationships in any visible manner. The Agency believes that additional costs due to this proposal, if any, will be insignificant. This proposed rule does not claim any emission benefits in addition to those that arise as a result of the Tier 1 standards, therefore the cost-effectiveness implications are minimal. However, the Agency wishes to solicit

comment specifically on the issue of whether this proposal is likely to impose more than insignificant costs on vehicle manufacturers relative to the current durability program.

## VI. Public Participation

*A. Comments and the Public Docket*

EPA welcomes comments on all aspects of this proposed rulemaking. All comments, with the exception of proprietary information, should be directed to the EPA Air Docket Section, Docket No. A-90-24 (see **"ADDRESSES"**). Commenters who wish to submit proprietary information for consideration should clearly separate such information from other comments by:

- Labeling proprietary information "Confidential Business Information" and
- Sending proprietary information directly to the contact person listed (see **"FOR FURTHER INFORMATION CONTACT"**) and not to the public docket.

This will help insure that proprietary information is not inadvertently placed in the docket. If a commenter wants EPA to use a submission labeled as confidential business information as part of the basis for the final rule, then a nonconfidential version of the document, which summarizes the key data or information, should be sent to the docket.

Information covered by a claim of confidentiality will be disclosed by EPA only to the extent allowed and by the procedures set forth in 40 CFR part 2. If no claim of confidentiality accompanies the submission when it is received by EPA, the submission may be made available to the public without notifying the commenters.

*B. Public Hearing*

Anyone wishing to present testimony about this proposal at the public hearing (see **"DATES"**) should, if possible, notify the contact person (see **"FOR FURTHER INFORMATION CONTACT"**) at least seven days prior to the day of the hearing. The contact person should be given an estimate of the time required for the presentation of testimony and notification of any need for audio/visual equipment. A sign-up sheet will be available at the registration table the morning of the hearing for scheduling those who have not notified the contact earlier. This testimony will be scheduled on a first-come, first-served basis, and will follow the testimony that is arranged in advance.

EPA recommends that approximately 50 copies of the statement or material to be presented be brought to the hearing for distribution to the audience. In addition, EPA would find it helpful to receive an advance copy of any statement or material to be presented at the hearing at least one week before the scheduled hearing date. This is to give EPA staff adequate time to review such material before the hearing. Such advance copies should be submitted to the contact person listed.

The official records of the hearing will be kept open for 30 days following the hearing to allow submissions of rebuttal and supplementary testimony. All such submittals should be directed to the Air Docket, Docket No. A-90-24 (see **"ADDRESSES"**).

The hearing will be conducted formally, and technical rules of evidence will not apply. Written transcripts of the hearing will be made and a copy thereof placed in the docket. Anyone desiring to purchase a copy of the transcript should make individual arrangements with the court reporter recording the proceeding.

## VII. Administrative Requirements

*A. Administrative Designation*

Under Executive Order 12291, EPA must judge whether a regulation is a "major" rule and, therefore, subject to the requirement that a Regulatory Impact Analysis (RIA) be prepared. Since EPA has determined that this regulation is not major, an RIA has not been prepared.

This regulation was submitted to the Office of Management and Budget (OMB) for review as required by Executive Order 12291. Any written comments from OMB and any EPA response to those comments are in the public docket for this rulemaking.

*B. Reporting and Recordkeeping Requirement*

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.* An Information Collection Request document has been prepared by EPA (ICR No. 2060-0104) and a copy may be obtained from Sandy Farmer, Information Policy Branch; EPA; 401 M St., SW. (PM-223Y); Washington, DC 20460 or by calling (202) 260-2740.

Public reporting burden for this collection of information is estimated to be a reduction of 4468 hours per response annually, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing the collection of information.

Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Chief, Information Policy Branch; EPA; 401 M St., SW. (PM-223Y); Washington, DC 20460 and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503, and marked "Attention: Desk Officer for EPA." The final rule will respond to any OMB or public comments on the information collection requirements contained in this proposal.

*C. Impact on Small Entities*

The Regulatory Flexibility Act of 1990 requires federal agencies to identify potentially adverse impacts of federal regulations upon small entities. In instances where significant impacts are possible on a substantial number of these entities, agencies are required to perform a Regulatory Flexibility Analysis (RFA).

EPA has determined that the regulations being proposed today will not have a significant impact on a substantial number of small entities. This regulation will affect only manufacturers of motor vehicles, a group which does not contain a substantial number of small entities.

Therefore, as required under section 605 of the Regulatory Flexibility Act, 5 U.S.C. 601 *et. seq.*, I certify that this regulation does not have a significant impact on a substantial number of small entities.

## VIII. Statutory Authority

The promulgation of these regulations is authorized by sections 202, 203, 205, 206, 207, 208, 215, 216, and 301(a) of the Clean Air Act as amended by the Clean Air Act Amendments of 1990 (42 U.S.C. 7521, 7522, 7524, 7525, 7541, 7542, 7549, 7550, and 7601(a)).

## List of Subjects in 40 CFR Part 86

Administrative practice and procedure, Air pollution control, Gasoline, Motor vehicles, Motor vehicle pollution, Reporting and recordkeeping requirements.

Dated: April 14, 1992.

**William K. Reilly,**

*Administrator.*

For the reasons set out in the preamble, part 86 of title 40 of the Code of Federal Regulations is proposed to be amended as follows:

## PART 86—CONTROL OF AIR POLLUTION FROM NEW AND IN-USE MOTOR VEHICLES AND NEW AND IN-USE MOTOR VEHICLE ENGINES: CERTIFICATION AND TEST PROCEDURES

1. The authority citation for part 86 is revised to read as follows:

**Authority:** Secs. 202, 203, 205, 206, 207, 208, 215, 216, 217, and 301(a), Clean Air Act as amended (42 U.S.C. 7521, 7522, 7524, 7525, 7541, 7542, 7549, 7550, 7552, and 7601(a)).

2. The table of contents of subpart A of part 86 is republished for the convenience of the reader to read as follows:

**Subpart A—General Provisions for Emission Regulations for 1977 and Later Model Year New Light-Duty Vehicles, Light-Duty Trucks, and Heavy-Duty Engines, and for 1985 and Later Model Year New Gasoline-Fueled and Methanol-Fueled Heavy-Duty Vehicles**

Sec.
86.094–15 $NO_x$ and particulate averaging, trading, and banking for heavy-duty engines.
86.094–21 Application for certification.
86.094–22 Approval of application for certification; test fleet selections; determinations of parameters subject to adjustment for certification and selective enforcement audit, adequacy of limits, and physically adjustable ranges.
86.094–23 Required data.
86.094–24 Test vehicles and engines.
86.094–25 Maintenance.
86.094–26 Mileage and service accumulation; emission requirements.
86.094–28 Compliance with emission standards.
86.094–30 Certification.
86.094–35 Labeling.
86.095–14 Small-volume manufacturers certification procedures.
86.095–24 Test vehicles and engines.
86.095–26 Mileage and service accumulation; emission measurements.
86.095–30 Certification.
86.095–35 Labeling.
86.096–8 Emission standards for 1996 and later model year light-duty vehicles.
86.097–9 Emission standards for 1997 and later model year light-duty trucks.

3. A new § 86.094–1 is proposed to be added to subpart A to read as follows:

**§ 86.094–1 General applicability.**

(a) The provisions of this subpart generally apply to 1994 and later model year new Otto-cycle and diesel-cycle light-duty vehicles, 1994 and later model year new Otto-cycle and diesel-cycle light-duty trucks, and 1994 and later model year new Otto-cycle and diesel heavy-duty engines. In cases where a provision applies only to a certain vehicle group based on its model year, vehicle class, motor fuel, engine type, or other distinguishing characteristics, the limited applicability is cited in the appropriate section or paragraph.

(b) Optional applicability. A manufacturer may request to certify any heavy-duty vehicle of 10,000 pounds Gross Vehicle Weight Rating or less in accordance with the light-duty truck provisions. Heavy-duty engine or vehicle provisions do not apply to such a vehicle.

(c)–(d) [Reserved]

(e) Small volume manufacturers. Special certification procedures are available for any manufacturer whose projected combined U.S. sales of light-duty vehicles, light-duty trucks, heavy-duty vehicles, and heavy-duty engines in its product line (including all vehicles and engines imported under the provisions of §§ 85.1505 and 85.1509 of this chapter) are fewer than 10,000 units for the model year in which the manufacturer seeks certification. To certify its product line under these optional procedures, the small-volume manufacturer must first obtain the Administrator's approval. The manufacturer must meet the eligibility criteria specified in § 86.092–14(b) of this subpart before the Administrator's approval will be granted. The small-volume manufacturer's certification procedures are described in § 86.092–14 of this subpart.

(f) Optional procedures for determining exhaust opacity.

(1) The provisions of subpart I of this part apply to tests which are performed by the Administrator, and optionally, by the manufacturer.

(2) Measurement procedures, other than that described in subpart I of this part, may be used by the manufacturer provided the manufacturer satisfies the requirements of § 86.091–23(f) of this subpart.

(3) When a manufacturer chooses to use an alternative measurement procedure it has the responsibility to determine whether the results obtained by the procedure will correlate with the results which would be obtained from the measurement procedure in subpart I of this part. Consequently, the Administrator will not routinely approve or disapprove any alternative opacity measurement procedure or any associated correlation data which the manufacturer elects to use to satisfy the data requirements for subpart I of this part.

(4) If a confirmatory test(s) is performed and the results indicate there is a systematic problem suggesting that the data generated under an optional alternative measurement procedure do not adequately correlate with subpart I of part 86 data, EPA may require that all certificates of conformity not already issued be based on data from subpart I procedures.

4. Section 86.094–2 of subpart A is proposed to be amended by adding in alphabetical order the following definition:

**§ 86.094–2 Definitions.**

* * * * *

*Durability Useful Life* means the longest useful life mileage at which a certification exhaust emission standard contained in this part applies. The determination of durability useful life shall reflect any alternative useful life mileages approved by the Administrator under § 86.094–21(f) of this subpart. The determination of durability useful life shall exclude any standard and related useful life mileage for which the manufacturer has obtained a waiver of emission data submission requirements under § 86.094–23(c) of this subpart.

* * * * *

5. A new § 86.094–13 is proposed to be added to subpart A to read as follows:

**§ 86.094–13 Light-duty exhaust durability programs.**

(a)(1) This section describes the various durability programs available to manufacturers for determining exhaust deterioration factors (DFs) for the certification of 1994 and 1995 model year light-duty vehicles and light-duty trucks. While this section describes many of the important elements of these durability programs, it is not intended as an exhaustive list of all requirements applicable either to these programs or to the certification process.

(2) The durability programs consist of various elements, such as a statement of applicability, a service accumulation method, vehicle/component selection methods, durability-data vehicle compliance requirements, in-use verification requirements, optional elements, data reporting requirements, and additional requirements. Cross references to other sections in this subpart are indicated where appropriate.

(b) The following table summarizes the durability programs available to all manufacturers of light-duty vehicles and light-duty trucks. The Tier 1 and Tier 0 standards cited in the table are those specified in § 86.094–8 of this subpart (for light-duty vehicles) and § 86.094–9 of this subpart (for light-duty trucks). The durability programs described in this section are separate and distinct alternatives, such that determination of an exhaust DF under one program does not require compliance with the requirements of a different durability program.

| Class | Standards | Durability program name | Optional elements |
|---|---|---|---|
| Light-duty Vehicles | Tier 1 | Standard AMA | Carryover.<br>Extrapolation.<br>Substitute AMA. |

| Class | Standards | Durability program name | Optional elements |
|---|---|---|---|
| Light-duty Trucks | Tier 0 | Production AMA | Carryover<br>Extrapolation<br>Substitute AMA. |
| | | Alternative Service Accumulation | Carryover. |
| | | Standard AMA | Carryover<br>Substitute AMA. |
| | Tier 1 and Tier 0 | Production AMA | Carryover<br>Substitute AMA. |
| | | Alternative Service Accumulation | Carryover. |
| | | Standard Self-Approval | Carryover. |
| | | Alternative Service Accumulation | Carryover. |

(c) *Standard AMA Durability Program*—(1) *Applicability.* The standard AMA durability program is applicable to light-duty vehicles in model years 1994 and 1995.

(2) *Service accumulation method.* The method shall be mileage accumulation performed on whole durability data vehicles, using the Durability Driving Schedule (commonly referred to as the AMA schedule) specified in appendix IV to this part. The provisions of § 86.094–26(a) of this subpart, which include vehicle weight requirements, the duration of mileage accumulation, and the specification of emission tests to be performed during the mileage accumulation, shall apply. Scheduled and unscheduled maintenance may be performed on the vehicle in accordance with the provisions of § 86.094–25 of this subpart.

(3) *Vehicle/component selection method.* Durability data vehicles shall be selected by the Administrator as required in § 86.090–22(a) of this subpart and in accordance with the provisions of § 86.094–24(c)(1) of this subpart. Typically, the Administrator selects one durability-data vehicle to represent each engine-system combination. The selection of durability data vehicles is also governed by § 86.091–7(a)(2)(i)(A) of this subpart, which generally requires that vehicles used for certification must be representative of production vehicles.

(4) *Durability-data vehicle compliance requirements.* Durability-data vehicle compliance requirements for the Standard AMA Durability Program are contained in § 86.094–28(a) of this subpart. These include the method of calculating deterioration factors, line crossing criteria, and related requirements.

(5) *In-use verification.* Manufacturer testing of in-use vehicles subsequent to certification is not a requirement of the Standard AMA Durability Program.

(6) *Optional elements*—(i) *Extrapolation.* Manufacturers selecting the Standard AMA Durability Program may petition the Administrator for the use of extrapolated mileage accumulation data according to the provisions of § 86.094–26(a)(4) of this subpart for use in certifying light-duty vehicles to the Tier 1 standards of § 86.094–8 of this subpart. If use of extrapolated data is approved, deterioration factors are determined by the method of linear extrapolation described in § 86.094–28(a)(4)(i) of this subpart.

(ii) *Substitute AMA.* Manufacturers selecting the Standard AMA Durability Program may petition the Administrator under § 86.094–26(a)(2)(ii) of this subpart to substitute a different whole-vehicle mileage accumulation schedule for the Durability Driving Schedule (standard AMA) specified in Appendix IV to this part.

(iii) *Carryover and carry-across.* Manufacturers selecting the Standard AMA Durability Program may petition the Administrator for the use of carryover or carry-across mileage accumulation data according to the provisions of § 86.094–24(f) of this subpart. If use of carryover or carry-across data is approved, deterioration factors are determined by the method of linear extrapolation described in § 86.094–28(a)(4)(i) of this subpart.

(7) *Data reporting requirements.* Data reporting requirements for the Standard AMA Durability Program are contained in §§ 86.094–21, 86.094–23(b)(1)(i), and 86.094–26(a)(6)(ii) and (a)(7) of this subpart.

(d) *Production AMA Durability Program*—(1) *Applicability.* The production AMA durability program is applicable to light-duty vehicles in model years 1994 and 1995.

(2) *Service accumulation method.* The method shall be mileage accumulation performed on whole durability data vehicles, using the Durability Driving Schedule (commonly referred to as the AMA schedule) specified in Appendix IV to this part. The provisions of § 86.094–26(a) of this subpart, which include vehicle weight requirements, the duration of mileage accumulation, and the specification of emission tests to be performed during the mileage accumulation, shall apply. Scheduled and unscheduled maintenance may be performed on the vehicle in accordance with the provisions of § 86.094–25 of this subpart.

(3) *Vehicle/component selection method.* Durability data vehicles shall be selected by the Administrator as required in § 86.090–22(a) of this subpart and in accordance with the provisions of § 86.094–24(h) of this subpart. Typically, the Administrator selects several random production durability-data vehicles, up to a maximum of three vehicles per engine family group.

(4) *Durability-data vehicle compliance requirements.* Durability-data vehicle compliance requirements for the Production AMA Durability Program are contained in § 86.094–28(a)(7). These include the method of calculating deterioration factors, line crossing criteria, and related requirements.

(5) *In-use verification.* The Production AMA Durability Program includes no requirement for manufacturer testing of in-use vehicles subsequent to certification.

(6) *Optional elements*—(i) *Extrapolation.* Manufacturers selecting the Production AMA Durability Program may petition the Administrator for the use of extrapolated mileage accumulation data according to the provisions of § 86.094–26(a)(4) of this subpart for use in certifying light-duty vehicles to the Tier 1 standards of § 86.094–8 of this subpart. If use of extrapolated data is approved, deterioration factors are determined by the method of linear extrapolation described in § 86.094–28(a)(7)(ii)(B) of this subpart.

(ii) *Substitute AMA.* Manufacturers selecting the Production AMA Durability Program may petition the Administrator under § 86.094–26(a)(2)(ii) of this subpart to substitute a different whole-vehicle mileage accumulation schedule for the Durability Driving Schedule (standard AMA) specified in Appendix IV to this part.

(iii) *Carryover and carry-across.* Manufacturers selecting the Production AMA Durability Program may petition

the Administrator for the use of carryover or carry-across mileage accumulation data according to the provisions of § 86.094–24(h)(1)(v) of this subpart. If use of carryover or carry-across data is approved, deterioration factors are determined by the method of linear extrapolation described in § 86.094–28(a)(7)(ii)(B) of this subpart.

(7) Data reporting requirements for the Production AMA Durability Program are contained in §§ 86.094–21, 86.094–23(b)(1)(i), and 86.094–26(a)(6)(ii) and (a)(7) of this subpart.

(8) *Additional requirements.* (i) For engine families subject to the procedures of the Production AMA Durability Program, the manufacturer shall submit deterioration factors to the Administrator for approval to use them for certification. The Administrator shall approve the use of deterioration factors that:

(A) The manufacturer attests are representative of the durability performance of its vehicles in actual field use when maintained according to the manufacturer's maintenance instructions (as limited under § 86.094–25(a)(1) of this subpart), and

(B) Are equal to or greater than the deterioration factors that EPA determines under paragraph (d)(8)(ii) of this section.

(ii) EPA shall determine minimum deterioration factors for engine families subject to the Production AMA Durability Program. This determination shall be based on a procedure of grouping engine families (see § 86.094–24(a) of this subpart) in order to use historical certification data to determine deterioration factors for each engine family group. The historical data shall be updated yearly through the testing of production durability-data vehicles. Test vehicle requirements under these procedures are contained in § 86.094–24(h) of this subpart and compliance requirements are contained in § 86.094–28(a)(7) of this subpart.

(iii) Request Procedures. (A) A manufacturer wishing to participate in the Production AMA Durability Program must submit to the Administrator, for each model year, a written request describing the engine families that the manufacturer elects to be included in the program.

(B) The Administrator may declare ineligible any engine family for which the Administrator determines there is unreasonable risk in determining a deterioration factor using the methods of the Production AMA Durability Program. Furthermore, the Administrator may limit the number of engine families within the manufacturer's product line that are eligible for the Production AMA Durability Program.

(C) Upon approval of the manufacturer's request to participate, the Administrator and the manufacturer may enter into a written agreement prescribing the terms and conditions of the program. This agreement shall be equitable as compared to agreements entered into with other manufacturers. The agreement shall specify:

(*1*) The engine families to be included in the program and the engine family groups that have been established by the provisions of § 86.094–24(a)(8) and (9) of this subpart,

(*2*) The procedures for the selection of production durability-data vehicles specified under the provisions of § 86.094–24(h) of this subpart, and

(*3*) The procedures for the determination of minimum exhaust emission deterioration factors for each engine family group.

