

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 86

RIN #2060-AH06

Control of Air Pollution From New Motor Vehicles; Compliance programs for new light-duty vehicles and light-duty trucks.

**AGENCY:** Environmental Protection Agency

**ACTION:** Notice of Proposed Rulemaking

**SUMMARY:** This action proposes to revise the emissions compliance procedures for light-duty vehicles and light-duty trucks. The Environmental Protection Agency (referred to hereafter as "EPA" or "the Agency") is proposing a new compliance assurance program (referred to as "CAP 2000"). CAP 2000 would simplify and streamline the current procedures for pre-production certification of new motor vehicles. Under this proposal, the certification program would provide the same environmental benefits as the current procedures while significantly reducing the certification cost for manufacturers, and would give manufacturers more

control of production timing. EPA is also proposing that manufacturers test in-use motor vehicles to monitor compliance with emission standards. Manufacturers would test samples of in-use vehicles when they are approximately one and four years old. These test data would be used to improve the certification process to predict in-use compliance and to determine the need for further action by the Agency or the manufacturer to address any in-use compliance problems. EPA proposes that CAP 2000 be implemented beginning with model year (MY) 2001 vehicles. Manufacturers would be allowed to voluntarily opt-in to the CAP 2000 procedures beginning with the 2000 model year. EPA estimates that overall, manufacturers would save about \$55 million dollars a year as a result of today's proposal.

**DATES:** Written comments on this NPRM must be submitted on or before [insert date 30 days after Public Hearing date]. A public hearing will be held on [insert date 15 days after publication in the Federal Register]. Requests to present oral testimony must be received on or before [Insert date 5 days prior to the date of the public hearing]. If EPA receives no requests to present oral testimony by this date, the hearing will be cancelled.

**ADDRESSES:** Written comments should be submitted (in duplicate, if possible,) to: EPA Air & Radiation Docket,

Attn Docket # A-96-50, Room M-1500 (Mail Code 6102), 401 M. Street, SW., Washington, DC 20460. Materials relevant to this rulemaking are contained in Docket No. A-96-50 and may be viewed in room M-1500 between 8:00 a.m. and 5:30 p.m., Monday through Friday. The telephone number is (202) 260-7548 and the facsimile number is (202)260-4400. A reasonable fee may be charged by EPA for copying docket material.

The public hearing will be held at the Holiday Inn North Campus, Ann Arbor, MI. The hearing will begin at 10:00 a.m. and continue until all testimony has been presented.

**FOR FURTHER INFORMATION CONTACT:**

Linda Hormes, Vehicle Programs and Compliance Division, US EPA, 2000 Traverwood, Ann Arbor Michigan 48105, telephone (734)214-4502, E-mail: hormes.linda@epa.gov.

**SUPPLEMENTARY INFORMATION:**

Regulated Entities

Entities potentially regulated by this action are those which manufacture and sell motor vehicles in the United States. Regulated categories and entities include:

Category	Examples of regulated entities
Industry.....	New motor vehicle manufacturers.

This table is not intended to be exhaustive but rather provides a guide for readers regarding entities likely to be regulated by this action. This table lists the types of entities the EPA is now aware could potentially be regulated by this action. Other types of entities not listed in the table could also be regulated. To determine whether your product is regulated by this action, you should carefully examine the applicability criteria in § 86.1801-01 of title 40 of the Code of Federal Regulations. If you have questions regarding the applicability of this action to a particular product, consult the person listed in the preceding **FOR FURTHER INFORMATION CONTACT** section.

#### Obtaining Copies of the Regulatory Language

Hard copies (paper) and electronic copies (on 3.5" diskettes) of the proposed regulatory language may be obtained free of charge by visiting, writing, or calling the contact person in the **FOR FURTHER INFORMATION CONTACT** section at US Environmental Protection Agency's National Vehicle and Fuels Emission Laboratory, 2000 Traverwood, Ann Arbor, MI 48105. Please direct all requests to Linda Hormes, telephone (734)214-4502. E-mail requests may be sent to [hormes.linda@epa.gov](mailto:hormes.linda@epa.gov).

Electronic copies of the proposed regulatory language are also available through EPA's web page. See "Electronic Availability" below for access instructions.

Electronic Availability:

The preamble and regulatory language are available electronically from both the EPA internet Web site and the Office of Mobile Source's Web site. This service is free of charge, except for any cost you already incur for internet connectivity. An electronic version of the Preamble will be made available on the day of publication on the EPA Web site listed below:

<http://www.epa.gov/docs/fedrgstr/EPA-AIR/>

(either select desired date or use "Search" feature)

The EPA Office of Mobile Sources will also publish the preamble and regulatory language on its Web site listed below:

<http://www.epa.gov/OMSWWW/>

(look in "What's New" or under the specific rulemaking topic)

Please note that due to differences between the software used to develop the document and the software into which the document may be downloaded, changes in format, page length, etc. may occur.

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I. Introduction and Background

A. Overview of Current Compliance Programs for Light-Duty Vehicles and Light-Duty Trucks

Three programs are currently in place to ensure that light-duty vehicles and light-duty trucks comply with mandated emission standards: certification, assembly line testing (known as Selective Enforcement Audits or SEAs) and recall. EPA also oversees the testing and calculation processes for fuel economy programs that include labeling, gas guzzler tax, and Corporate Average Fuel Economy (CAFE). The following discussion briefly summarizes the current programs.

1. Certification

Under the Clean Air Act (Section 203(a)(1)), a motor vehicle manufacturer must obtain a certificate of conformity indicating compliance with emission standards prior to selling new cars in the United States. Issuance of a certificate is based on a showing that the new motor vehicles have been designed to meet emission standards for their useful lives. A manufacturer submits information to EPA, including test data demonstrating that its new motor vehicles will comply with the applicable emission standards. After reviewing this information for completeness and compliance with the standards, EPA issues a certificate of conformity. This must occur prior to the sale of the new motor vehicles, necessitating the use of pre-production vehicles to demonstrate compliance. A new certificate must be obtained each model year.

Since it is a pre-production program, manufacturers must use predictive tools to demonstrate that a vehicle will conform to the applicable emission standards. The certification program accomplishes this by assessing the emissions control deterioration characteristics of the vehicle ("durability") and applying this assessment to emissions data from low mileage, production-intent vehicles, that is, vehicles assembled as closely as possible to those which are planned to be produced. This is done specifically for each "engine family" which is a group of vehicles that have engines and emission control systems with similar



operational and emission characteristics, as defined in regulations. A separate certificate of conformity must be obtained for each engine family. Within each engine family, the manufacturer must determine the emission deterioration factors (DFs) by using either bench aging techniques or by operating prototype vehicles for the useful life mileage and testing at periodic intervals. The manufacturer must then test a number of production-intent vehicles with stabilized mileages (usually 4,000 miles) for each engine family. These low mileage test vehicles are called emission-data vehicles (EDVs). The test results from the emission-data vehicles are adjusted by the DFs to project useful life emission levels (called "certification levels"). The useful lives of motor vehicles for emission compliance purposes are defined in Section 202(d) of the Clean Air Act and are implemented through the regulations. (For example, for light-duty vehicles covered by this proposal, full useful life is 100,000 miles or 10 years.) If the certification levels are below the applicable standard and the manufacturer has demonstrated that the vehicle meets all emission requirements, a Certificate of Conformity can be issued.

## 2. Selective Enforcement Audit (SEA)

Section 206(b) of the Clean Air Act authorizes EPA to

conduct testing of new motor vehicles or engines at the time they are produced to determine whether they comply with the applicable emission standards. This testing may be conducted by the Agency or, under conditions specified by the Agency, by the manufacturer. If the Agency determines based on this testing that the vehicles or engines do not comply with those regulations, the Agency may suspend or revoke the applicable certificate.

The SEA program accomplishes two goals. First, it provides the Agency with an early opportunity to evaluate the emissions performance of actual production vehicles for which certificates have been issued. In the case of classes of vehicles which are found to be high emitters, this allows EPA to obtain repair of vehicles already in owners' hands and to ensure that vehicles subsequently produced comply with applicable requirements. Second, EPA's ability to test new vehicles and to revoke or suspend the certificate encourages manufacturers to conduct their own testing of new vehicles. This allows manufacturers to identify and correct high emitting classes of vehicles early in their production life, providing an opportunity to prevent excessive emissions during the life of the vehicles.