(iv) Withdrawal from Production AMA Durability Program. (A) Subject to the conditions of paragraphs (d)(8)(iv)(B) through (F) of this section, a manufacturer may, at any time, withdraw all of its product line or separate engine family groups from this program. Only entire engine family groups may be withdrawn.

(B) Once any engine family in an engine family group is certified using deterioration factors determined in the Production AMA Durability Program, the manufacturer shall operate and test the production durability-data vehicles specified in § 86.094–24(h) of this subpart in accordance with the procedures of this part.

(C) The Administrator shall notify the manufacturer if a nonconformity of a category of vehicles within the engine family group is indicated by the production durability data. For the purpose of this paragraph, a nonconformity is determined to exist if:

(*1*) Any emission-data vehicle within an engine family of the model year most recently certified under the Production AMA Durability Program is projected to exceed an emission standard by applying deterioration factors generated by a production durability-data vehicle within the same engine family, or

(*2*) Any of the most recent model year's production durability-data vehicle configurations tested under paragraph (d)(8)(iv)(B) of this section line crosses as defined in § 86.094–28(a)(7)(ii)(C) of this subpart. For the purpose of this paragraph, data from identical vehicles will be averaged as under § 86.094–28(a)(4)(i)(A) and (B) of this subpart.

(D) If the Administrator notifies a manufacturer of such a nonconformity, the manufacturer shall submit, by a date specified by the Administrator, a plan to remedy the nonconformity which is acceptable to the Director, Office of Mobile Sources. For the purpose of this paragraph, the term "remedy the nonconformity" will have the same meaning as it does when it appears in section 207(c)(1) of the Clean Air Act (42 U.S.C. 7541(c)(1)).

(E) The manufacturer shall comply with the terms of the remedial plan approved by the Director, Office of Mobile Sources.

(F) If a manufacturer does not comply with the requirements of paragraph (d)(8)(iv)(B), (d)(8)(iv)(D), or (d)(8)(iv)(E) of this section, the Administrator may deem the certificate of conformity for the affected engine families void ab initio.

(e) *Alternative Service Accumulation Durability Program*—(1) *Applicability.* The Alternative Service Accumulation Durability Program is applicable to light-duty vehicles and light-duty trucks in model years 1994 and 1995.

(2) *Service accumulation method.* (i) The manufacturer shall propose a service accumulation method for the Alternative Service Accumulation Durability Program, for advance approval by the Administrator. The method shall be consistent with good engineering practice and be designed to accurately predict the deterioration of the vehicle's emissions in actual use over its full useful life.

(ii) Manufacturers may propose service accumulation methods based upon a combination of whole-vehicle mileage accumulation and bench aging of individual components or systems. Bench procedures should simulate the aging of components or systems over the applicable durability useful life as defined in § 86.094–2 of this subpart and should simulate cycles and environments found in actual use. For this purpose, manufacturers may remove the emission-related components, in whole or in part, from the durability vehicle itself and deteriorate them independently. Vehicle testing for the purpose of determining deterioration factors may include the testing of durability vehicles that incorporate such bench-aged components.

(iii) Service accumulation shall be according to the method approved in advance by the Administrator.

(3) *Vehicle/component selection method.* The manufacturer shall propose vehicle/component selection method for the Alternative Service Accumulation Durability Program for advance approval by the Administrator. The vehicle/component selection shall be according to the method approved in

advance by the Administrator. The selection of durability data vehicles and components is also governed by § 86.091–7(a)(2)(i)(A) of this subpart, which generally requires that vehicles and components used for certification must be representative of production vehicles and components.

(4) *Durability-data vehicle compliance requirements.* The manufacturer shall propose procedures for the calculation of deterioration factors and for the determination of vehicle compliance for advance approval by the Administrator. The Administrator may approve the use of such procedures if the manufacturer demonstrates that the resulting deterioration factors are likely to be representative of the in-use performance of the vehicles. The calculation of deterioration factors and the determination of vehicle compliance shall be according to the procedures approved in advance by the Administrator.

(5) *In-use verification.* Manufacturers selecting the Alternative Service Accumulation Durability Program shall agree to perform an in-use verification program, which shall include testing on in-use vehicles from each engine-system combination certified under the program in the years subsequent to certification. The purpose of the in-use verification program is to confirm the adequacy of the manufacturer-designed components of the Alternative Service Accumulation Durability program. The manufacturer shall propose sample sizes, recruitment procedures, testing procedures, optional provisions for the cessation of testing in the event the in-use testing confirms the adequacy of elements of the Alternative Service Accumulation Durability program, and remedies in the event the in-use testing fails to confirm the adequacy of elements of the Alternative Service Accumulation Durability program. These and other elements of in-use verification are subject to advance approval by the Administrator.

(6) *Optional element: Carryover and Carry-across.* Manufacturers selecting the Alternative Service Accumulation Durability Program may petition the Administrator for the conditional use of carryover or carry-across mileage accumulation data according to the provisions of § 86.094–24(f) of this subpart. If use of carryover or carry-across data is approved, deterioration factors are determined by the method described in paragraph (e)(4) of this section.

(7) *Data reporting requirements.* (i) Data reporting requirements for the alternative service accumulation durability program are contained in §§ 86.094–21, 86.094–23(b)(1)(i), and 86.094–28(a)(6)(ii) and (a)(7) of this subpart.

(ii) In addition to the reporting of deterioration factors determined under paragraph (e)(4) of this section, the manufacturer shall provide reliability data that shows to the Administrator's satisfaction that all emission-related components are designed to operate properly for the durability useful life of the vehicles in actual use (or such shorter intervals as permitted in section § 86.094–25 of this subpart).

(8) *Additional requirements.* (i) The manufacturer shall consolidate the approved versions for each of the required elements of the Alternative Service Accumulation Durability Program into a written agreement that documents the details of the program and the manufacturer's responsibilities. The manufacturer shall submit this agreement for approval by the Administrator as part of the application for certification.

(ii) The manufacturer may amend the written agreement entered into pursuant to paragraph (e)(8)(i) of this section so long as the manufacturer demonstrates to the satisfaction of the Administrator that the proposed amendments to the agreement improve upon the in-use verification portion of the existing agreement. Such amendment to the Alternative Service Accumulation Durability Program agreement is subject to the prior approval of the Administrator.

(iii) The certification requirements described in § 86.094–30(a)(14) of this subpart are applicable.

(f) *Standard Self-Approval Durability Program.* (1) *Applicability.* The Standard Self-Approval Durability Program is applicable to light-duty trucks in the 1994 and 1995 model years.

(2) *Service accumulation method.* The manufacturer shall determine the form and extent of service accumulation used in the Standard Self-Approval Durability Program, according to the provisions of § 86.094–26(b)(2) of this subpart. The method shall be consistent with good engineering practice and be designed to evaluate the mechanisms that are expected to cause deterioration of the vehicle's emissions over its full useful life.

(3) *Vehicle/component selection method.* The manufacturer shall determine the vehicle/component selection method for use in the Standard Self-Approval Durability Program according to the provisions of § 86.094–24(c)(2) of this subpart. Manufacturers shall select the vehicles, engines, subsystems, or components for each engine-system so that their emissions deterioration characteristics may be expected to represent those of in-use vehicles, based on good engineering judgement. The selection of durability data vehicles or components is also governed by § 86.091–7(a)(2)(i)(A) of this subpart, which generally requires that vehicles and components used for certification must be representative of production vehicles and components.

(4) *Durability-data vehicle compliance requirements.* Durability-data vehicle compliance requirements for the Standard Self-approval Durability Program are contained in § 86.094–28(b) of this subpart. These include the method of calculating deterioration factors, line crossing criteria, and related requirements.

(5) *In-use verification.* The Standard Self-Approval Durability Program includes no requirement for manufacturer testing of in-use vehicles subsequent to certification.

(6) *Data reporting requirements.* Data reporting requirements for the Standard Self-Approval Durability Program are contained in §§ 86.094–21, 86.094–23(b)(1)(ii), and 86.094–26(d) of this subpart.

(7) *Additional requirement.* The Administrator does not approve the test procedures for establishing exhaust emission deterioration factors. The manufacturer shall submit these procedures and determinations as required in § 86.094–21(b)(5)(i)(A) of this subpart.

(g) *Assigned Deterioration Factor Durability Program*—(1) *Applicability*—(i) *Small volume manufacturers.* The assigned DF durability program is applicable to light-duty vehicles and light-duty trucks certified under the small volume manufacturer provisions of §§ 86.094–1(e) and 86.094–14(b) of this subpart.

(ii) *Small volume engine families.* The assigned DF durability program is available to light-duty vehicles and light-duty trucks certified under the small volume engine family provisions of § 86.094–24(e)(2) of this subpart.

(2) *Determination of deterioration factors.* No service accumulation method or vehicle/component selection method are required. Deterioration factors are proposed by the manufacturer or assigned by the Administrator based on the provisions of § 86.094–14(c)(7)(i)(C) of this subpart.

(3) *In-use verification.* The Assigned Deterioration Factor Durability Program includes no requirement for manufacturer testing of in-use vehicles subsequent to certification.

(4) *Data reporting requirements.* Data reporting requirements for the Assigned

DF Durability Program are contained in § 86.094–14(c)(4), (c)(6), and (c)(11)(ii) of this subpart.

6. A new § 86.094–14 is proposed to be added to subpart A to read as follows:

**§ 86.094–14 Small-volume manufacturers certification procedures.**

Section 86.094–14 includes text that specifies requirements that differ from § 86.092–14. Where a paragraph in § 86.092–14 is identical and applicable to § 86.094–14, this may be indicated by specifying the corresponding paragraph and the statement "[Reserved]. For guidance see § 86.092–14." Where a corresponding paragraph of § 86.092–14 is not applicable, this is indicated by the statement "[Reserved]."

(a) The small-volume manufacturers certification procedures described in paragraphs (b) and (c) of this section are optional. Small-volume manufacturers may use these optional procedures to demonstrate compliance with the general standards and specific emission requirements contained in this subpart.

(b)(1) The optional small-volume manufacturers certification procedures apply to light-duty vehicles, light-duty trucks, heavy-duty vehicles, and heavy-duty engines produced by manufacturers with U.S. sales, including all vehicles and engines imported under the provisions of §§ 85.1505 and 85.1509 of this chapter (for the model year in which certification is sought) of fewer than 10,000 units (Light-Duty Vehicles, Light-Duty Trucks, Heavy-Duty Vehicles and Heavy-Duty Engines combined).

(2) For the purpose of determining the applicability of paragraph (b)(1) of this section, the sales the Administrator shall use shall be the aggregate of the projected or actual sales of those vehicles and/or engines in any of these groupings:

(i) Vehicles and/or engines produced by two or more firms, one of which is 10 percent or greater part owned by another;

(ii) Vehicles and/or engines produced by any two or more firms if a third party has equity ownership of 10 percent or more in each of the firms;

(iii) Vehicles and/or engines produced by two or more firms having a common corporate officer(s) who is (are) responsible for the overall direction of the companies;

(iv) Vehicles and/or engines imported or distributed by all firms where the vehicles and/or engines are manufactured by the same entity and the importer or distributor is an authorized agent of the entity.

(3) If the aggregated sales, as determined in paragraph (b)(2) of this section are less than 301 units, the manufacturers in the aggregated relationship may certify under the provisions in this section that apply to manufacturers with sales of less than 301 units.

(4) If the aggregated sales, as determined in paragraph (b)(2) of this section are greater than 300 but fewer than 10,000 units, the manufacturers in the aggregated relationship may certify under the provisions in this section that apply to manufacturers with sales from and including 301 through 9,999 motor vehicles and motor vehicles engines per year.

(5) If the aggregated sales, as determined in paragraph (b)(2) of this section are equal to or greater than 10,000 units, then the manufacturers involved in the aggregated relationship will be allowed to certify a number of units under the small-volume engine family certification procedures (reference § 86.094–24(e) of this subpart) in accordance with the criteria identified paragraphs (b)(5)(i)(through (iii) of this section.

(i) If a manufacturer purchases less than 50 percent of another manufacturer, each manufacturer retains its right to certify 9,999 units using the small-volume engine family certification procedures.

(ii) If a manufacturer purchases 50 percent or more of another manufacturer, the manufacturer with the over 50 percent interest must share, with the manufacturer it purchased, its 9,999 units under the small-volume engine family certification procedures.

(iii) In a joint venture arrangement (50/50 ownership) between two manufacturers, each manufacturer retains its eligibility for 9,999 units under the small-volume engine family certification procedures, but the joint venture must draw its maximum 9,999 units from the units allocated to its parent manufacturers.

(c) Small-volume manufacturers shall demonstrate compliance with the applicable sections of this subpart. The appropriate model year of the applicable sections detailed in paragraphs (c)(1) through (15) of this section shall be determined in accordance with § 86.084–4 of this subpart.

(1) Sections 86.094–1, 86.094–2, 86.094–3, 86.084–4, 86.090–5, 86.078–6, 86.094–7, and 86.094–8, through 86.094–11 of this subpart are applicable.

(2) Section 86.080–12 of this subpart is not applicable.

(3) Section 86.094–13, 86.094–14, 86.084–15, and 86.085–20 of this subpart are applicable.

(4) Small-volume manufacturers shall include in their records all of the information that EPA requires in § 86.094–21 of this subpart. This information will be considered part of the manufacturer's application for certification. However, the manufacturer is not required to submit the information to the Administrator unless the Administrator requests it.

(5) Section 86.094–22 of this subpart is applicable except as noted below.

(i) Small-volume light-duty vehicle and light-duty truck manufacturers may satisfy the requirements of paragraph (e) of § 86.094–22 of this subpart by including a statement of compliance on adjustable parameters in the application for certification. In the statement of compliance the manufacturer shall state that the limits, stops, seals, or other means used to inhibit adjustment have been designed to accomplish their intended purpose based on good engineering practice and past experience. If the vehicle parameter is adjustable the vehicle must meet emission standards with the parameter set any place within the adjustable range (reference § 86.094–21 of this subpart).

(ii) [Reserved]

(6) Section 86.094–23 of this subpart is applicable.

(7) Section 86.094–24 of this subpart is applicable except as noted below.

(i) Small-volume manufacturers may satisfy the requirements of § 86.094–24(b) and (c) of this subpart by:

(A) Emission-data. Selecting one emission-data test vehicle (engine) per engine family by the worst-case emissions criteria in accordance with paragraphs (c)(7)(i)(A) (*1*) through (*3*) of this section.

(*1*) *Light-duty vehicles and light-duty trucks.* The manufacturer shall select the vehicle with the heaviest equivalent test weight (including options) within the engine family. Then within that vehicle the manufacturer shall select, in the order listed, the highest road load power, largest displacement, the transmission with the highest numerical final gear ratio (including overdrive), the highest numerical axle ratio offered in the engine family, and the maximum fuel flow calibration.

(*2*) *Heavy-duty Otto-cycle engines.* The manufacturer shall select one emission-data engine first based on the largest displacement within the engine family. Then within the largest displacement the manufacturer shall select, in the order listed, highest fuel flow at the speed of maximum rated torque, the engine with the most advanced spark timing, no EGR or lowest EGR flow, and no air pump or lowest actual flow air pump.

(3) *Heavy-duty diesel engines.* The manufacturer shall select one emission-data engine based on the highest fuel feed per stroke, primarily at the speed of maximum rated torque and secondarily at rated speed.

(B) Testing light-duty vehicles or light-duty truck emission-data vehicles at any service accumulation distance of at least 2,000 miles (3,219 kilometers) or, catalyst equipped heavy-duty emission-data engines at any service accumulation time of at least 62 hours, or non-catalyst equipped heavy-duty engine emission-data engines at any service accumulation time determined by the manufacturer to result in stabilized emissions. The emission performance of the emission-data vehicle or engine must be stabilized prior to emission testing.

(C) Durability data. Satisfying the durability-data requirements by complying with the applicable procedures in paragraphs (c)(7)(i)(C) (*1*) through (*4*) of this section.

(*1*) Manufacturers with aggregated sales of less than 301 motor vehicles and motor vehicle engines per year may use assigned deterioration factors that the Administrator determines and prescribes. The factors will be the Administrator's estimate, periodically updated and published in an advisory letter or advisory circular, of the 70th percentile deterioration factors calculated using the industry-wide data base of previously completed durability-data vehicles or engines used for certification. However, the manufacturer may, at its option, accumulate miles (hours) on a durability-data vehicle (engine) and complete emission tests for the purpose of establishing its own deterioration factors.

(*2*)(*i*) Manufacturers with aggregated sales from and including 301 through 9,999 motor vehicles and motor vehicle engines per year certifying light-duty vehicle exhaust emissions from vehicles equipped with proven emission control systems shall use assigned deterioration factors that the manufacturer determines based on its good engineering judgment. However, the manufacturer may not use deterioration factors less than either the average or 70th percentile of all of that manufacturer's deterioration factor, whichever is less. These minimum deterioration factors shall be calculated according to procedures in paragraph (c)(7)(i)(C)(*2*)(*ii*), of this section. If the manufacturer does not have at least two data points to calculate these manufacturer specific average deterioration factors, then the deterioration factors shall be no less than the EPA supplied industry-wide deterioration factors. However, the manufacturer may, at its option, accumulate miles on a durability-data vehicle and complete emission tests for the purpose of establishing its own deterioration factors.

(*ii*) The manufacturer's minimum deterioration factors shall be calculated using the deterioration factors from all engine families, within the same vehicle/engine-fuel usage category (e.g., gasoline-fueled light-duty vehicle, etc.). previously certified to the same emission standards. The manufacturer shall use only deterioration factors engine families previously certified by the manufacturer and the deterioration factors shall not be included in the calculation more than once. The deterioration factors for each pollutant shall be calculated separately. The manufacturer may, at its option, limit the deterioration factors used in the calculation of the manufacturer's minimum deterioration factors to those from all similar systems to the system being certified if sufficient data (i.e., from at least two certified systems) exists. All data eligible to be grouped as similar system data shall be used in calculating similar system deterioration factors. Any deterioration factors used in calculating similar system deterioration factors shall not be included in calculating the manufacturer's minimum deterioration factors used to certify any of the manufacturer's remaining vehicle systems.

(*3*) Manufacturers with aggregated sales from 301 through 9,999 motor vehicles and motor vehicle engines and certifying light-duty vehicle exhaust emissions from vehicles equipped with unproven emission control systems shall use deterioration factors that the manufacturer determines from official certification durability data generated by vehicles from engine families representing a minimum of 25 percent of the manufacturer's sales equipped with unproven emission control systems. The sales projections are to be based on total sales projected for each engine/system combination. The durability programs applicable to such manufacturers for this purpose shall be the standard AMA, the production AMA and the alternative service accumulation durability programs of § 86.094–13 of this subpart. The durability-data vehicle (engine) mileage accumulation and emission tests are to be conducted according to § 86.094–13 of this subpart. The manufacturer must develop deterioration factors by generating durability data in accordance with § 86.094–13 of this subpart on a minimum of 25 percent of the manufacturer's projected sales (by engine/system combination) that is equipped with unproven emission control systems. The manufacturer must complete the 25 percent durability requirement before the remainder of the manufacturer's sales equipped with unproven emission control systems is certified using manufacturer-determined assigned deterioration factors. Alternatively, any of these manufacturers may, at their option, accumulate miles on durability-data vehicles and complete emission tests for the purpose of establishing their own deterioration factors on the remaining sales.

(*4*) For light-duty vehicle, light-duty truck, and heavy-duty vehicle evaporative emissions and light-duty truck, and heavy-duty engine exhaust emissions, deterioration factors shall be determined in accordance with § 86.094–24 of this subpart.

(ii) Section 86.094–24 (d) and (e) of this subpart are not applicable.

(8) Section 86.094–25 of this subpart is applicable to maintenance performed on durability-data light-duty vehicles, light-duty trucks, heavy-duty vehicles, and heavy-duty engines when the manufacturer completes durability-data vehicles or engines; § 86.087–38 of this subpart is applicable to the recommended maintenance the manufacturer includes in the maintenance instructions furnished the purchasers of new motor vehicles and new motor vehicle engines under § 86.087–38 of this subpart.

(9)(i) Section 86.094–26 of this subpart is applicable if the manufacturer completes durability-data vehicles or engines.

(ii) Section 86.090–27 of this subpart is applicable.

(10) Sections 86.094–28 and 86.091–29 of this subpart are applicable.

(11)(i) Section 86.094–30 of this subpart is applicable, except for paragraph (a)(2) and (b) of that section. In the place of these paragraphs, small-volume manufacturer shall comply with paragraphs (c)(11) (ii) through (v) of this section, as shown below.

(ii) Small-volume manufacturers shall submit an application for certification containing the elements contained in paragraphs (c)(11)(ii) (A) through (E) of this section.

(A) The names, addresses, and telephone numbers of the persons the manufacturer authorizes to communicate with us.

(B) A brief description of the vehicles (or engines) covered by the certificate (the manufacturers' sales data book or advertising, including specifications, may satisfy this requirement for mos

manufacturers). The description shall include, as a minimum, the items listed in paragraphs (c)(11)(ii)(B) (*1*) through (*18*) of this section as applicable.

(*1*) Engine evaporative family names and vehicle (or engine) configurations.

(*2*) Vehicle carlines or engine models to be listed on the certificate of conformity.

(*3*) The test weight and horsepower setting for each vehicle or engine configuration.

(*4*) Projected sales.

(*5*) Combustion cycle.

(*6*) Cooling mechanism.

(*7*) Number of cylinders.

(*8*) Displacement.

(*9*) Fuel system type.

(*10*) Number of catalytic converters, type, volume, composition, surface area, and total precious metal loading.

(*11*) Method of air aspiration.

(*12*) Thermal reactor characteristics.

(*13*) Suppliers' and/or manufacturers' name and model number of any emission related items of the above, if purchased from a supplier who uses the items in its own certified vehicles(s) or engine(s).

(*14*) A list of emission component part numbers.

(*15*) Drawings, calibration curves, and descriptions of emission related components, including those components regulated under paragraph (e) of § 86.085–22 of this subpart, and schematics of hoses and other devices connecting these components.

(*16*) Vehicle adjustments or modifications necessary for light-duty trucks to assure that they conform to high-altitude standards.

(*17*) A description of the light-duty vehicles and light-duty trucks which are exempted from the high-altitude emission standards.

(*18*) Proof that the manufacturer has obtained or entered an agreement to purchase, when applicable, the insurance policy, required by § 85.1510(b) of this chapter. The manufacturer may submit a copy of the insurance policy or purchase agreement as proof that the manufacturer has obtained or entered an agreement to purchase the insurance policy.

(C) The results of all emission tests the manufacturer performs to demonstrate compliance with the applicable standards.

(D)(*1*) The following statement signed by the authorized representative of the manufacturer: "The vehicles (or engines) described herein have been tested in accordance with (list of the applicable subparts A, B, D, I, M, N, or P) of part 86, title 40, United States Code of Federal Regulations, and on the basis of those tests are in conformance with that subpart. All of the data and records required by that subpart are on file and are available for inspection by the EPA Administrator. We project the total U.S. sales of vehicles (engines) subject to this subpart (including all vehicles and engines imported under the provisions of 40 CFR 85.1505 and 85.1509 to be fewer than 10,000 units."

(*2*) A statement as required by and contained in paragraph (c)(5) of this section signed by the authorized representative of the manufacturer.

(*3*) A statement that the vehicles or engines described in the manufacturer's application for certification are not equipped with auxiliary emission control devices which can be classified as a defeat device as defined in § 86.082–2 of this subpart.

(*4*) A statement of compliance with section 206(a)(3) of the Clean Air Act (U.S.C. 7525(a)(3)).

(*5*) A statement that, based on the manufacturer's engineering evaluation and/or emission testing, the light-duty vehicles comply with emission standards at high altitude unless exempt under paragraph § 86.094–8(h) of this subpart.

(*6*) A statement that, based on the manufacturer's engineering evaluation and/or emission testing, the light-duty trucks sold for principle use at designated high-altitude locations comply with the high-altitude emission requirements and that all other light-duty trucks are at least capable of being modified to meet high-altitude standards unless exempt under § 86.094–9(g)(2) of this subpart.

(*7*) A statement affirming that the manufacturer will provide a list of emission and emission-related service parts, including part number designations and sources of parts, to the vehicle purchaser for all emission and emission-related parts which might affect vehicle emission performance throughout the useful life of the vehicle. Secondly, it must state that qualified service facilities and emission-related repair parts will be conveniently available to serve its vehicles. In addition, if service facilities are not available at the point of sale or distribution, the manufacturer must indicate that the vehicle purchaser will be provided information identifying the closest authorized service facility to the point of sale, if in the United States, or the closest authorized service facility to the point of distribution to the ultimate purchaser if the vehicle was purchased outside of the United States by the ultimate purchaser. Such information should also be made available to the Administrator upon request.

(E) Manufacturers utilizing deterioration factors determined by the manufacturer based on its good engineering judgment (reference paragraph (c)(7)(i)(C)(*2*) of this section) shall provide a description of the method(s) used by the manufacturer to determine the deterioration factors.

(iii) If the manufacturer meets requirements of this subpart, the Administrator will issue a certificate of conformity for the vehicles or engines described in the application for certification.

(iv) The certificate will be issued for such a period not to exceed one model year as the Administrator may determine and upon such terms as he may deem necessary to assure that any vehicle or engine covered by the certificate will meet the requirements of the Act and of this subpart.

(v)(A) If, after a review of the statements and descriptions submitted by the manufacturer, the Administrator determines that the manufacturer has not met the applicable requirements, the Administrator shall notify the manufacturer in writing of his intention to deny certification, setting forth the basis for his determination. The manufacturer may request a hearing on the Administrator's determination.

(B) If the manufacturer does not request a hearing or present the required information the Administrator will deny certification.

(12) Sections 86.079–31 and 86.079–32 of this subpart are not applicable.

(13) Under § 86.079–33 of this subpart, small-volume manufacturers are covered by paragraphs (c)(13) (i) and (ii) of this section.

(i) Small-volume manufacturers may make production changes (running changes) without receiving the Administrator's prior approval. The manufacturer shall assure (by conducting emission tests as it deems necessary) that the affected vehicles (engines) remain in compliance with the requirements of this part.

(ii) The manufacturer shall notify the Administrator within seven days after implementing any production related change (running change) that would affect vehicle emissions. This notification shall include any changes to the information required under paragraph (c)(11)(ii) of this section. The manufacturer shall also amend as necessary its records required under paragraph (c)(4) of this section to confirm with the production design change.

(14) Section 86.082–34 of this subpart is not applicable.

(15) Sections 86.094–35, 86.079–36, 86.085–37, 86.087–38 and 86.079–39 of this subpart are applicable.

7. Section 86.094–21 of subpart A is proposed to be amended by revising paragraphs (b)(5)(i)(C) through (b)(7) to read as follows:

**§ 86.094–21 Application for certification.**

* * * * *

(b)(5)(i)(C) through (b)(5)(ii) [Reserved]. For guidance see § 86.091–21.

(b)(5)(iii)(A) For each light-duty vehicle engine family, each light-duty truck engine family and each heavy-duty engine family, a statement of recommended maintenance and procedures necessary to assure that the vehicles (or engines) covered by a certificate of conformity in operation conform to the regulations, and a description of the program for training of personnel for such maintenance, and the equipment required.

(b)(5)(iii)(B) through (b)(6)(i)(B) [Reserved]. For guidance see § 86.091–21.

(b)(6)(i)(C) The manufacturer may at any time during production elect to change the level of any family particulate emission limit(s) by submitting the new limit(s) to the Administrator and by demonstrating compliance with the limit(s) as described in §§ 86.094–2 and 86.094–28(b)(5)(i) of this subpart.

(b)(6)(ii) through (b)(7) [Reserved]. For guidance see § 86.091–21.

* * * * *

8. A new § 86.094–22 is proposed to be added to subpart A to read as follows:

**§ 86.094–22 Approval of application for certification; test fleet selections; determinations of parameters subject to adjustment for certification and selective enforcement audit, adequacy of limits, and physically adjustable ranges.**

(a) After a review of the application for certification and any other information which the Administrator may require, the Administrator may approve the application and select a test fleet in accordance with § 86.094–24 of this subpart.

(b) The Administrator may disapprove in whole or in part an application for certification for reasons including incompleteness, inaccuracy, inappropriate proposed mileage (or service) accumulation procedures, test equipment, or fuel, and incorporation of defeat devices in vehicles (or on engines) described by the application.

(c) Where any part of an application is rejected, the Administrator shall notify the manufacturer in writing and set forth the reasons for such rejection. Within 30 days following receipt of such notification, the manufacturer may request a hearing on the Administrator's determination. The request shall be in writing, signed by an authorized representative of the manufacturer and shall include a statement specifying the manufacturer's objections to the Administrator's determinations, and data in support of such objections. If, after the review of the request and supporting data, the Administrator finds that the request raises a substantial factual issue, he shall provide the manufacturer a hearing in accordance with § 86.078–6 of this subpart with respect to such issue.

(d)(1) The Administrator does not approve the test procedures for establishing the evaporative emission deterioration factors for light-duty vehicles and light-duty trucks. The manufacturer shall submit the procedures as required in § 86.094–21(b)(4)(i) of this subpart prior to the Administrator's selection of the test fleet under § 86.094–24(b)(1) of this subpart and if such procedures will involve testing of durability-data vehicles selected by the Administrator or elected by the manufacturer under § 86.094–24(c)(1) of this subpart, prior to initiation of such testing.

(2) Heavy-duty engines only. The Administrator does not approve the test procedures for establishing exhaust emission deterioration factors. The manufacturer shall submit these procedures and determinations as required in § 86.094–21(b)(5)(i) of this subpart prior to determining the deterioration factors.

(3) Heavy-duty vehicles equipped with gasoline-fueled or methanol-fueled engines only. The Administrator does not approve the test procedures for establishing the evaporative emission deterioration factors. The test procedure will conform to the requirements in § 86.094–23(b)(3) of this subpart.

(e) When the Administrator selects emission-data vehicles for the test fleet, he will at the same time determine those vehicle or engine parameters which will be subject to adjustment for certification, Selective Enforcement Audit and Production Compliance Audit testing, the adequacy of the limits, stops, seals, or other means used to inhibit adjustment, and the resulting physically adjustable ranges for each such parameter and notify the manufacturer of his determinations.

(1)(i) Except as noted in paragraph (e)(1)(iv) of this section, the Administrator may determine to be subject to adjustment the idle fuel-air mixture parameter on Otto-cycle vehicles (or engines) (carbureted or fuel-injected); the choke valve action parameter(s) on carbureted, Otto-cycle vehicles (or engines); or any parameter on any vehicle (or engine) (Otto-cycle or diesel) which is physically capable of being adjusted, may significantly affect emissions, and was not present on the manufacturer's vehicles (or engines) in the previous model year in the same form and function.

(ii) The Administrator may, in addition, determine to be subject to adjustment any other parameters on any vehicle or engine which is physically capable of being adjusted and which may significantly affect emissions. However, the Administrator may do so only if he has previously notified the manufacturer that he might do so and has found, at the time he gave this notice, that the intervening period would be adequate to permit the development and application of the requisite technology, giving appropriate consideration to the cost of compliance within such period. In no event will this notification be given later than September 1 of the calendar year two years prior to the model year.

(iii) In determining the parameters subject to adjustment the Administrator will consider the likelihood that, for each of the parameters listed in paragraphs (e)(1)(i) and (ii) of this section, settings other than the manufacturer's recommended setting will occur on in-use vehicles (or engines). In determining likelihood, the Administrator may consider such factors as, but not limited to, information contained in the preliminary application, surveillance information from similar in-use vehicles (or engines), the difficulty and cost of gaining access to an adjustment, damage to the vehicle (or engine) if an attempt is made to gain such access and the need to replace parts following such attempt, and the effect of settings other than the manufacturer's recommended setting on vehicle (or engine) performance characteristics including emission characteristics.

(iv) Manual chokes of heavy-duty engines only will not be considered a parameter subject to adjustment under the parameter adjustment requirements.

(2)(i) The Administrator shall determine a parameter to be adequately inaccessible or sealed if:

(A) In the case of an idle mixture screw, the screw is recessed within the carburetor casting and sealed with lead, thermosetting plastic, or an inverted elliptical spacer or sheared off after adjustment at the factory, and the inaccessibility is such that the screw cannot be accessed and/or adjusted

with simple tools in one-half hour or for $20 (1978 dollars) or less.

(B) In the case of a choke bimetal spring, the plate covering the bimetal spring is riveted or welded in place, or held in place with nonreversible screws.

(C) In the case of a parameter which may be adjusted by elongating or bending adjustable members (e.g., the choke vacuum break), the elongation of the adjustable member is limited by design or, in the case of a bendable member, the member is constructed of a material which when bent would return to its original shape after the force is removed (plastic or spring steel materials).

(D) In the case of any parameter, the manufacturer demonstrates that adjusting the parameter to settings other than the manufacturer's recommended setting takes more than one-half hour or costs more than $20 (1978 dollars).

(ii) The Administrator shall determine a physical limit or stop to be an adequate restraint on adjustability if:

(A) In the case of a threaded adjustment, the threads are terminated, pinned or crimped so as to prevent additional travel without breakage or need for repairs which take more than one-half hour or cost more than $20 (1978 dollars).

(B) The adjustment is ineffective at the end of the limits of travel regardless of additional forces or torques applied to the adjustment.

(C) The manufacturer demonstrates that travel or rotation limits cannot be exceeded with the use of simple and inexpensive tools (screwdriver, pliers, open-end or box wrenches, etc.) without incurring significant and costly damage to the vehicle (or engine) or control system or without taking more than one-half hour or costing more than $20 (1978 dollars).

(iii) If manufacturer service manuals or bulletins describe routine procedures for gaining access to a parameter or for removing or exceeding a physical limit, stop, seal or other means used to inhibit adjustment, or if surveillance data indicate that gaining access, removing, or exceeding is likely, paragraphs (e)(2)(i) and (ii) of this section shall not apply for that parameter.

(iv) In determining the adequacy of a physical limit, stop, seal, or other means used to inhibit adjustment of a parameter not covered by paragraph (e)(2)(i) or (ii) of this section, the Administrator will consider the likelihood that it will be circumvented, removed, or exceeded on in-use vehicles. In determining likelihood, the Administrator may consider such factors as, but not limited to, information contained in the preliminary application; surveillance information from similar in-use vehicles (or engines); the difficulty and cost of circumventing, removing, or exceeding the limit, stop, seal, or other means; damage to the vehicle (or engine) if an attempt is made to circumvent, remove, or exceed it and the need to replace parts following such attempt; and the effect of settings beyond the limit, stop, seal, or other means on vehicle (or engine) performance characteristics other than emission characteristics.

(3) The Administrator shall determine two physically adjustable ranges for each parameter subject to adjustment:

(i)(A) In the case of a parameter determined to be adequately inaccessible or sealed, the Administrator may include within the physically adjustable range applicable to testing under this subpart (certification testing) all settings within the production tolerance associated with the nominal setting for that parameter, as specified by the manufacturer in the preliminary application for certification.

(B) In the case of other parameters, the Administrator shall include within this range all settings within physical limits or stops determined to be adequate restraints on adjustability. The Administrator may also include the production tolerances on the location of these limits or stops when determining the physically adjustable range.

(ii)(A) In the case of a parameter determined to be adequately inaccessible or sealed, the Administrator shall include within the physically adjustable range applicable to testing under subparts G or K of this part (Selective Enforcement Audit and Production Compliance Audit) only the actual settings to which the parameter is adjusted during production.

(B) In the case of other parameters, the Administrator shall include within this range all settings within physical limits or stops determined to be adequate restraints on adjustability, as they are actually located on the test vehicle (or engine).

(f)(1) If the manufacturer submits the information specified in § 86.090-21(b)(1)(ii) of this subpart in advance of its full preliminary application for certification, the Administrator shall review the information and make the determinations required in paragraph (e) of this section within 90 days of the manufacturer's submittal.

(2) The 90-day decision period is exclusive of the elapsed time during which EPA may request additional information from manufacturers regarding an adjustable parameter and the receipt of the manufacturers' response(s).

(g) Within 30 days following receipt of notification of the Administrator's determinations made under paragraph (e) of this section, the manufacturer may request a hearing on the Administrator's determinations. The request shall be in writing, signed by an authorized representative of the manufacturer, and shall include a statement specifying the manufacturer's objections to the Administrator's determinations, and data in support of such objections. If, after review of the request and supporting data, the Administrator finds that the request raises a substantial factual issue, he shall provide the manufacturer a hearing in accordance with § 86.078-6 of this subpart with respect to such issue.

9. Section 86.094-23 of subpart A is proposed to be amended by revising paragraph (b)(1)(ii) to read as follows:

§ 86.094-23 Required data.

* * * * *

(b)(1) * * *

(ii) Exhaust emission deterioration factors for light-duty trucks and heavy-duty engines, and all test data that are derived from the testing described under § 86.094-21(b)(5)(i)(A) of this subpart, as well as a record of all pertinent maintenance. Such testing shall be designed and conducted in accordance with good engineering practice to assure that the engines covered by a certificate issued under § 86.094-30 of this subpart will meet each emission standard (or family emission limit, as appropriate) in §§ 86.094-9, 86.091-10, or 86.091-11 of this subpart as appropriate, in actual use for the useful life applicable to that standard.

* * * * *

10. A new § 86.094-24 is proposed to be added to subpart A to read as follows:

§ 86.094-24 Test vehicles and engines.

Section 86.094-24 includes text that specifies requirements that differ from § 86.092-24. Where a paragraph in § 86.092-24 is identical and applicable to § 86.094-24, this may be indicated by specifying the corresponding paragraph and the statement "[Reserved]. For guidance see § 86.092-24." Where a corresponding paragraph of § 86.092-24 is not applicable, this is indicated by the statement "[Reserved]."

(a)(1) The vehicles or engines covered by an application for certification will be divided into groupings of engines which are expected to have similar emission characteristics throughout their useful life. Each group of engines with similar emission characteristics shall be defined as a separate engine family.

(2) To be classed in the same engine family, engines must be identical in all the respects listed in paragraphs (a)(2)(i) through (x) of this section.

(i) The cylinder bore center-to-center dimensions.

(ii)–(iii) [Reserved]

(iv) The cylinder block configuration (air cooled or water cooled; L–6, 90° V–8, etc.).

(v) The location of the intake and exhaust valves (or ports).

(vi) The method of air aspiration.

(vii) The combustion cycle.

(viii) Catalytic converter characteristics.

(ix) Thermal reactor characteristics.

(x) Type of air inlet cooler (e.g., intercoolers and after-coolers) for diesel heavy-duty engines.

(3)(i) Engines identical in all the respects listed in paragraph (a)(2) of this section may be further divided into different engine families if the Administrator determines that they may be expected to have different emission characteristics. This determination will be based upon a consideration of the features of each engine listed in paragraphs (a)(3)(i)(A) through (G) of this section.