### 3. Recall

Section 207(c) of the Clean Air Act provides that if

the Administrator determines that a class or category of vehicles or engines, although properly maintained and used, does not conform with the applicable regulations when in actual use throughout its useful life, the manufacturer is required to submit a plan to remedy the non-conformity at the manufacturer's expense. This remedy is available to the owners of all vehicles of the relevant class regardless of the age or mileage of the vehicles.

EPA tests in-use vehicles under the current recall program and uses the resultant data to evaluate the emission performance of vehicles in actual use. As the evaluation is based on vehicles which have experienced real life operation by actual owners over a number of years, it provides the Agency and the industry with a particularly accurate picture of the emission performance of properly maintained and used vehicles. In appropriate cases EPA requires manufacturers to repair non-complying classes. In many cases a manufacturer will voluntarily recall vehicles if problems are discovered through EPA's test program.

The recall program accomplishes its emission reduction goals not only through the repair of non-conforming vehicles classes, but also through the deterrent effect created by the substantial expense to manufacturers associated with conducting a recall. The potential expense associated with vehicles which demonstrate inadequate in-use emissions durability encourages manufacturers to design and build

vehicles which are durable in actual use, thus addressing the real world emissions of the motor vehicle fleet.

#### 4. Fuel Economy

EPA shares responsibilities with three other Federal agencies in the conduct of three fuel economy programs. The three programs are as follows:

##### a. Corporate Average Fuel Economy (CAFE) Standards

Manufacturers of passenger cars and light-duty trucks must meet fleet average fuel economy standards for the vehicles sold in the United States. Penalties are assessed to manufacturers that do not meet the standards. (Penalties established by law (49 CFR 578.6(h)) are currently \$5.50 per vehicle sold for each 0.1 mpg the manufacturer's CAFE is under the standard.) Congress and the National Highway Traffic Safety Administration (NHTSA) of the Department of Transportation set the CAFE standards. NHTSA assesses any penalties associated with CAFE noncompliance. EPA is responsible for establishing test procedures, collecting data, and confirming manufacturers' averages.

##### b. Fuel Economy Labels and the Gas Mileage Guide

All new passenger cars and light-duty trucks sold in the United States are required at the time of sale to have a window label attached showing the vehicle's estimated fuel economy. EPA, in conjunction with the Department of Energy (DOE), specifies the label design. EPA establishes the testing and calculation procedures, and approves the fuel economy values placed on the labels. At the beginning of each model year (usually in September), EPA compiles all available label values into a fuel economy listing which is given to DOE. DOE, in turn, publishes the information in the Gas Mileage Guide which is available at all new car dealerships.

c. Gas Guzzler Tax

The Energy Tax Act of 1978 established a tax schedule for passenger cars that do not achieve certain fuel economy standards. EPA establishes the testing and calculation procedures and reports the fuel economy values to the Internal Revenue Service for tax collection purposes.

In addition to the above established programs, EPA retains the most extensive and complete database in the U.S. on the fuel economy performance of vehicles sold in this country. Using this database, EPA publishes a report that analyzes fuel economy trends related to fleet fuel efficiency going back to the 1975 model year. NHTSA also

uses this database to publish its annual report to Congress on fuel economy performance.

#### B. Background of Proposal

Beginning in the late 1970's, EPA began to streamline various aspects of the light-duty vehicle (LDV) and light-duty truck (LDT) compliance programs. In particular, the certification program has undergone changes leading to reduced testing and reporting burdens, and EPA has also allowed manufacturers to make many of the initial decisions in the certification process, such as selection of vehicles for testing. Because EPA designed adequate safeguards in the review process, preserved all its discretion in the final certification decision, retained a strong in-use recall program, and pursued civil fines against manufacturers who violated the streamlined certification process, these streamlining efforts have not reduced the effectiveness of the standards. Stabilized emission standards during the 1980's also minimized both Agency and manufacturer burdens, as well as decreased the likelihood of in-use noncompliance. However, following the Clean Air Act Amendments of 1990, new standards and test procedures have once again increased Agency and manufacturer compliance burdens, as well as the risk of more in-use noncompliance with these new standards.