(A) The bore and stroke.

(B) The surface-to-volume ratio of the nominally dimensioned cylinder at the top dead center positions.

(C) The intake manifold induction port size and configuration.

(D) The exhaust manifold port size and configuration.

(E) The intake and exhaust valve sizes.

(F) The fuel system.

(G) The camshaft timing and ignition or injection timing characteristics.

(ii) Light-duty trucks and heavy-duty engines produced in different model years and distinguishable in the respects listed in paragraph (a)(2) of this section shall be treated as belonging to a single engine family if the Administrator requires it, after determining that the engines may be expected to have similar emission deterioration characteristics.

(4) Where engines are of a type which cannot be divided into engine families based upon the criteria listed in paragraphs (a)(2) through (3) of this section, the Administrator will establish families for those engines based upon those features most related to their emission characteristics. Engines that are eligible to be included in the same engine family based on the criteria in paragraphs (a)(2) and (a)(3)(i) of this section may be further divided into different engine families if the manufacturer determines that they may be expected to have different emission characteristics. This determination will be based upon a consideration of the features of each engine listed in paragraphs (a)(4)(i) through (iii) of this section.

(i) The dimension from the center line of the crankshaft to the center line of the camshaft.

(ii) The dimension from the center line of the crankshaft to the top of the cylinder block head face.

(iii) The size of the intake and exhaust valves (or ports).

(5) Gasoline-fueled and methanol-fueled light-duty vehicles and light-duty trucks covered by an application for certification will be divided into groupings which are expected to have similar evaporative emission characteristics throughout their useful life. Each group of vehicles with similar evaporative emission characteristics shall be defined as a separate evaporative emission family.

(6) For gasoline-fueled or methanol-fueled light-duty vehicles and light-duty trucks to be classed in the same evaporative emission family, vehicles must be similar with respect to:

(i) Type of vapor storage device (e.g., canister, air cleaner, crankcase),

(ii) Basic canister design, and

(iii) Fuel system.

(7) Where vehicles are of a type which cannot be divided into evaporative emission families based on the criteria listed above, the Administrator will establish families for those vehicles based upon the features most related to their evaporative emission characteristics.

(8)(i) If the manufacturer elects to participate in the Production AMA Durability Program, the engine families covered by an application for certification shall be grouped based upon similar engine design and emission control system characteristics. Each of these groups shall constitute a separate engine family group.

(ii) To be classed in the same engine family group, engine families must contain engines identical in all of the respects listed in paragraphs (a)(8)(ii)(A) through (D) of this section.

(A) The combustion cycle.

(B) The cylinder block configuration (air-cooled or water-cooled; L–6, V–8, rotary, etc.).

(C) Displacement (engines of different displacement within 50 cubic inches or 15 percent of the largest displacement and contained within a multidisplacement engine family will be included in the same engine family group).

(D) Catalytic converter usage and basic type (noncatalyst, oxidation catalyst only, three-way catalyst equipped).

(9) Engine families identical in all respects listed in paragraph (a)(8) of this section may be further divided into different engine family groups if the Administrator determines that they are expected to have significantly different exhaust emission control system deterioration characteristics.

(10) A manufacturer may request the Administrator to include in an engine family group, engine families in addition to those grouped under the provisions of paragraph (a)(8) of this section. This request must be accompanied by information the manufacturer believes supports the inclusion of these additional engine families.

(11) A manufacturer may combine into a single engine family group those light-duty vehicle and light-duty truck engine families which otherwise meet the requirements of paragraphs (a)(8) through (a)(10) of this section.

(12) The vehicles covered by an application for certification equipped with gasoline-fueled or methanol-fueled heavy-duty engines will be divided into groupings of vehicles on the basis of physical features which are expected to affect evaporative emissions. Each group of vehicles with similar features shall be defined as a separate evaporative emission family.

(13) For vehicles equipped with gasoline-fueled or methanol-fueled heavy-duty engines to be classed in the same evaporative emission family, vehicles must be identical with respect to:

(i) Method of fuel/air metering (i.e., carburetion versus fuel injection), and

(ii) Carburetor bowl fuel volume, within a 10 cc range.

(14) For vehicles equipped with gasoline-fueled or methanol-fueled heavy-duty engines to be classed in the same evaporative emission control system, vehicles must be identical with respect to:

(i) Method of vapor storage,

(ii) Method of carburetor sealing,

(iii) Method of air cleaner sealing,

(iv) Vapor storage working capacity, within a 20 g range,

(v) Number of storage devices,

(vi) Method of purging stored vapors,

(vii) Method of venting the carburetor during both engine off and engine operation,

(viii) Liquid fuel hose material, and

(ix) Vapor storage material.

(15) Where vehicles equipped with gasoline-fueled or methanol-fueled heavy-duty engines are types which cannot be divided into evaporative emission family-control system combinations based on the criteria listed above, the Administrator will establish

evaporative emission family-control system combinations for those vehicles based on features most related to their evaporative emission characteristics.

(b) Emission data. (1) *Emission-data vehicles.* Paragraph (b)(1) of this section applies to light-duty vehicle and light-duty truck emission-data vehicles.

(i) Vehicles will be chosen to be operated and tested for emission data based upon engine family groupings. Within each engine family, one test vehicle will be selected based on the following criteria: The Administrator shall select the vehicle with the heaviest equivalent test weight (including options) within the family. Then within that vehicle the Administrator shall select, in the order listed, the highest road-load power, largest displacement, the transmission with the highest numerical final gear ratio (including overdrive), the highest numerical axle ratio offered in that engine family and the maximum fuel flow calibration.

(ii) The Administrator shall select one additional test vehicle from within each engine family. The vehicle selected shall be the vehicle expected to exhibit the highest emissions of those vehicles remaining in the engine family. If all vehicles within the engine family are similar the Administrator may waive the requirements of this paragraph.

(iii) Within an engine family and exhaust emission control system, the manufacturer may alter any emission-data vehicle (or other vehicles such as including current or previous model year emission-data vehicles, fuel economy data vehicles, and development vehicles provided they meet emission-data vehicles, protocol) to represent more than one selection under paragraph (b)(1) (i), (ii), (iv), or (vii) of this section.

(iv) If the vehicles selected in accordance with paragraphs (b)(1) (i) and (ii) of this section do not represent each engine-system combination, then one vehicle of each engine-system combination not represented will be selected by the Administrator. The vehicle selected shall be the vehicle expected to exhibit the highest emissions of those vehicles remaining in the engine family.

(v) For high-altitude exhaust emission compliance for each engine family, the manufacturer shall follow one of the procedures described in paragraphs (b)(1)(v) (A) and (B) of this section.

(A) The manufacturer will select for testing under high-altitude conditions the vehicle expected to exhibit the highest emissions from the nonexempt vehicles selected in accordance with paragraphs (b)(1) (ii), (iii), and (iv) of this section or,

(B) In lieu of testing vehicles according to paragraph (b)(1)(v)(A) of this section, a manufacturer may provide a statement in its application for certification that, based on the manufacturer's engineering evaluation of such high-altitude emission testing as the manufacturer deems appropriate,

(*1*) That all light-duty vehicles not exempt under § 86.090–8(h) of this subpart comply with the emission standards at high-altitude, and

(*2*) That light-duty trucks sold for principal use at designated high-altitude locations comply with the high-altitude emission requirements, and that all light-duty trucks sold at low-altitude, which are not exempt under § 86.090–9(g)(2) of this subpart, are capable of being modified to meet high-altitude standards.

(vi) If 90 percent or more of the engine family sales will be in California, a manufacturer may substitute emission-data vehicles selected by the California Air Resources Board criteria for the selections specified in paragraphs (b)(1) (i), (ii), and (iv) of this section.

(vii)(A) Vehicles of each evaporative emission family will be divided into evaporative emission control systems.

(B) The Administrator will select the vehicle expected to exhibit the highest evaporative emissions, from within each evaporative family to be certified, from among the vehicles represented by the exhaust emission-data selections for the engine family, unless evaporative testing has already been completed on the vehicle expected to exhibit the highest evaporative emissions for the evaporative family as part of another engine family's testing.

(C) If the vehicles selected in accordance with paragraph (b)(1)(vii)(B) of this section do not represent each evaporative emission control system then the Administrator will select the highest expected evaporative emission vehicle from within the unrepresented evaporative system.

(viii) For high-altitude evaporative emission compliance for each evaporative emission family, the manufacturer shall follow one of the procedures described in paragraphs (b)(1)(viii) (A) and (B) of this section.

(A) The manufacturer will select for testing under high-altitude conditions the one nonexempt vehicle previously selected under paragraph (b)(1)(vii) (B) or (C) of this section which is expected to have the highest level of evaporative emissions when operated at high altitude or

(B) In lieu of testing vehicles according to paragraph (b)(1)(viii)(A) of this section, a manufacturer may provide a statement in its application for certification that based on the manufacturer's engineering evaluation of such high-altitude emission testing as the manufacturer deems appropriate,

(*1*) That all light-duty vehicles not exempt under § 86.090–8(h) of this subpart comply with the emission standards at high altitude and

(*2*) That light-duty trucks sold for principal use at designated high-altitude locations comply with the high-altitude emission requirements, and that all light-duty trucks sold at low altitude, which are not exempt under § 86.090–9(g)(2) of this subpart, are capable of being modified to meet high-altitude standards.

(ix) Vehicles selected under paragraph (b)(1)(v)(A) of this section may be used to satisfy the requirements of (b)(1)(viii)(A) of this section.

(x) Light-duty trucks only. (A) The manufacturer may reconfigure any of the low-altitude emission-data vehicles to represent the vehicle configuration required to be tested at high altitude.

(B) The manufacturer is not required to test the reconfigured vehicle at low altitude.

(2) *Otto-cycle heavy-duty emission-data engines.* Paragraph (b)(2) of this section applies to Otto-cycle heavy-duty engines.

(i)–(ii) [Reserved]

(iii) The Administrator shall select a maximum of two engines within each engine family based upon features indicating that they may have the highest emission levels of the engines in the engine family as follows:

(A) The Administrator shall select one emission-data engine first based on the largest displacement within the engine family. Then within the largest displacement the Administrator shall select, in the order listed, highest fuel flow at the speed of maximum rated torque, the engine with the most advanced spark timing, no EGR or lowest EGR flow, and no air pump or lowest actual flow air pump.

(B) The Administrator shall select one additional engine, from within each engine family. The engine selected shall be the engine expected to exhibit the highest emissions of those engines remaining in the engine family. If all engines within the engine family are similar the Administrator may waive the requirements of this paragraph.

(iv) If the engines selected in accordance with paragraphs (b)(2) (ii) and (iii) of this section do not represent each engine displacement-exhaust emission control system combination, then one engine of each engine displacement-exhaust emission control

system combination not represented shall be selected by the Administrator.

(v) Within an engine family/displacement/control system, the manufacturer may alter any emission-data engine (or other engine including current or previous model year emission-data vehicles and development engines provided they meet the emission-data engines protocol) to represent more than one selection under paragraphs (b)(2)(iii) of this section.

(3) *Diesel heavy-duty emission-data engines.* Paragraph (b)(3) of this section applies to diesel heavy-duty emission-data vehicles.

(i) Engines will be chosen to be run for emission data based upon engine family groupings. Within each engine family, the requirements of paragraphs (b)(3) (i) through (iv) of this section must be met.

(ii) Engines of each engine family will be divided into groups based upon their exhaust emission control systems. One engine of each engine system combination shall be run for smoke emission data (diesel engines only) and gaseous emission data. Either the complete gaseous emission test or the complete smoke test may be conducted first. Within each combination, the engine that features the highest fuel feed per stroke, primarily at the speed of maximum rated torque and secondarily at rated speed, will usually be selected. If there are military engines with higher fuel rates than other engines in the same engine system combinations, then one military engine shall also be selected. The engine with the highest fuel feed per stroke will usually be selected.

(iii) The Administrator may select a maximum of one additional engine within each engine-system combination based upon features indicating that it may have the highest emission levels of the engines of that combination. In selecting this engine, the Administrator will consider such features as the injection system, fuel system, compression ratio, rated speed, rated horsepower, peak torque speed, and peak torque.

(iv) Within an engine family control system combination, the manufacturer may alter any emission-data engine (or other engine including current or previous model year emission-data vehicles and development engines provided they meet the emission-data engines' protocol) to represent more than one selection under paragraphs (b)(3) (ii) and (iii) of this section.

(c) Durability data. (1) *Light-duty vehicle durability-data vehicles.* Paragraph (c)(1) of this section applies to light-duty vehicle durability-data vehicles.

(i) A durability-data vehicle will be selected by the Administrator to represent each engine-system combination. The vehicle selected shall be of the engine displacement with the largest projected sales volume of vehicles with that control-system combination in that engine family and will be designated by the Administrator as to transmission type, fuel system, inertia weight class, test weight.

(ii) A manufacturer may elect to operate and test additional vehicles to represent any engine-system combination. The additional vehicles must be of the same engine displacement, transmission type, fuel system and inertia weight class as the vehicle selected for that engine-system combination in accordance with the provisions of paragraph (c)(1)(i) of this section. Notice of an intent to operate and test additional vehicles shall be given to the Administrator no later than 30 days following notification of the test fleet selection.

(2) *Light-duty trucks.* Paragraph (c)(2) of this section applies to vehicles, engines, subsystems, or components used to establish exhaust emission deterioration factors for light-duty trucks.

(i) The manufacturer shall select the vehicles, engines, subsystems, or components to be used to determine exhaust emission deterioration factors for each engine-family control system combination. Whether vehicles, engines, subsystems, or components are used, they shall be selected so that their emissions deterioration characteristics may be expected to represent those of in-use vehicles, based on good engineering judgment.

(ii) [Reserved]

(3) *Heavy-duty engines.* Paragraph (c)(3) of this section applies to engines, subsystems, or components used to establish exhaust emission deterioration factors for heavy-duty engines.

(i) The manufacturer shall select the engines, subsystems, or components to be used to determine exhaust emission deterioration factors for each engine-family control system combination. Whether engines, subsystems, or components are used, they shall be selected so that their emissions deterioration characteristics may be expected to represent those of in-use engines, based on good engineering judgment.

(ii) [Reserved]

(d) For purposes of testing under § 86.084–26(a)(9) or (b)(11) of this subpart, the Administrator may require additional emission-data vehicles (or emission-data engines) and durability-data vehicles (light-duty vehicles only) identical in all material respects to vehicles (or engines) selected in accordance with paragraphs (b) and (c) of this section, provided that the number of vehicles (or engines) selected shall not increase the size of either the emission-data fleet or the durability-data fleet by more than 20 percent or one vehicle (or engine), whichever is greater.

(e)(1) [Reserved]

(2) Any manufacturer may request to certify engine families with combined total sales of fewer than 10,000 light-duty vehicles, light-duty trucks, heavy-duty vehicles, and heavy-duty engines utilizing the procedures contained in § 86.094–14 of this subpart for emission-data vehicle selection and determination of deterioration factors. The deterioration factors shall be applied only to entire engine families.

(f) *Carryover and carry-across of durability and emission data.* In lieu of testing an emission-data or durability-data vehicle (or engine) selected under paragraph (c) of this section, and submitting data therefore, a manufacturer may, with the prior written approval of the Administrator, submit exhaust emission data and/or evaporative emission data, as applicable on a similar vehicle (or engine) for which certification has previously been obtained or for which all applicable data required under § 86.080–23 of this subpart has previously been submitted.

(g)(1) This paragraph applies to light-duty vehicles and light-duty trucks, but does not apply to the production vehicles selected under paragraph (h) of this section.

(2)(i) Where it is expected that more than 33 percent of a carline, within an engine-system combination will be equipped with an item (whether that item is standard equipment or an option), the full estimated weight of that item shall be included in the curb weight computation for each vehicle available with that option in that carline, within that engine-system combination.

(ii) Where it is expected that 33 percent or less of the carline, within an engine-system, will be equipped with an item of (whether that item is standard equipment or an option), no weight for that item will be added in computing curb weight for any vehicle in that carline, within that engine-system combination, unless that item is standard equipment on the vehicle.

(iii) In the case of mutually exclusive options, only the weight of the heavier option will be added in computing curb weight.

(iv) Optional equipment weighing less than 3 pounds per item need not be considered.

(3)(i) Where it is expected that more than 33 percent of a carline, within an engine-system combination will be equipped with an item of (whether that item is standard equipment or an option) that can reasonably be expected to influence emissions, then such items shall actually be installed (unless excluded under paragraph (g)(3)(ii) of this section) on all emission data and durability data vehicles of that carline, within that engine-system combination, on which the items are intended to be offered in production. Items that can reasonably be expected to influence emissions are: air conditioning, power steering, power brakes and other items determined by the Administrator.

(ii) If the manufacturer determines by test data or engineering evaluation that the actual installation of the optional equipment required by paragraph (g)(3)(i) of this section does not affect the emissions or fuel economy values, the optional equipment need not be installed on the test vehicle.

(iii) The weight of the options shall be included in the design curb weight and also be represented in the weight of the test vehicles.

(iv) The engineering evaluation, including any test data, used to support the deletion of optional equipment from test vehicles, shall be maintained by the manufacturer and shall be made available to the Administrator upon request.

(4) Where it is expected that 33 percent or less of a carline, within an engine system combination will be equipped with an item of (whether that item is standard equipment or an option) that can reasonably be expected to influence emissions, that item shall not be installed on any emission data or durability data vehicles of that carline, within that engine-system combination, unless that item is standard equipment on the vehicle.

(h) Production AMA Durability Program durability-data vehicles. This paragraph applies to light-duty vehicle durability-data vehicles selected under the Production AMA Durability Program described in § 86.094–13 of this subpart.

(1) In order to update the durability data to be used to determine a deterioration factor for each engine family group, the Administrator will select durability-data vehicles from the manufacturer's production line. Production vehicles will be selected from each model year's production for those vehicles certified using the Production AMA Durability Program procedures.

(i) The Administrator shall select the production durability-data vehicle designs from the designs that the manufacturer offers for sale. For each model year and for each engine family group, the Administrator may select production durability-data vehicle designs of equal number to the number of engine families within the engine family group, up to a maximum of three vehicles.

(ii) The production durability-data vehicles representing the designs selected in paragraph (h)(1)(i) of this section will be randomly selected from the manufacturer's production. The Administrator will make these random selections unless the manufacturer (with prior approval of the Administrator) elects to make the random selections.

(iii) The manufacturer may select additional production durability-data vehicle designs from within the engine family group. The production durability-data vehicles representing these designs shall be randomly selected from the manufacturer's production in accordance with paragraph (h)(1)(ii) of this section.

(iv) For each production durability-data vehicle selected under paragraph (h)(1) of this section, the manufacturer shall provide to the Administrator (before the vehicle is tested or begins service accumulation) the vehicle identification number. Before the vehicle begins service accumulation the manufacturer shall also provide the Administrator with a description of the durability-data vehicle as specified by the Administrator.

(v) In lieu of testing a production durability-data vehicle selected under paragraph (h)(1) of this section, and submitting data therefrom, a manufacturer may, with the prior written approval of the Administrator, submit exhaust emission data from a production vehicle of the same configuration for which all applicable data has previously been submitted.

(2) If, within an existing engine family group, a manufacturer requests to certify vehicles of a new design, engine family, emission control system, or with any other durability-related design difference, the Administrator will determine if the existing engine family group deterioration factor is appropriate for the new design. If the Administrator cannot make this determination or deems the deterioration factor not appropriate, the Administrator shall select preproduction durability-data vehicles under the provisions of paragraph (c) of this section. If vehicles are then certified using the new design, the Administrator may select production vehicles with the new design under the provisions of paragraph (h)(1) of this section.

(3) If a manufacturer requests to certify vehicles of a new design that the Administrator determines are a new engine family group, the Administrator shall select preproduction durability data vehicles under the provisions of paragraph (c) of this section. If vehicles are then certified using the new design, the Administrator may select production vehicles of that design under the provisions of paragraph (h)(1) of this section.

11. A new § 86.094–25 is proposed to be added to subpart A to read as follows:

**§ 86.094–25 Maintenance.**

(a)(1) Applicability. This section applies to light-duty vehicles, light-duty trucks, and heavy-duty engines.

(2) Maintenance performed on vehicles, engines, subsystems, or components used to determine exhaust or evaporative emission deterioration factors is classified as either emission-related or non-emission-related and each of these can be classified as either scheduled or unscheduled.

Further, some emission-related maintenance is also classified as critical emission-related maintenance.

(b) This section specifies emission-related scheduled maintenance for purposes of obtaining durability data and for inclusion in maintenance instructions furnished to purchasers of new motor vehicles and new motor vehicles engines under § 86.087–38 of this subpart.

(1) All emission-related scheduled maintenance for purposes of obtaining durability data must occur at the same mileage intervals (or equivalent intervals if engines, subsystems, or components are used) that will be specified in the manufacturer's maintenance instructions furnished to the ultimate purchaser of the motor vehicle or engine under § 86.094–35 of this subpart. This maintenance schedule may be updated as necessary throughout the testing of the vehicle/engine provided that no maintenance operation is deleted from the maintenance schedule after the operation has been performed on the test vehicle or engine.

(2) Any emission-related maintenance which is performed on vehicles, engines, subsystems, or components must be technologically necessary to assure in-use compliance with the emission standards. The manufacturer must submit data which demonstrate to the Administrator that all of the emission-related scheduled maintenance which is

to be performed is technologically necessary. Scheduled maintenance must be approved by the Administrator prior to being performed or being included in the maintenance instructions provided to purchasers under § 86.087–38 of this subpart. As provided below, EPA has determined that emission-related maintenance at shorter intervals than that outlined in paragraphs (b) (3) and (4) of this section is not technologically necessary to ensure in-use compliance. However, the Administrator may determine that maintenance even more restrictive (e.g., longer intervals) than that listed in paragraphs (b) (3) and (4) of this section is also not technologically necessary.

(3) For Otto-cycle light-duty vehicles, light-duty trucks and heavy duty engines, emission-related maintenance in addition to, or at shorter intervals than, the following listed in paragraphs (b)(3) (i) through (vii) of this section will not be accepted as technologically necessary, except as provided in paragraph (b)(7) of this section:

(i)(A) The cleaning or replacement of light-duty vehicle or light-duty truck spark plugs at 30,000 miles of use and at 30,000 mile intervals thereafter.

(B) The cleaning or replacement of Otto-cycle heavy duty engine spark plugs at 25,000 miles (or 750 hours) of use and at 25,000 mile intervals (or 750-hour) intervals thereafter, for engines certified for use with unleaded fuel only.

(ii) For heavy-duty engines, the adjustment, cleaning, repair, or replacement of the items listed in paragraphs (b)(3)(ii) (A) through (D) of this section at 50,000 miles (or 1,500 hours) of use and at 50,000-mile (or 1,500-hour) intervals thereafter.

(A) Positive crankcase ventilation valve.

(B) Emission-related hoses and tubes.

(C) Ignition wires.

(D) Idle mixture.

(iii) For light-duty vehicles and light-duty trucks, the adjustment, cleaning, repair, or replacement of the items listed in paragraphs (b)(3)(iii) (A) through (D) of this section at 50,000 miles of use and at 50,000-mile intervals thereafter.

(A) Positive crankcase ventilation valve.

(B) Emission-related hoses and tubes.

(C) Ignition wires.

(D) Idle mixture.

(iv) For light-duty vehicles, light-duty trucks and heavy-duty engines, the adjustment, cleaning, repair, or replacement of the oxygen sensor at 80,000-miles (or 2,400-hours) of use and at 80,000-mile (or 2,400-hour) intervals thereafter.

(v) For heavy-duty engines, the adjustment, cleaning, repair, or replacement of the items listed in paragraphs (b)(3)(v) (A) through (G) of this section at 100,000 miles (or 3,000 hours) of use and at 100,000-mile (or 3,000-hour) intervals thereafter:

(A) Catalytic converter.

(B) Air injection system components.

(C) Fuel injectors.

(D) Electronic engine control unit and its associated sensors (except oxygen sensor) and actuators.

(E) Evaporative emission canister.

(F) Turbochargers.

(G) Carburetors.

(vi) For light-duty vehicles and light-duty trucks, the adjustment, cleaning, repair, or replacement of the items listed in paragraphs (b)(3)(vi) (A) through (I) of this section at 100,000 miles of use and at 100,000-mile intervals thereafter:

(A) Catalytic converter.

(B) Air injection system components.

(C) Fuel injectors.

(D) Electronic engine control unit and its associated sensors (except oxygen sensor) and actuators.

(E) Evaporative emission canister.

(F) Turbochargers.

(G) Carburetors.

(H) Superchargers.

(I) EGR System including all related filters and control valves.

(vii) For heavy-duty engines certified for use with unleaded fuel only, the adjustment, cleaning, repair, or replacement of the EGR system (including all related filters and control valves) at 50,000 miles (or 1,500 hours) of use and at 50,000-mile (or 1,500-hour) intervals thereafter.

(4) For diesel-cycle light-duty vehicles, light-duty trucks, and heavy-duty engines, emission-related maintenance in addition to, or at shorter intervals than, the following listed in paragraphs (b)(4) (i) through (iv) of this section will not be accepted as technologically necessary, except as provided in paragraph (b)(7) of this section:

(i) For heavy-duty engines, the adjustment, cleaning, repair, or replacement of the items listed in paragraphs (b)(4)(i) (A) through (C) of this section at 50,000 miles (or 1,500 hours) of use and at 50,000-mile (or 1,500-hour) intervals thereafter.

(A) Exhaust gas recirculation system including all related filters and control valves.

(B) Positive crankcase ventilation valve.

(C) Fuel injector tips (cleaning only).

(ii) For light-duty vehicles and light-duty trucks, the adjustment, cleaning, repair, or replacement of the positive crankcase ventilation valve at 50,000 miles of use and at 50,000-mile intervals thereafter.

(iii) The adjustment, cleaning, repair, or replacement of items listed in paragraphs (b)(4)(iii) (A) through (D) of this section at 100,000 miles (or 3,000 hours) of use and at 100,000-mile (or 3,000-hour) intervals thereafter for light heavy-duty engines, or, at 150,000 miles (or 4,500 hours) of use and at 150,000-mile (or 4,500-hour) intervals thereafter for medium and heavy-duty engines.

(A) Fuel injectors.

(B) Turbocharger.

(C) Electronic engine control unit and its associated sensors and actuators.

(D) Particulate trap or trap-oxidizer system (including related components).

(iv) For light-duty vehicles and light-duty trucks, the adjustment, cleaning, repair, or replacement at 100,000 miles of use and at 100,000-mile intervals thereafter of the items listed in paragraphs (b)(4)(iv) (A) through (G) of this section.

(A) Fuel injectors.

(B) Turbocharger.

(C) Electronic engine control unit and its associated sensors and actuators.

(D) Particulate trap or trap-oxidizer system (including related components).

(E) Exhaust gas recirculation system including all related filters and control valves.

(F) Catalytic converter.

(G) Superchargers.

(5) [Reserved]

(6)(i) The components listed in (b)(6)(i)(A) through (b)(6)(i)(G) of this section are currently defined as critical emission-related components.

(A) Catalytic converter.

(B) Air injection system components.

(C) Electronic engine control unit and its associated sensors (including oxygen sensor if installed) and actuators.

(D) Exhaust gas recirculation system (including all related filters and control valves).

(E) Positive crankcase ventilation valve.

(F) Evaporative emission control system components (excluding canister air filter).

(G) Particulate trap or trap-oxidizer system.

(ii) All critical emission-related scheduled maintenance must have a reasonable likelihood of being performed in-use. The manufacturer shall be required to show the reasonable likelihood of such maintenance being performed in-use, and such showing shall be made prior to the performance of the maintenance on the durability data vehicle. Critical emission-related scheduled maintenance items which satisfy one of the conditions defined in paragraphs (b)(6)(ii) (A) through (F) of this section will be accepted as having a

reasonable likelihood of the maintenance item being performed in-use.

(A) Data are presented which establish for the Administrator a connection between emissions and vehicle performance such that as emissions increase due to lack of maintenance, vehicle performance will simultaneously deteriorate to a point unacceptable for typical driving.

(B) Survey data are submitted which adequately demonstrate to the Administrator that, at an 80 percent confidence level, 80 percent of such engines already have this critical maintenance item performed in-use at the recommended interval(s).

(C) A clearly displayed visible signal system approved by the Administrator is installed to alert the vehicle driver that maintenance is due. A signal bearing the message "maintenance needed" or "check engine" or a similar message approved by the Administrator, shall be actuated at the appropriate mileage point or by component failure. This signal must be continuous while the engine is in operation, and not be easily eliminated without performance of the required maintenance. Resetting the signal shall be a required step in the maintenance operation. The method for resetting the signal system shall be approved by the Administrator.

(D) A manufacturer may desire to demonstrate through a survey that a critical maintenance item is likely to be performed without a visible signal on a maintenance item for which there is no prior in-use experience without the signal. To that end, the manufacturer may, in a given model year market up to 200 randomly selected vehicles per critical emission-related maintenance item without such visible signals, and monitor the performance of the critical maintenance item by the owners to show compliance with paragraph (b)(6)(ii)(B) of this section. This option is restricted to two consecutive model years and may not be repeated until any previous survey has been completed. If the critical maintenance involves more than one engine family, the sample will be sales weighted to ensure that it is representative of all the families in question.

(E) The manufacturer provides the maintenance free of charge, and clearly informs the customer that the maintenance is free in the instructions provided under § 86.087–38 of this subpart.

(F) Any other method which the Administrator approves as establishing a reasonable likelihood that the critical maintenance will be performed in-use.

(iii) Visible signal systems used under paragraph (b)(6)(ii)(C) of this section are considered an element of design of the emission control system. Therefore, disabling, resetting, or otherwise rendering such signals inoperative without also performing the indicated maintenance procedure is a prohibited act under section 203(a)(3) of the Clean Air Act, as amended in August 1977 (42 U.S.C. 7522(a)(3)).

(7) Changes to scheduled maintenance. (i) For maintenance practices that existed prior to the 1980 model year, only the maintenance items listed in paragraphs (b)(3) and (b)(4) of this section are currently considered by EPA to be emission-related. The Administrator may, however, determine additional scheduled maintenance items that existed prior to the 1980 model year to be emission-related by announcement in a **Federal Register** Notice. In no event may this notification occur later than September 1 of the calendar year two years prior to the affected model year.

(ii) In the case of any new scheduled maintenance, the manufacturer must submit a request for approval to the Administrator for any maintenance that it wishes to recommend to purchasers and perform during durability determination. New scheduled maintenance is that maintenance which did not exist prior to the 1980 model year, including that which is a direct result of the implementation of new technology not found in production prior to the 1980 model year. The manufacturer must also include its recommendations as to the category (i.e., emission-related or non-emission-related, critical or non-critical) of the subject maintenance and, for suggested emission-related maintenance, the maximum feasible maintenance interval. Such requests must include detailed evidence supporting the need for the maintenance requested, and supporting data or other substantiation for the recommended maintenance category and for the interval suggested for emission-related maintenance. Requests for new scheduled maintenance must be approved prior to the introduction of the new maintenance. The Administrator will then designate the maintenance as emission-related or non-emission-related. For maintenance items established as emission-related, the Administrator will further designate the maintenance as critical if the component which receives the maintenance is a critical component under paragraph (b)(6) of this section. For each maintenance item designated as emission-related, the Administrator will also establish a technologically necessary maintenance interval, based on industry data and any other information available to EPA. Designations of emission-related maintenance items, along with their identification as critical or non-critical, and establishment of technologically necessary maintenance intervals, will be announced in the **Federal Register**.

(iii) Any manufacturer may request a hearing on the Administrator's determinations in paragraph (b)(7) of this section. The request shall be in writing, and shall include a statement specifying the manufacturer's objections to the Administrator's determinations, and data in support of such objections. If, after review of the request and supporting data, the Administrator finds that the request raises a substantial factual issue, he shall provide the manufacturer a hearing in accordance with § 86.078–6 of this subpart with respect to such issue.

(c) Non-emission-related scheduled maintenance which is reasonable and technologically necessary (e.g., oil change, oil filter change, fuel filter change, air filter change, cooling system maintenance, adjustment of idle speed, governor, engine bolt torque, valve lash, injector lash, timing, adjustment of air pump drive belt tension, lubrication of the exhaust manifold heat control valve, lubrication of carburetor choke linkage, retorquing carburetor mounting bolts, etc.) may be performed on durability-data vehicles at the least frequent intervals recommended by the manufacturer to the ultimate purchaser, (e.g., not at the intervals recommended for severe service).

(d) Unscheduled maintenance on light-duty durability data vehicles. (1) Unscheduled maintenance may be performed during the testing used to determine deterioration factors, except as provided in paragraphs (d)(2) and (3) of this section, only under the provisions defined in paragraphs (d)(1)(i) through (iii) of this section:

(i) A fuel injector or spark plug may be changed if a persistent misfire is detected.

(ii) Readjustment of an Otto-cycle vehicle cold-start enrichment system may be performed if there is a problem of stalling.

(iii) Readjustment of the engine idle speed (curb idle and fast idle) may be performed in addition to that performed as scheduled maintenance under paragraph (c) of this section, if the idle speed exceeds the manufacturer's recommended idle speed by 300 rpm or more, or if there is a problem of stalling.

(2) Any other unscheduled vehicle, emission control system, or fuel system adjustment, repair, removal,

disassembly, cleaning, or replacement during testing to determine deterioration factors shall be performed only with the advance approval of the Administrator. Such approval will be given if the Administrator:

(i) Has made a preliminary determination that the part failure or system malfunction, or the repair of such failure or malfunction, does not render the vehicle or engine unrepresentative of vehicles or engines in-use, and does not require direct access to the combustion chamber, except for spark plug, fuel injection component, or removable prechamber removal or replacement; and,

(ii) Has made a determination that the need for maintenance or repairs is indicated by an overt indication of malfunction such as persistent misfiring, engine stalling, overheating, fluid leakage, loss of oil pressure, excessive fuel consumption or excessive power loss. The Administrator shall be given the opportunity to verify the existence of an overt indication of part failure and/or vehicle/engine malfunction (e.g., misfiring, stalling, black smoke), or an activation of an audible and/or visible signal, prior to the performance of any maintenance to which such overt indication or signal is relevant under the provisions of this section.

(3) Emission measurement may not be used as a means of determining the need for unscheduled maintenance under paragraph (d)(2) of this section, except under the conditions defined in paragraphs (d)(3)(i) through (ii).

(i) The Administrator may approve unscheduled maintenance on durability-data vehicles based upon a significant change in emission levels that indicates a vehicle or engine malfunction. In these cases the Administrator may first approve specific diagnostic procedures to identify the source of the problem. The Administrator may further approve of specific corrections to the problem after the problem has been identified. The Administrator may only approve the corrective action after it is determined that:

(A) The malfunction was caused by nonproduction build practices or by a previously undetected design problem,

(B) The malfunction will not occur in production vehicles or engines in-use, and

(C) The deterioration factor generated by the durability-data vehicle or engine will remain unaffected by the malfunction or by the corrective action (e.g., the malfunction was present for only a short period of time before detection, replacement parts are functionally representative of the proper mileage or hours, etc.).

(ii) Following any unscheduled maintenance approved under paragraph (d)(3)(i) of this section, the manufacturer shall perform an after-maintenance emissions test. If the Administrator determines that the after-maintenance emission levels for any pollutant indicates that the deterioration factor is no longer representative of production, the Administrator may disqualify the durability-data vehicle or engine.

(4) If the Administrator determines that part failure or system malfunction occurrence and/or repair rendered the vehicle/engine unrepresentative of vehicles in-use, the vehicle/engine shall not be used for determining deterioration factors.

(5) Repairs to vehicle components of a durability data vehicle other than the engine, emission control system, or fuel system, shall be performed only as a result of part failure, vehicle system malfunction, or with the advance approval of the Administrator.

(e) Maintenance on emission data vehicles and engines. (1) Adjustment of engine idle speed on emission data vehicles may be performed once before the low-mileage/low-hour emission test point. Any other engine, emission control system, or fuel system adjustment, repair, removal, disassembly, cleaning, or replacement on emission data vehicles shall be performed only with the advance approval of the Administrator.

(2)–(3) [Reserved]

(4) Repairs to vehicle components of an emission data vehicle other than the engine, emission control system, or fuel system, shall be performed only as a result of part failure, vehicle system malfunction, or with the advance approval of the Administrator.

(f) Equipment, instruments, or tools may not be used to identify malfunctioning, maladjusted, or defective engine components unless the same or equivalent equipment, instruments, or tools will be available to dealerships and other service outlets and:

(1) Are used in conjunction with scheduled maintenance on such components, or

(2) Are used subsequent to the identification of a vehicle or engine malfunction, as provided in paragraph (d)(2) of this section for durability data vehicles or in paragraph (e)(1) of this section for emission-data vehicles, or

(3) Unless specifically authorized by the Administrator.

(g)(1) Paragraph (g) of this section applies to light-duty vehicles.

(2) Complete emission tests (see §§ 86.106 through 86.145 of subpart B of this part) are required, unless waived by the Administrator, before and after scheduled maintenance approved for durability data vehicles. The manufacturer may perform emission tests before unscheduled maintenance. Complete emission tests are required after unscheduled maintenance which may reasonably be expected to affect emissions. The Administrator may waive the requirement to test after unscheduled maintenance. These test data may be submitted weekly to the Administrator, but shall be air posted or delivered within 7 days after completion of the tests, along with a complete record of all pertinent maintenance, including a preliminary engineering report of any malfunction diagnosis and the corrective action taken. A complete engineering report shall be delivered to the Administrator concurrently with the manufacturer's application for certification.

(h) All test data, maintenance reports, and required engineering reports shall be compiled and provided to the Administrator in accordance with § 86.090–23 of this subpart.

12. A new § 86.094–26 is proposed to be added to subpart A to read as follows:

**§ 86.094–26 Mileage and service accumulation; emission requirements.**

(a)(1) Paragraph (a) of this section applies to light-duty vehicles. It prescribes mileage and service accumulation requirements for durability data vehicles run under either the Standard AMA Durability Program of § 86.094–13(c) of this subpart or the Production AMA Durability Program of § 86.094–13(d) of this subpart, and for emission data vehicles regardless of the durability program employed. Service accumulation requirements for durability data vehicles run under the Alternative Service Accumulation Program may be found in § 86.094–13(e) of this subpart.

(2)(i) The standard method of whole-vehicle service accumulation for durability vehicles and for emission data vehicles in models years 1994 and 1995 shall be mileage accumulation using the Durability Driving Schedule as specified in appendix IV to this part. Except with the advance approval of the Administrator, all vehicles will accumulate mileage at a measured curb weight which is within 100 pounds of the estimated curb weight. If the loaded vehicle weight is within 100 pounds of being included in the next higher inertia weight class as specified in § 86.129 of subpart B of this part, the manufacturer may elect to conduct the respective

emission tests at higher loaded vehicle weight.

(ii) If approved in advance by the Administrator, a substitute whole-vehicle mileage accumulation schedule to that specified in paragraph (a)(2)(i) of this section may also be used. The Administrator may approve such a procedure if it is substantially similar to the procedure specified in paragraph (a)(2)(i) of this section in its average speed, distribution of speeds, number of stops per mile, number of accelerations to the various speeds per mile. The Administrator may adopt additional or alternative criteria for evaluating substantially similar mileage schedules, consistent with good engineering practice. The Administrator may also approve a substitute schedule that is not substantially similar to the procedure specified in paragraph (a)(2)(i) of this section, based on a demonstration by the manufacturer that the schedule will be substantially more effective in predicting in-use emission deterioration than the AMA.

(3) Emission-data vehicles. Unless otherwise provided for in § 86.091–23(a) of this subpart, emission-data vehicles shall be operated and tested as follows:

(i) Otto-cycle. (A) The manufacturer shall determine, for each engine family, the mileage at which the engine-system combination is stabilized for emission-data testing. The manufacturer shall maintain, and provide to the Administrator if requested, a record of the rationale used in making this determination. The manufacturer may elect to accumulate 4,000 miles on each test vehicle within an engine family without making a determination. The manufacturer must accumulate a minimum of 2,000 miles (3,219 kilometers) on each test vehicle within an engine family. All test vehicle mileage must be accurately determined, recorded, and reported to the Administrator. Any vehicle used to represent emission-data vehicle selections under § 86.094–24(b)(1) of this subpart shall be equipped with an engine and emission control system that has accumulated the mileage the manufacturer chose to accumulate on the test vehicle. Fuel economy data generated from certification vehicles selected in accordance with § 86.094–24(b)(1) of this subpart with engine-system combinations that have accumulated more than 10,000 kilometers (6,200 miles) shall be factored in accordance with § 600.006 of this chapter. Complete exhaust and evaporative (if required) emission tests shall be conducted for each emission-data vehicle selection under § 86.094–24(b)(1) of this subpart. The Administrator may determine under § 86.094–24(f) of this subpart that no testing is required.

(B) Emission tests for emission-data vehicle(s) selected for testing under § 86.094–24(b)(1) (v) or (viii) of this subpart shall be conducted at the mileage (2,000 mile minimum) at which the engine-system combination is stabilized for emission testing under high-altitude conditions.

(C) Exhaust and evaporative emissions tests for emission-data vehicle(s) selected for testing under § 86.094–24(b)(1) (i), (ii), (iii), (iv), or (vii)(B) of this subpart shall be conducted at the mileage (2,000 mile minimum) at which the engine-system combination is stabilized for emission testing under low-altitude conditions.

(D) For each engine family, the manufacturer will either select one vehicle previously selected under § 86.094–24(b)(1) (i) through (iv) of this subpart to be tested under high-altitude conditions or provide a statement in accordance with § 86.094–24(b)(1)(v) of this subpart. Vehicles shall meet emission standards under both low- and high-altitude conditions without manual adjustments or modifications. In addition, any emission control device used to conform with the emission standards under high-altitude conditions shall initially actuate (automatically) no higher than 4,000 feet above sea level.

(ii) Diesel. (A) The manufacturer shall determine, for each engine family, the mileage at which the engine-system combination is stabilized for emission-data testing. The manufacturer shall maintain, and provide to the Administrator if requested, a record of the rationale used in making this determination. The manufacturer may elect to accumulate 4,000 miles on each test vehicle within an engine family without making a determination. The manufacturer must accumulate a minimum of 2,000 miles (3,219 kilometers) on each test vehicle within an engine family. All test vehicle mileage must be accurately determined, recorded, and reported to the Administrator. Any vehicle used to represent emission-data vehicle selections under § 86.094–24(b)(1) of this subpart shall be equipped with an engine and emission control system that has accumulated the mileage the manufacturer chose to accumulate on the test vehicle. Fuel economy data generated from certification vehicles selected in accordance with § 86.094–24(b)(1) of this subpart with engine-system combinations that have accumulated more than 10,000 kilometers (6,200 miles) shall be factored in accordance with § 600.006 of this chapter. Complete exhaust emission tests shall be conducted for each emission-data vehicle selection under § 86.094–24(b)(1) of this subpart. The Administrator may determine under § 86.094–24(f) of this subpart that no testing is required.

(B) Emission tests for emission-data vehicle(s) selected for testing under § 86.094–24(b)(1)(v) of this subpart shall be conducted at the mileage (2,000 mile minimum) at which the engine-system combination is stabilized for emission testing under high-altitude conditions.

(C) Exhaust and evaporative emissions tests for emission-data vehicle(s) selected for testing under § 86.094–24(b)(1) (i), (ii), (iii), (iv), or (vii)(B) of this subpart shall be conducted at the mileage (2,000 mile minimum) at which the engine-system combination is stabilized for emission testing under low-altitude conditions.

(D) For each engine family, the manufacturer will either select one vehicle previously selected under § 86.094–24(b)(1) (i) through (iv) of this subpart to be tested under high-altitude conditions or provide a statement in accordance with § 86.094–24(b)(1)(v) of this subpart. Vehicles shall meet emission standards under both low- and high-altitude conditions without manual adjustments or modifications. In addition, any emission control device used to conform with the emission standards under high-altitude conditions shall initially actuate (automatically) no higher than 4,000 feet above sea level.

(4)(i) Durability data vehicles. (A) Unless otherwise provided for in § 86.094–23(a) of this subpart or in paragraph (a)(4)(i)(B) of this section, each durability-data vehicle shall be driven on the whole-vehicle mileage accumulation cycle specified in paragraph (a)(2) of this section, with all emission control systems installed and operating, up to a mileage endpoint corresponding to the vehicle's durability useful life as defined in § 86.094–2 of this subpart.

(B) Extrapolation of durability data and changes to the mileage accumulation cycle. (*1*) Once a durability vehicle has reached the greater of 75,000 miles or three-quarters of the applicable durability useful life, the manufacturer may petition the Administrator to extrapolate the durability data obtained up to that point out to the durability useful life or to replace the mileage accumulation cycle with an alternative that meets the criteria of paragraph (a)(2)(ii) of this section. In the petition, the manufacturer

shall supplement the durability vehicle data with other information demonstrating the durability of the vehicle's emission control components and systems at or beyond the durability useful life.

(2) Factors the Administrator will consider in evaluating petitions for extrapolation of durability data or for changes to the mileage accumulation cycle include, but are not limited to, any unusual scheduled maintenance, unscheduled maintenance, the general linearity and scatter of the actual data, reasonable explanations for all outlier data, the technical validity of any substitute mileage accumulation cycle, and evidence supplied by the vehicle manufacturer of component and system durability.

(3) If a petition for extrapolation of durability data is approved, the endpoint for whole-vehicle mileage accumulation of the durability data vehicle shall be the mileage attained by the vehicle as reflected in the petition.

(4) Discontinuation of a durability-data vehicle shall be allowed only with the consent of the Administrator.

(C) Complete exhaust emission tests shall be made at test point mileage intervals that the manufacturer determines. At a minimum, two complete exhaust emission tests shall be made. The first test shall be made at a distance not greater than 6,250 miles. The last shall be made at the mileage accumulation endpoint determined in paragraph (a)(4)(i)(A) or (B) of this section, whichever is applicable.

(D) Except with advance approval of the Administrator, the mileage interval between test points must be of equal length except for the interval between zero miles and the first test, and any interval before or after testing conducted in conjunction with vehicle maintenance as specified in § 86.094–25(g)(2) of this subpart.

(ii) The manufacturer may, at its option, alter the durability-data vehicle at the selected test point to represent emission-data vehicle(s) within the same engine-system combination and perform emission tests on the altered vehicle. Upon completion of emission testing, the manufacturer may return the test vehicle to the durability-data vehicle configuration and continue mileage accumulation.

(5) (i) All tests required by this subpart on emission-data vehicles shall be conducted at a mileage equal to or greater than the mileage the manufacturer determines under paragraph (a)(3) of this section.

(ii) All tests required by this subpart on durability-data vehicles shall be conducted within 250 miles of each of the test points.

(6)(i)(A) The manufacturer may conduct multiple tests at any test point at which the data are intended to be used in the deterioration factor. At each test point where multiple tests are conducted, the test results from all valid tests shall be averaged to determine the data point to be used in the deterioration factor calculation, except under paragraph (a)(6)(i)(B) of this section. The test results from emission tests performed before maintenance affecting emissions shall not be averaged with test results after the maintenance.

(B) The manufacturer is not required to average multiple tests if the manufacturer conducts no more than three tests at each test point and if the number of tests at each test point is equal. All test points must be treated the same for all exhaust pollutants.

(ii) The results of all emission testing shall be supplied to the Administrator. The manufacturer shall furnish to the Administrator explanation for voiding any test. The Administrator will determine if voiding the test was appropriate based upon the explanation given by the manufacturer for the voided test. Tests between test points may be conducted as required by the Administrator. Data from all tests (including voided tests) may be submitted weekly to the Administrator, but shall be air posted or delivered to the Administrator within 7 days after completion of the test. In addition, all test data shall be compiled and provided to the Administrator in accordance with § 86.091–23 of this subpart. Where the Administrator conducts a test on a durability-data vehicle at a prescribed test point, the results of that test will be used in the calculation of the deterioration factor.

(iii) The results of all emission tests shall be rounded, using the "Rounding Off Method" specified in ASTM E 29–67, to the number of places to the right of the decimal point indicated by expressing the applicable emission standard of this subpart to one additional significant figure.

(7) Whenever a manufacturer intends to operate and test a vehicle which may be used for emission or durability data, the manufacturer shall retain in its records all information concerning all emissions tests and maintenance, including vehicle alterations to represent other vehicle selections. For emission-data vehicles, this information shall be submitted, including the vehicle description and specification information required by the Administrator, to the Administrator following the emission-data test. For durability-data vehicles, this information shall be submitted following the 5,000-mile test.

(8) The data from emissions data vehicles and durability data vehicles obtained pursuant to the provisions of this section will be used in the calculations under § 86.094–28 of this subpart.

(9) (i) The Administrator may elect to operate and test any test vehicle during all or any part of the mileage accumulation and testing procedure. In such cases, the manufacturer shall provide the vehicle(s) to the Administrator with all information necessary to conduct this testing.

(ii) The test procedures in §§ 86.106 through 86.145 of subpart B of this part will be followed by the Administrator. The Administrator will test the vehicles at each test point. Maintenance may be performed by the manufacturer under such conditions as the Administrator may prescribe.

(iii) The data developed by the Administrator for the engine-system combination shall be combined with any applicable data supplied by the manufacturer on other vehicles of that combination to determine the applicable deterioration factors for the combination. In the case of a significant discrepancy between data developed by the Administrator and that submitted by the manufacturer, the Administrator's data shall be used in the determination of deterioration factors.

(10) Emission testing of any type with respect to any certification vehicle other than that specified in this part is not allowed except as such testing may be specifically authorized by the Administrator.

(11) This section does not apply to testing conducted to meet the requirements of § 86.091–23(b)(2) of this subpart.

(b) (1) Paragraph (b) of this section applies to light-duty trucks.

(2) There are four types of mileage or service accumulation applicable to light-duty trucks, described in paragraphs (b)(2)(i) through (iv) of this section.

(i) Service accumulation conducted under the Standard Self-Approval Durability Program of § 86.094–13(f) of this subpart. This type of service accumulation is applicable for model years 1994 and 1995 only. The manufacturer determines the form and extent of this service accumulation, consistent with good engineering practice, and describes it in the application for certification. Service accumulation under the Standard Self-Approval Durability Program is

conducted on vehicles, engines, subsystems, or components selected by the manufacturer under § 86.094–24(c)(2)(i) of this subpart.

(ii) Service accumulation conducted under the Alternative Service Accumulation Durability Program of § 86.094–13(e) of this subpart. This type of service accumulation is applicable for model years 1994 and 1995 only. The service accumulation method is developed by the manufacturer to be consistent with good engineering practice and to accurately predict the deterioration of the vehicle's emissions in actual use over its full useful life. The method is subject to advance approval by the Administrator and to verification by an in-use verification program conducted by the manufacturer under § 86.094–13(e)(5) of this subpart.

(iii) Mileage accumulation of the duration selected by the manufacturer on emission-data vehicles selected under § 86.094–24(b)(1) of this subpart. The procedure for mileage accumulation will be the Durability Driving Schedule as specified in appendix IV to this part. A modified procedure may also be used if approved in advance by the Administrator. Except with the advance approval of the Administrator, all vehicles will accumulate mileage at a measured curb weight which is within 100 pounds of the estimated curb weight. If the loaded vehicle weight is within 100 pounds of being included in the next higher inertia weight class as specified in § 86.129 of subpart B of this part, the manufacturer may elect to conduct the respective emission tests at higher loaded vehicle weight.

(iv) Service or mileage accumulation which may be part of the test procedures used by the manufacturer to establish evaporative emission deterioration factors.

(3) Exhaust emission deterioration factors will be determined on the basis of the mileage or service accumulation described in paragraph (b)(2) (i) or (ii) of this section and related testing, according to the manufacturer's procedures.

(4) Each emission-data vehicle shall be operated and tested as follows:

(i) Otto-cycle. (A) The manufacturer shall determine, for each engine family, the mileage at which the engine-system combination is stabilized for emission-data testing. The manufacturer shall maintain, and provide to the Administrator if requested, a record of the rationale used in making this determination. The manufacturer may elect to accumulate 4,000 miles on each test vehicle within an engine family without making a determination. The manufacturer must accumulate a minimum of 2,000 miles (3,219 kilometers) on each test vehicle within an engine family. All test vehicle mileage must be accurately determined, recorded, and reported to the Administrator. Any vehicle used to represent emission-data vehicle selections under § 86.094–24(b)(1) of this subpart shall be equipped with an engine and emission control system that has accumulated the mileage the manufacturer chose to accumulate on the test vehicle. Fuel economy data generated from certification vehicles selected in accordance with § 86.094–24(b)(1) of this subpart with engine-system combinations that have accumulated more than 10,000 kilometers (6,200 miles) shall be factored in accordance with § 600.006 of this chapter. Complete exhaust emission tests shall be conducted for each emission-data vehicle selection under § 86.094–24(b)(1) of this subpart. The Administrator may determine under § 86.094–24(f) of this subpart that no testing is required.

(B) Emission tests for emission-data vehicle(s) selected for testing under § 86.094–24(b)(1) (v) or (viii) of this subpart shall be conducted at the mileage (2,000 mile minimum) at which the engine-system combination is stabilized for emission testing or at 6,436 kilometers (4,000 miles) under high-altitude conditions.

(C) Exhaust and evaporative emission tests for emission-data vehicle(s) selected for testing under § 86.094–24(b)(1) (ii), (iii), (iv)(A), or (vii)(B) of this subpart shall be conducted at the mileage (2,000 mile minimum) at which the engine-system combination is stabilized for emission testing or at 6,436 kilometer (4,000 mile) test point under low-altitude conditions.

(D) If the manufacturer recommends adjustments or modifications in order to conform to emission standards at high altitude, such adjustments or modifications shall be made to the test vehicle selected under § 86.094–24(b)(1) (v) and (viii) of this subpart (in accordance with the instructions to be provided to the ultimate purchaser) before being tested under high-altitude conditions.

(ii) Diesel. (A) The manufacturer shall determine, for each engine family, the mileage at which the engine-system combination is stabilized for emission-data testing. The manufacturer shall maintain, and provide to the Administrator if requested, a record of the rationale used in making this determination. The manufacturer may elect to accumulate 4,000 miles on each test vehicle within an engine family without making a determination. The manufacturer must accumulate a minimum of 2,000 miles (3,219 kilometers) on each test vehicle within an engine family. All test vehicle mileage must be accurately determined, recorded, and reported to the Administrator. Any vehicle used to represent emission-data vehicle selections under § 86.094–24(b)(1) of this subpart shall be equipped with an engine and emission control system that has accumulated the mileage the manufacturer chose to accumulate on the test vehicle. Fuel economy data generated from certification vehicles selected in accordance with § 86.094–24(b)(1) of this subpart with engine-system combinations that have accumulated more than 10,000 kilometers (6,200 miles) shall be factored in accordance with § 600.006 of this chapter. Complete exhaust emission tests shall be conducted for each emission-data vehicle selection under § 86.094–24(b)(1) of this subpart. The administrator may determine under § 86.094–24(f) of this subpart that no testing is required.

(B) Emission tests for emission-data vehicle(s) selected for testing under § 86.094–24(b)(1)(v) of this subpart shall be conducted at the mileage (2,000 mile minimum) at which the engine-system combination is stabilized for emission testing or at the 6,436 kilometer (4,000 mile) test point under high-altitude conditions.

(C) Exhaust and evaporative emission tests for emission-data vehicle(s) selected for testing under § 86.094–24(b)(1) (ii), (iii), and (iv) of this subpart shall be conducted at the mileage (2,000 mile minimum) at which the engine-system combination is stabilized for emission testing or at the 6,436 kilometer (4,000 mile) test point under low-altitude conditions.

(D) If the manufacturer recommends adjustments or modifications in order to conform to emission standards at high-altitude, such adjustments or modifications shall be made to the test vehicle selected under § 86.094–24(b)(1) (v) and (viii) of this subpart (in accordance with the instructions to be provided to the ultimate purchaser) before being tested under high-altitude conditions.

(iii) [Reserved]

(iv) All tests required by this subpart on emission-data vehicles shall be conducted at a mileage equal to or greater than the mileage the manufacturer determines under paragraph (b)(4) of this section.

(c) (1) Paragraph (c) of this section applies to heavy-duty engines.

(2) There are two types of service accumulation applicable to heavy-duty engines, described in paragraphs (c)(2)(i) and (ii) of this section.

(i) Service accumulation on engines, subsystems, or components selected by the manufacturer under § 86.094–24(c)(3)(i) of this subpart. The manufacturer determines the form and extent of this service accumulation, consistent with good engineering practice, and describes it in the application for certification.

(ii) Dynamometer service accumulation on emission-data engines selected under § 86.094–24(b) (2) or (3) of this subpart. The manufacturer determines the engine operating schedule to be used for dynamometer service accumulation, consistent with good engineering practice. A single engine operating schedule shall be used for all engines in an engine family-control system combination. Operating schedules may be different for different combinations.

(3) Exhaust emission deterioration factors will be determined on the basis of the service accumulation described in paragraph (b)(2)(i) of this section and related testing, according to the manufacturer's procedures.

(4) The manufacturer shall determine, for each engine family, the number of hours at which the engine system combination is stabilized (no less than 62 hours for catalyst equipped) for emission-data testing. The manufacturer shall maintain, and provide to the Administrator if requested a record of the rationale used in making this determination. The manufacturer may elect to accumulate 125 hours on each test engine within an engine family without making a determination. Any engine used to represent emission-data engine selections under § 86.094–24(b)(2) of this subpart shall be equipped with an engine system combination that has accumulated at least the number of hours determined under this paragraph. Complete exhaust emission tests shall be conducted for each emission-data engine selection under § 86.094–24(b)(2) of this subpart. Evaporative emission controls need not be connected provided normal operating conditions are maintained in the engine induction system. The Administrator may determine under § 86.094–24(f) of this subpart that no testing is required.

(d)(1) Paragraph (d) of this section applies to both light-duty trucks and heavy-duty engines.

(2)(i) The results of all emission testing shall be supplied to the Administrator. The manufacturer shall furnish to the Administrator explanation for voiding any test. The Administrator will determine if voiding the test was appropriate based upon the explanation given by the manufacturer for the voided test. Tests between test points may be conducted as required by the Administrator. Data from all tests (including voided tests) may be submitted weekly to the Administrator, but shall be air posted or delivered to the Administrator within 7 days after completion of the test. In addition, all test data shall be compiled and provided to the Administrator in accordance with § 86.094–23 of this subpart. Where the Administrator conducts a test on a durability-data vehicle at a prescribed test point, the results of that test will be used in the calculation of the deterioration factor.

(ii) The results of all emission tests shall be recorded and reported to the Administrator. These test results shall be rounded, in accordance with ASTM E 29–67, to the number of decimal places contained in the applicable emission standard expressed to one additional significant figure.

(3) Whenever a manufacturer intends to operate and test a vehicle (or engine) which may be used for emission data, the manufacturer shall retain in its records all information concerning all emissions tests and maintenance, including vehicle (or engine) alterations to represent other vehicle (or engine) selections. This information shall be submitted, including the vehicle (or engine) description and specification information required by the Administrator, to the Administrator following the emission-data test.

(4)–(5) [Reserved]

(6) Emission testing of any type with respect to any certification vehicle or engine other than that specified in this subpart is not allowed except as such testing may be specifically authorized by the Administrator.

13. A new § 86.094–28 is proposed to be added to subpart A to read as follows:

**§ 86.094–28 Compliance with emission standards.**

(a) (1) Paragraph (a) of this section applies to light-duty vehicles.

(2) Each exhaust and evaporative emissions standard (and family particulate emission limit, as appropriate) of § 86.094–8 of this subpart applies to the emissions of vehicles for the useful life defined for that standard in §§ 86.094–2 and 86.094–8 of this subpart.

(3) Since it is expected that emission control efficiency will change with mileage accumulation on the vehicle, the emission level of a vehicle which has accumulated mileage equal to the specified useful life will be used as the basis for determining compliance with the standard (or family particulate emission limit, as appropriate).

(4) The procedure for determining compliance of a new motor vehicle with exhaust and evaporative emission standards (or family particulate emission limit, as appropriate) is as follows, except where specified by paragraph (a)(7) of this section for the Production AMA Durability Program:

(i) Separate emission deterioration factors shall be determined from the exhaust emission results of the durability-data vehicle(s) for each engine-system combination. A separate evaporative emission deterioration factor shall be determined for each evaporative emission family-evaporative emission control system combination from the testing conducted by the manufacturer (gasoline-fueled and methanol-fueled vehicles only).

(A) The applicable results to be used unless excluded by paragraph (a)(4)(i)(A)(4) of this section in determining the exhaust emission deterioration factors for each engine-system combination shall be:

(1) All valid exhaust emission data from the tests required under § 86.094–26(a)(4) of this subpart except the zero-mile tests. This shall include the official test results, as determined in § 86.091–29 of this subpart for all tests conducted on all durability-data vehicles of the combination selected under § 86.094–24(c) of this subpart (including all vehicles elected to be operated by the manufacturer under § 86.094–24(c)(1)(ii) of this subpart).

(2) All exhaust emission data from the tests conducted before and after the scheduled maintenance provided in § 86.094–25 of this subpart.

(3) All exhaust emission data from tests required by maintenance approved under § 86.094–25 of this subpart, in those cases where the Administrator conditioned his approval for the performance of such maintenance on the inclusion of such data in the deterioration factor calculation.

(4) The manufacturer has the option of applying an outlier test point procedure to completed durability data within its certification testing program for a given model year. The outlier procedure will be specified by the Administrator. For any pollutant, durability-data test points that are identified as outliers shall not be included in the determination of deterioration factors if the manufacturer has elected this option. The manufacturer shall specify to the Administrator before the certification of the first engine family for that model

year, if it intends to use the outlier procedure. The manufacturer may not change procedures after the first engine family of the model year is certified. Where the manufacturer chooses to apply both the outlier procedure and averaging (as allowed under § 86.094–26(a)(6)(i) of this subpart) to the same data set, the outlier procedure shall be completed prior to applying the averaging procedure.

(B)(*1*) *Line crossing.* For each exhaust constituent to which a standard of § 86.094–8 of this subpart applies, all applicable exhaust emission results shall be rounded to the nearest mile and plotted as a function of the mileage on the system. The best fit straight line, fitted by the method of least squares, shall be drawn through all these data points. The data for a given exhaust constituent will be acceptable for use in the calculation of deterioration factors only if the first official test point as determined in § 86.094–26(a)(4)(i)(C) of this subpart, the interpolated intermediate useful life mile point, and the interpolated full useful life mile point on this line, as applicable, are each less than or equal to the respective low-altitude standards provided in § 86.094–8 of this subpart. An exception to this where data are still acceptable is when a best fit straight line crosses an applicable standard but no data points exceeded the standard. This exception shall not apply when mileage accumulation has been curtailed before the durability useful life has been reached, under the provisions of § 86.094–26(a)(4)(i)(B) of this subpart.

(*2*) *Exhaust DF determination.* Multiplicative exhaust emission deterioration factors shall be calculated for each standard and for each engine-system combination from points on the regression line derived in paragraph (a)(4)(i)(B)(*1*) of this section, and in accordance with paragraphs (a)(4)(i)(B)(*2*) (*i*) and (*ii*) of this section.

(*i*) Factor=Exhaust emissions at the useful life mileage for that standard divided by exhaust emissions at 4,000 miles.

(*ii*) These interpolated values shall be carried out to a minimum of four places to the right of the decimal point before dividing one by the other to determine the deterioration factor. The results shall be rounded to three places to the right of the decimal point in accordance with ASTM E 29–67.

(*iii*) The calculation specified in this paragraph (a)(4)(i)(B)(*2*) may be modified with advance approval of the Administrator for engine-system combinations which are certified under the Alternative Service Accumulation Durability Program specified in § 86.094–13(e) of this subpart.

(C) *Evaporative DF determination.* An evaporative emissions deterioration factor (gasoline-fueled and methanol-fueled vehicles only) shall be determined from the testing conducted as described in § 86.094–21(b)(4)(i) of this subpart, and in accordance with paragraphs (a)(4)(i)(C) (*1*) and (*2*) of this section, for each evaporative emission family-evaporative emission control system combination to indicate the evaporative emission level at the applicable useful life relative to the evaporative emission level at 4,000 miles as follows.

(*1*) Factor=Evaporative emission level at the useful life mileage for that standard minus the evaporative emission level at 4,000 miles.

(*2*) The factor shall be established to a minimum of two places to the right of the decimal.

(ii)(A)(*1*) The official exhaust emission test results for each applicable exhaust emission standard for each emission-data vehicle at the selected test point shall be multiplied by the appropriate deterioration factor: *Provided,* That if a deterioration factor as computed in paragraph (a)(4)(i)(B) of this section is less than one, that deterioration factor shall be one for the purposes of this paragraph.

(*2*) The calculation specified in paragraph (a)(4)(ii)(A)(*1*) of this section may be modified with advance approval of the Administrator for engine-system combinations which are certified under the Alternative Service Accumulation Durability Program specified in § 86.094–13(e) of this subpart.

(B) The official evaporative emission test results (gasoline-fueled and methanol-fueled vehicles only) for each evaporative emission-data vehicle at the selected test point shall be adjusted by addition of the appropriate deterioration factor: *Provided,* That if a deterioration factor as computed in paragraph (a)(4)(i)(C) of this section is less than zero, that deterioration factor shall be zero for the purposes of this paragraph.

(iii) The emissions to compare with the standard (or the family particulate emission limit, as appropriate) shall be the adjusted emissions of paragraphs (a)(4)(ii) (A) and (B) of this section for each emission-data vehicle. Before any emission value is compared with the standard (or the family particulate emission limit, as appropriate), it shall be rounded, in accordance with ASTM E 29–67, to two significant figures. The rounded emission values may not exceed the standard (or the family particulate emission limit, as appropriate).

(iv) Every test vehicle of an engine family must comply with the exhaust emission standards (or the family particulate emission limit, as appropriate), as determined in paragraph (a)(4)(iii) of this section, before any vehicle in that family may be certified.

(v) Every test vehicle of an evaporative emission family must comply with the evaporative emission standard, as determined in paragraph (a)(4)(iii) of this section, before any vehicle in that family may be certified.

(5) If a manufacturer chooses to change the level of any family particulate emission limit(s) in the particulate averaging program, compliance with the new limit(s) must be based upon existing certification data.

(6) If a manufacturer chooses to participate in the diesel particulate averaging program, the production-weighted average of the family particulate emission limits of all affected engine families must comply with the particulate standards in § 86.094–8(a)(1)(iv) of this subpart, or the composite particulate standard defined in § 86.094–2 of this subpart, as appropriate, at the end of the production year.

(7) The procedure to determine the compliance of new motor vehicles in the Production AMA Durability Program (described in § 86.094–13 of this subpart) is the same as described in paragraphs (a)(4)(iii) through (v) of this section. For the engine families that are included in the Production AMA Durability Program, the exhaust emission deterioration factors used to determine compliance shall be those that the Administrator has approved under § 86.094–13 of this subpart. The evaporative emission deterioration factor for each evaporative emission family shall be determined and applied according to paragraph (a)(4) of this section. The procedures to determine the minimum exhaust emissions deterioration factors required under § 86.094–13(d) of this subpart are as follows:

(i) Separate deterioration factors shall be determined from the exhaust emission results of the durability-data vehicles for each emission standard applicable under § 86.094–8 of this subpart, for each engine family group. The evaporative emission deterioration factor for each evaporative family will be determined and applied in accordance with paragraph (a)(4) of this section.

(ii) The deterioration factors for each engine family group shall be determined

by the Administrator using historical durability data from as many as three previous model years. These data will consist of deterioration factors generated by durability-data vehicles representing certified engine families and of deterioration factors from vehicles selected under § 86.094–24(h) of this subpart. The Administrator shall determine how these data will be combined for each engine family group.

(A) The test result to be used in the calculation of each deterioration factor to be combined for each engine family group shall be those test results specified in paragraph (a)(4)(i)(A) of this section.

(B) For each durability-data vehicles selected under § 86.094–24(h) of this subpart, all applicable exhaust emissions results shall be plotted as a function of the mileage on the system rounded to the nearest mile, and the best fit straight lines, fitted by method of least squares, shall be drawn through all these data points. The exhaust deterioration factor for each durability-data vehicles shall be calculated as specified in paragraph (a)(4)(i)(B) of this section.

(C) Line-crossing. The linecrossing criteria of § 86.094–28(a)(4)(i)(B) apply.

(*1*) The Administrator will not accept for certification line-crossing data from preproduction durability-data vehicles selected under § 86.094–24(c) of this subpart, or § 86.094–24(h)(2) or (3) of this subpart.

(*2*) The Administrator will not accept for certification line-crossing data from production durability-data vehicles selected under § 86.094–24(h)(1) of this subpart unless the 4,000-mile test result multiplied by the engine family group deterioration factor does not exceed the applicable emission standards. The deterioration factors used for this purpose shall be those that were used in the certification of the production vehicle. Manufacturers may calculate this product immediately after the 4,000-mile test of the vehicle. If the product exceeds the applicable standards, the manufacturer may, with the approval of the Administrator, discontinue the vehicle and substitute a new vehicle. The manufacturer may continue the original vehicle, but the data will not be acceptable if line crossing occurs.

(b) (1) Paragraph (b) of this section applies to light-duty trucks.

(2) Each exhaust and evaporative emissions standard (and family particulate emission limit, as appropriate) of § 86.094–9 of this subpart applies to the emissions of vehicles for the useful life defined for that standard in §§ 86.094–2 and 86.094–9 of this subpart.

(3) Since emission control efficiency generally decreases with the accumulation of mileage on the vehicle, deterioration factors will be used in combination with emission-data vehicle test results as the basis for determining compliance with the standards (or family emission limits, as appropriate).

(4) (i) Paragraph (b)(4) of this section describes the procedure for determining compliance of a new vehicle with exhaust emission standards (or family emission limits, as appropriate), based on deterioration factors supplied by the manufacturers.

(ii) Separate exhaust emission deterioration factors, determined from tests of vehicles, engines, subsystems, or components conducted by the manufacturer, shall be supplied for each standard and for each engine-system combination.

(iii) The official exhaust emission results for each applicable exhaust emission standard for each emission-data vehicle at the selected test point shall be adjusted by multiplication by the appropriate deterioration factor. However, if the deterioration factor supplied by the manufacturer is less than one, it shall be one for the purposes of this paragraph.

(iv) The emission values to compare with the standards (or family emission limits, as appropriate) shall be the adjusted emission values of paragraph (b)(4)(iii) of this section rounded to two significant figures in accordance with ASTM E 29–67 for each emission-data engine.

(5)(i) Paragraphs (b)(5)(i) (A) and (B) of this section apply only to manufacturers electing to participate in the particulate averaging program.

(A) If a manufacturer chooses to change the level of any family particulate emission limit(s), compliance with the new limit(s) must be based upon existing certification data.

(B) The production-weighted average of the family particulate emission limits of all applicable engine families, rounded to two significant figures in accordance with ASTM E 29–67, must comply with the particulate standards in § 86.094–9 (a)(1)(iv) or (d)(1)(iv) of this subpart, or the composite particulate standard as defined in § 86.094–2 of this subpart, as appropriate, at the end of the product year.

(ii) Paragraphs (b)(5)(ii) (A) and (B) of this section apply only to manufacturers electing to participate in the NOx averaging program.

(A) If a manufacturer chooses to change the level of any family NOx emission limit(s), compliance with the new limit(s) must be based upon existing certification data.

(B) The production-weighted average of the family NOx emission limits of all applicable engine families, rounded to two significant figures in accordance with ASTM E 29–67, must comply with the NOx emission standards of § 86.094–9(a)(1)(iii) (A) or (B) or (d)(1)(iii) (A) or (B) of this subpart, or the composite NOx standard as defined in § 86.094–2 of this subpart, at the end of the product year.

(6) [Reserved]

(7) (i) Paragraph (b)(7) of this section describes the procedure for determining compliance of a new vehicle with evaporative emission standards. The procedure described here shall be used for all vehicles in all model years.

(ii) The manufacturer shall determine, based on testing described in § 86.091–21(b)(4)(i) of this subpart, and supply an evaporative emission deterioration factor for each evaporative emission family-evaporative emission control system combination. The factor shall be calculated by subtracting the emission level at the selected test point from the emission level at the useful life point.

(iii) The official evaporative emission test results for each evaporative emission-data vehicle at the selected test point shall be adjusted by the addition of the appropriate deterioration factor. However, if the deterioration factor supplied by the manufacturer is less than zero, it shall be zero for the purposes of this paragraph.

(iv) The emission value to compare with the standards shall be the adjusted emission value of paragraph (b)(7)(iii) of this section rounded to two significant figures in accordance with ASTM E 29–67 for each evaporative emission-data vehicle.

(8) Every test vehicle of an engine family must comply with all applicable standards (and family emission limits, as appropriate), as determined in paragraphs (b)(4)(iv) and (b)(7)(iv) of this section, before any vehicle in that family will be certified.

(c) (1) Paragraph (c) of this section applies to heavy-duty engines.

(2) The exhaust emission standards (or family emission limits, as appropriate) for Otto-cycle engines in § 86.094–10 of this subpart or for diesel engines in § 86.094–11 of this subpart apply to the emissions of engines for their useful life.

(3) Since emission control efficiency generally decreases with the accumulation of service on the engine, deterioration factors will be used in combination with emission-data engine test results as the basis for determining compliance with the standards.

(4) (i) Paragraphs (c)(4) of this section describes the procedure for determining compliance of an engine with emission standards (or family emission limits, as appropriate), based on deterioration factors supplied by the manufacturer.

(ii) Separate exhaust emission deterioration factors, determined from tests of engines, subsystems, or components conducted by the manufacturer, shall be supplied for each engine-system combination. For Otto-cycle engines, separate factors shall be established for transient HC (OMHCE), CO, and NOx; and idle CO, for those engines utilizing aftertreatment technology (e.g., catalytic converters). For diesel engines, separate factors shall be established for transient HC (OMHCE), CO, NOx, and exhaust particulate. For diesel smoke testing, separate factors shall also be established for the acceleration mode (designated as "A"), the lugging mode (designated as "B"), and peak opacity (designated as "C").

(iii) (A) Paragraphs (c)(4)(iii)(A) (*1*) and (*2*) of this section apply to Otto-cycle heavy-duty engines.

(*1*) Otto-cycle heavy-duty engines not utilizing aftertreatment technology (e.g., catalytic converters). For transient HC (OMHCE), CO, and NOx, the official exhaust emission results for each emission-data engine at the selected test point shall be adjusted by the addition of the appropriate deterioration factor. However, if the deterioration factor supplied by the manufacturer is less than zero, it shall be zero for the purposes of this paragraph.

(*2*) Otto-cycle heavy-duty engines utilizing aftertreatment technology (e.g., catalytic converters). For transient HC (OMHCE), CO, and NOx, and for idle CO, the official exhaust emission results for each emission-data engine at the selected test point shall be adjusted by multiplication by the appropriate deterioration factor. However, if the deterioration factor supplied by the manufacturer is less than one, it shall be one for the purposes of this paragraph.

(B) Paragraphs (c)(4)(iii)(B) (*1*) through (*3*) of this section apply to diesel heavy-duty engines.

(*1*) Diesel heavy-duty engines not utilizing aftertreatment technology (e.g., particulate traps). For transient HC (OMHCE), CO, NOx, and exhaust particulate, the official exhaust emission results for each emission-data engine at the selected test point shall be adjusted by the addition of the appropriate deterioration factor. However, if the deterioration factor supplied by the manufacturer is less than zero, it shall be zero for the purposes of this paragraph.

(*2*) Diesel heavy-duty engines utilizing aftertreatment technology (e.g., particulate traps). For transient HC (OMHCE), CO, NOx, and exhaust particulate, the official exhaust emission results for each emission-data engine at the selected test point shall be adjusted by multiplication by the appropriate deterioration factor. However, if the deterioration factor supplied by the manufacturer is less than one, it shall be one for the purposes of this paragraph.

(*3*) Diesel heavy-duty engines only. For acceleration smoke ("A"), lugging smoke ("B"), and peak smoke ("C"), the official exhaust emission results for each emission-data engine at the selected test point shall be adjusted by the addition of the appropriate deterioration factor. However, if the deterioration factor supplied by the manufacturer is less than zero, it shall be zero for the purposes of this paragraph.

(iv) The emission values to compare with the standards (or family emission limits, as appropriate) shall be the adjusted emission values of paragraph (c)(4)(iii) of this section, rounded to the same number of significant figures as contained in the applicable standard in accordance with ASTM E 29–67, for each emission-data engine.

(5)–(6) [Reserved]

(*7*) Every test engine of an engine family must comply with all applicable standards (or family emission limits, as appropriate), as determined in paragraph (c)(4)(iv) of this section, before any engine in that family will be certified.

(d)(1) Paragraph (d) of this section applies to heavy-duty vehicles equipped with gasoline-fueled or methanol-fueled engines.

(2) The applicable evaporative emission standard in § 86.091–10 or § 86.094–11 of this subpart applies to the emissions of vehicles for their useful life.

(3)(i) For vehicles with a GVWR of up to 26,000 pounds, because it is expected that emission control efficiency will change during the useful life of the vehicle, an evaporative emission deterioration factor shall be determined from the testing described in § 86.088–23(b)(3) of this subpart for each evaporative emission family-evaporative emission control system combination to indicate the evaporative emission control system deterioration during the useful life of the vehicle (minimum 50,000 miles). The factor shall be established to a minimum of two places to the right of the decimal.

(ii) For vehicles with a GVWR of greater than 26,000 pounds, because it is expected that emission control efficiency will change during the useful life of the vehicle, each manufacturer's statement as required in § 86.088–23(b)(4)(ii) of this subpart shall include, in accordance with good engineering practice, consideration of control system deterioration.

(4) The evaporative emission test results, if any, shall be adjusted by the addition of the appropriate deterioration factor: *Provided*, That if the deterioration factor as computed in paragraph (d)(3) of this section is less than zero, that deterioration factor shall be zero for the purposes of this paragraph.

(5) The emission level to compare with the standard shall be the adjusted emission level of paragraph (d)(4) of this section. Before any emission value is compared with the standard, it shall be rounded, in accordance with ASTM E 29–67, to two significant figures. The rounded emission values may not exceed the standard.

(6) Every test vehicle of an evaporative emission family must comply with the evaporative emission standard, as determined in paragraph (d)(5) of this section, before any vehicle in that family may be certified.

14. Section 86.094–30 of subpart A is proposed to be amended by revising paragraph (a)(1)(i) and by adding a new paragraph (a)(14) to read as follows:

**§ 86.094–30 Certification.**

(a)(1)(i) If, after a review of the test reports and data submitted by the manufacturer, data derived from any inspection carried out under § 86.091–7(c) of this subpart and any other pertinent data or information, the Administrator determines that a test vehicle(s) (or test engine(s)) meets the requirements of the Act and of this subpart, he will issue a certificate of conformity with respect to such vehicle(s) (or engine(s)) except in cases covered by paragraph (a)(1)(ii) of this section and § 86.091–30(c) of this subpart.

* * * * *

(14) For all light-duty vehicles and light-duty trucks certified with an Alternative Service Accumulation Durability Program under § 86.094–13(e) of this subpart, paragraphs (a)(14) (i) through (iii) of this section apply.

(i) All certificates issued are conditional upon the manufacturer performing the in-use verification program pursuant to the agreement described in § 86.094–13(e)(9) of this subpart.

(ii) Failure to fully comply with all the terms of the in-use verification program pursuant to the agreement described in § 86.094–13(e)(9) of this subpart will be

considered a failure to satisfy the conditions upon which the certificate was issued. A vehicle or truck will be considered to be covered by the certificate only if the manufacturer fulfills the conditions upon which the certificate is issued.

(iii) The manufacturer shall bear the burden of establishing to the satisfaction of the Administrator that the conditions upon which the certificate was issued were satisfied.

* * * * *

**§ 86.094-35 [Amended]**

15. Section 86.094-35 of subpart A is proposed to be amended by removing and reserving paragraphs (a)(2)(iii)(F) and (c)(1)(ii)(B)(*2*).

16. Section 86.095-14 of subpart A is proposed to be amended by revising paragraphs (a) through (c)(7)(i)(C)(*2*)(*i*) and (c)(7)(i)(C)(*4*) through (c)(11)(ii)(B) revising (*15*) and by adding and reserving a new paragraph (c)(7)(i)(C)(*2*)(*ii*) and to read as follows: paragraph (c)(7)(i)(C)(*3*):

**§ 86.095-14 Small-volume manufacturers certification procedures.**

* * * * *

(a) through (c)(7)(i)(C)(*2*)(*i*) [Reserved]. For guidance see § 86.092-14.

(c)(7)(i)(C)(*2*)(*ii*) [Reserved]

(c) * * *

(*7*) * * *

(i) * * *

(C) * * *

(*3*) Manufacturers with aggregated sales from 301 through 9,999 motor vehicles and motor vehicle engines and certifying light-duty vehicle exhaust emissions from vehicles equipped with unproven emission control systems shall use deterioration factors that the manufacturer determines from official certification durability data generated by vehicles from engine families representing a minimum of 25 percent of the manufacturer's sales equipped with unproven emission control systems. The sales projections are to be based on total sales projected for each engine/system combination. The durability programs applicable to such manufacturers for this purpose shall be the standard AMA, the production AMA and the alternative service accumulation durability programs of § 86.094-13 of this subpart. The durability-data vehicle (engine) mileage accumulation and emission tests are to be conducted according to § 86.094-13 of this subpart. The manufacturer must develop deterioration factors by generating durability data in accordance with § 86.094-13 of this subpart on a minimum of 25 percent of the manufacturer's projected sales (by engine/system combination) that is equipped with unproven emission control systems. The manufacturer must complete the 25 percent durability requirement before the remainder of the manufacturer's sales equipped with unproven emission control systems is certified using manufacturer-determined assigned deterioration factors. Alternatively, any of these manufacturers may, at their option, accumulate miles on durability-data vehicles and complete emission tests for the purpose of establishing their own deterioration factors on the remaining sales.

(c)(7)(i)(C)(*4*) through (c)(11)(ii)(B)(*15*) [Reserved]. For guidance see § 86.092-14.

* * * * *

17. Section 86.095-24 of subpart A is proposed to be amended by revising paragraphs (a) through (b)(1)(iv), and (b)(2) through (h) to read as follows:

**§ 86.095-24 Test vehicles and engines.**

* * * * *

(a) through (a)(7) [Reserved]. For guidance see § 86.092-24.

(a)(8)(i) If the manufacturer elects to participate in the Production AMA Durability Program, the engine families covered by an application for certification shall be grouped based upon similar engine design and emission control system characteristics. Each of these groups shall constitute a separate engine family group.

(a)(8)(ii) through (b)(1)(iv) [Reserved]. For guidance see § 86.092-24.

* * * * *

(b)(2) through (e)(2) [Reserved]. For guidance see § 86.092-24.

(f) Carryover and carry-across of durability and emission data. In lieu of testing an emission-data or durability-data vehicle (or engine) selected under paragraph (c) of this section, and submitting data therefore, a manufacturer may, with the prior written approval of the Administrator, submit exhaust emission data and/or fuel evaporative emission data, as applicable on a similar vehicle (or engine) for which certification has previously been obtained or for which all applicable data required under § 86.090-23 of this subpart has previously been submitted.

(g)(1) through (g)(4) [Reserved]. For guidance see § 86.092-24.

(h) Production AMA Durability Program durability-data vehicles. This paragraph applies to light-duty vehicle and light-duty truck durability-data vehicles selected under the Production AMA Durability Program described in § 86.094-13 of this subpart.

(1) In order to update the durability data to be used to determine a deterioration factor for each engine family group, the Administrator will select durability-data vehicles from the manufacturer's production line. Production vehicles will be selected from each model year's production for those vehicles certified using the Production AMA Durability Program procedures.

(h)(1)(i) through (h)(3) [Reserved]. For guidance see § 86.092-24.

18. Section 86.095-26 of subpart A is proposed to be amended by revising paragraphs (a)(1) through (b)(4)(i)(C) to read as follows:

**§ 86.095-26 Mileage and service accumulation; emission measurements.**

* * * * *

(a)(1) Paragraph (a) of this section applies to light-duty vehicles. It prescribes mileage and service accumulation requirements for durability data vehicles run under either the Standard AMA Durability Program of § 86.094-13(c) of this subpart or the Production AMA Durability Program of § 86.094-13(d) of this subpart, and for emission data vehicles regardless of the durability program employed. Service accumulation requirements for durability data vehicles run under the Alternative Service Accumulation Program may be found in § 86.094-13(e) of this subpart.

(2) (i) The standard method of whole-vehicle service accumulation for durability vehicles and for emission data vehicles in models years 1994 and 1995 shall be mileage accumulation using the Durability Driving Schedule as specified in Appendix IV to this part. Except with the advance approval of the Administrator, all vehicles will accumulate mileage at a measured curb weight which is within 100 pounds of the estimated curb weight. If the loaded vehicle weight is within 100 pounds of being included in the next higher inertia weight class as specified in § 86.129 of subpart B of this part, the manufacturer may elect to conduct the respect emission tests at higher loaded vehicle weight.

(ii) If approved in advance by the Administrator, a substitute whole-vehicle mileage accumulation schedule to that specified in § 86.094-26(a)(2)(i) of this subpart may also be used. The Administrator may approve such a procedure if it is substantially similar to the procedure specified in § 86.094-26(a)(2)(i) of this subpart in its average speed, distribution of speeds, number of stops per mile, number of accelerations to the various speeds per mile. The

Administrator may adopt additional or alternative criteria for evaluating substantially similar mileage schedules, consistent with good engineering practice. The Administrator may also approve a substitute schedule that is not substantially similar to the procedure specified in § 86.094–26(a)(2)(i) of this subpart, based on a demonstration that the schedule will generate deterioration factors that reflect in-use deterioration with reasonable certainty.

(3) Emission-data vehicles. Unless otherwise provided for in § 86.091–23(a) of this subpart, emission-data vehicles shall be operated and tested as follows:

(i) Otto-cycle. (A) The manufacturer shall determine, for each engine family, the mileage at which the engine-system combination is stabilized for emission-data testing. The manufacturer shall maintain, and provide to the Administrator if requested, a record of the rationale used in making this determination. The manufacturer may elect to accumulate 4,000 miles on each test vehicle within an engine family without making a determination. The manufacturer must accumulate a minimum of 2,000 miles (3,219 kilometers) on each test vehicle within an engine family. All test vehicle mileage must be accurately determined, recorded, and reported to the Administrator. Any vehicle used to represent emission-data vehicle selections under § 86.094–24(b)(1) of this subpart shall be equipped with an engine and emission control system that has accumulated the mileage the manufacturer chose to accumulate on the test vehicle. Fuel economy data generated from certification vehicles selected in accordance with § 86.094–24(b)(1) of this subpart with engine-system combinations that have accumulated more than 10,000 kilometers (6,200 miles) shall be factored in accordance with § 600.006 of this chapter. Complete exhaust and evaporative (if required) emission tests shall be conducted for each emission-data vehicle selection under § 86.094–24(b)(1) of this subpart. The Administrator may determine under § 86.094–24(f) of this subpart that no testing is required.

(B) Emission tests for emission-data vehicle(s) selected for testing under § 86.094–24(b)(1) (v) or (viii) of this subpart shall be conducted at the mileage (2,000 mile minimum) at which the engine-system combination is stabilized for emission testing under high-altitude conditions.

(C) Exhaust and evaporative emissions tests for emission-data vehicle(s) selected for testing under § 86.094–24(b)(1) (i), (ii), (iii), (iv), or (vii)(B) of this subpart shall be conducted at the mileage (2,000 mile minimum) at which the engine-system combination is stabilized for emission testing under low-altitude conditions.

(D) For each engine family, the manufacturer will either select one vehicle previously selected under § 86.094–24(b)(1) (i) through (iv) of this subpart to be tested under high-altitude conditions or provide a statement in accordance with § 86.094–24(b)(1)(v) of this subpart. Vehicles shall meet emission standards under both low- and high-altitude conditions without manual adjustments or modifications. In addition, any emission control device used to conform with the emission standards under high-altitude conditions shall initially actuate (automatically) no higher than 4,000 feet above sea level.

(ii) Diesel. (A) The manufacturer shall determine, for each engine family, the mileage at which the engine-system combination is stabilized for emission-data testing. The manufacturer shall maintain, and provide to the Administrator if requested, a record of the rationale used in making this determination. The manufacturer may elect to accumulate 4,000 miles on each test vehicle within an engine family without making a determination. The manufacturer must accumulate a minimum of 2,000 miles (3,219 kilometers) on each test vehicle within an engine family. All test vehicle mileage must be accurately determined, recorded, and reported to the Administrator. Any vehicle used to represent emission-data vehicle selections under § 86.094–24(b)(1) of this subpart shall be equipped with an engine and emission control system that has accumulated the mileage the manufacturer chose to accumulate on the test vehicle. Fuel economy data generated from certification vehicles selected in accordance with § 86.094–24(b)(1) of this subpart with engine-system combinations that have accumulated more than 10,000 kilometers (6,200 miles) shall be factored in accordance with § 600.006 of this chapter. Complete exhaust emission tests shall be conducted for each emission-data vehicle selection under § 86.094–24(b)(1) of this subpart. The Administrator may determine under § 86.094–24(f) of this subpart that no testing is required.

(B) Emission tests for emission-data vehicle(s) selected for testing under § 86.094–24(b)(1)(v) of this subpart shall be conducted at the mileage (2,000 mile minimum) at which the engine-system combination is stabilized for emission testing under high-altitude conditions.

(C) Exhaust and evaporative emissions tests for emission-data vehicle(s) selected for testing under § 86.094–24(b) (1) (i), (ii), (iii), (iv), or (vii)(B) of this subpart shall be conducted at the mileage (2,000 mile minimum) at which the engine-system combination is stabilized for emission testing under low-altitude conditions.

(D) For each engine family, the manufacturer will either select one vehicle previously selected under § 86.094–24(b)(1) (i) through (iv) of this subpart to be tested under high-altitude conditions or provide a statement in accordance with § 86.094–24(b)(1)(v) of this subpart. Vehicles shall meet emission standards under both low- and high-altitude conditions without manual adjustments or modifications. In addition, any emission control device used to conform with the emission standards under high-altitude conditions shall initially actuate (automatically) no higher than 4,000 feet above sea level.

(4)(i) Durability data vehicles. (A) Unless otherwise provided for in § 86.094–23(a) of this subpart or in paragraph (a)(4)(i)(B) of this section, each durability-data vehicle shall be driven on the whole-vehicle mileage accumulation cycle specified in paragraph (a)(2) of this section, with all emission control systems installed and operating, up to a mileage endpoint corresponding to the vehicle's durability useful life as defined in § 86.094–2 of this subpart.

(B) Extrapolation of durability data and changes to the mileage accumulation cycle.

(*1*) Once a durability vehicle has reached the greater of 75,000 miles or three-quarters of the applicable durability useful life, the manufacturer may petition the Administrator to extrapolate the durability data obtained up to that point out to the durability useful life or to replace the mileage accumulation cycle with an alternative that meets the criteria of § 86.094–26(a)(2)(ii) of this subpart. In the petition, the manufacturer shall supplement the durability vehicle data with other information demonstrating the durability of the vehicle's emission control components and systems at or beyond the durability useful life.

(*2*) Factors the Administrator will consider in evaluating petitions for extrapolation of durability data or for changes to the mileage accumulation cycle include, but are not limited to, any unusual scheduled maintenance, unscheduled maintenance, the general linearity and scatter of the actual data, reasonable explanations for all outlier data, the technical validity of any

substitute mileage accumulation cycle, and the manufacturer-supplied evidence of component and system durability.

(3) If a petition for extrapolation of durability data is approved, the endpoint for whole-vehicle mileage accumulation of the durability data vehicle shall be the mileage attained by the vehicle as reflected in the petition.

(4) Discontinuation of a durability-data vehicle shall be allowed only with the consent of the Administrator.

(C) Complete exhaust emission tests shall be made at test point mileage intervals that the manufacturer determines. At a minimum, two complete exhaust emission tests shall be made. The first test shall be made at a distance not greater than 6,250 miles. The last shall be made at the mileage accumulation endpoint determined in paragraph (a)(4) (A) or (B), whichever is applicable.

(D) Except with advance approval of the Administrator, the mileage interval between test points must be of equal length except for the interval between zero miles and the first test, and any interval before or after testing conducted in conjunction with vehicle maintenance as specified in § 86.094–25(g)(2) of this subpart.

(ii) The manufacturer may, at its option, alter the durability-data vehicle at the selected test point to represent emission-data vehicle(s) within the same engine-system combination and perform emission tests on the altered vehicle. Upon completion of emission testing, the manufacturer may return the test vehicle to the durability-data vehicle configuration and continue mileage accumulation.

(a)(5) through (a)(7) [Reserved]. For guidance see § 86.092–26.

(a)(8) The data from emissions data vehicles and durability data vehicles obtained pursuant to the provisions of this section will be used in the calculations under § 86.094–28 of this subpart.

(a)(9) through (b)(1) [Reserved]. For guidance see § 86.092–26.

(b)(2) There are four types of mileage or service accumulation applicable to light-duty trucks, described in paragraphs (b)(2) (i) through (iv) of this section.

(i) Service accumulation conducted under the Standard Self-Approval Durability Program of § 86.094–13(f) of this subpart. This type of service accumulation is applicable for model years 1994 and 1995 only. The manufacturer determines the form and extent of this service accumulation, consistent with good engineering practice, and describes it in the application for certification. Service accumulation under the Standard Self-Approval Durability Program is conducted on vehicles, engines, subsystems, or components selected by the manufacturer under § 86.094–24(c)(2)(i) of this subpart.

(ii) Service accumulation conducted under the Alternative Service Accumulation Durability Program of § 86.094–13(e) of this subpart. This type of service accumulation is applicable for model years 1994 and 1995 only. The service accumulation method is developed by the manufacturer to be consistent with good engineering practice and to accurately predict the deterioration of the vehicle's emissions in actual use over its full useful life. The method is subject to advance approval by the Administrator and to verification by an in-use verification program conducted by the manufacturer under § 86.094–13(e)(5) of this subpart.

(iii) Mileage accumulation of the duration selected by the manufacturer on emission-data vehicles selected under § 86.094–24(b)(1) of this subpart. The procedure for mileage accumulation will be the Durability Driving Schedule as specified in appendix IV to this part. A modified procedure may also be used if approved in advance by the Administrator. Except with the advance approval of the Administrator, all vehicles will accumulate mileage at a measured curb weight which is within 100 pounds of the estimated curb weight. If the loaded vehicle weight is within 100 pounds of being included in the next higher inertia weight class as specified in § 86.129 of subpart B of this part, the manufacturer may elect to conduct the respective emission tests at higher loaded vehicle weight.

(iv) Service or mileage accumulation which may be part of the test procedures used by the manufacturer to establish evaporative emission deterioration factors.

(3) Exhaust emission deterioration factors will be determined on the basis of the mileage or service accumulation described in paragraphs (b)(2) (i) or (ii) of this section and related testing, according to the manufacturer's procedures.

(b)(4) through (b)(4)(i)(C) [Reserved]. For guidance see § 86.092–26.

* * * * *

19. Section 86.095–30 of subpart A is proposed to be amended by adding a new paragraph (a)(14) to read as follows:

**§ 86.095–30 Certification.**

* * * * *

(a) * * *

(14) For all light-duty vehicles and light-duty trucks certified with an Alternative Service Accumulation Durability Program under § 86.094–13(e) of this subpart:

(i) All certificates issued are conditional upon the manufacturer performing the in-use verification program pursuant to the agreement described in § 86.094–13(e)(9) of this subpart.

(ii) Failure to fully comply with all the terms of the in-use verification program pursuant to the agreement described in § 86.094–13(e)(9) of this subpart will be considered a failure to satisfy the conditions upon which the certificate was issued. A vehicle will be considered to be covered by the certificate only if the manufacturer fulfills the conditions upon which the certificate is issued.

(iii) The manufacturer shall bear the burden of establishing to the satisfaction of the Administrator that the conditions upon which the certificate was issued were satisfied.

* * * * *

**§ 86.095–35 [Amended]**

20. Section 86.095–35 of subpart A is proposed to be amended by removing and reserving paragraphs (a)(2)(iii)(F) and (c)(1)(ii)(B)(2).

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