EPA believes that it is now appropriate to redesign the LDV and LDT compliance programs to provide greater assurance of in-use compliance and to reduce overall compliance program burdens for both EPA and manufacturers. EPA believes that overall burdens can be reduced by redesigning the program around current industry practices and technology rather than retaining the procedures designed for the industry and products of the 1970's. More importantly, EPA believes that a compliance program design that integrates improved pre-production compliance procedures with a new emphasis on checking real in-use performance would result in lower in-use emissions, the ultimate goal of the federal motor vehicle compliance program.

In May of 1995, EPA met with manufacturers to discuss ways to improve the mobile source programs for light-duty vehicles and light-duty trucks. Manufacturers expressed concern about the burdens imposed by EPA compliance programs, particularly the certification program. At the same time, EPA expressed a desire to focus on improving in-use emission performance. EPA agreed to investigate the possibility of reducing certification burdens if some of the savings would be redirected toward the goal of improving the emission control performance of in-use vehicles.

EPA proceeded with creating options for a redesigned LDV and LDT compliance process. In September, 1995, EPA staff met with their counterparts in the California Air

Resources Board (California ARB) to discuss some ideas for redesigning aspects of their respective vehicle compliance programs that would ease some of the administrative burdens to both the agencies and industry while improving in-use emission performance.

Subsequently, EPA and California ARB met with manufacturers to discuss ways to revise the current mobile source compliance programs for light-duty vehicles and light-duty trucks. All parties generally agreed that in-use emissions performance could be improved by shifting the focus of compliance assessments towards in-use testing, while potentially reducing overall compliance demonstration burdens. In February of 1996, EPA, California ARB, and 18 vehicle manufacturers acknowledged these goals by signing a statement of Principles for Compliance Program Regulatory and Emissions Improvement. These principles of understanding are the guiding principles for this proposal. Specifically the principles of understanding state:

...the Signatories commit to working together to achieve effective regulatory streamlining of LDV compliance programs, including reduction of process time and test complexity, with the goal of more optimal application of the resources spent by both government and industry to better focus on in-use compliance with emission standards. Among the alternatives would be



consideration of more optimal allocation between prototype certification and assembly line audit testing in preference for in-use performance evaluation and compliance testing. EPA will also seek to design incentives into the compliance program mix which reward manufacturers who do not have an in-use compliance problem by requiring less compliance testing burdens on them. Overall, the primary guiding principle will be to encourage lower in-use emissions.

An additional factor leading to today's proposal was EPA's involvement in an advisory committee on mobile source needs, established under the Federal Advisory Committee Act (FACA)(5 U.S.C.Appendix § 1 *et. seq.*) In July 1995, a Mobile Source Technical Review Subcommittee was convened, and in December 1995, the Subcommittee formed a Compliance Reinvention Working Group whose specific charge was to provide to the Mobile Source Subcommittee recommendations for re-engineering the current light-duty vehicle and light-duty truck compliance programs. Members of the working group included EPA, California ARB, and vehicle manufacturers. Consistent with the goals of the working group, recommendations were made to the Subcommittee on the design of a new compliance program that would achieve the following:

- Redirect manufacturer and Agency efforts toward in-use compliance,
  
- Give manufacturers more control of certification timing, and
  
- Maintain the integrity of the compliance and fuel economy programs.

On October 9, 1996, the working group presented the final results of their discussions to the Mobile Source Technical Review Subcommittee<sup>1</sup>. The working group report discussed many of the detailed issues involved in reengineering the vehicle compliance process. EPA, California ARB, and the industry agreed on a number of these details, although some differences still remained. These differences are discussed in the various preamble sections which follow.

In keeping with the statement of principles, EPA's CAP 2000 proposal simplifies and streamlines considerably the pre-production certification process and requires a more extensive confirmation by each manufacturer that vehicles are actually meeting emission standards in use. The current

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<sup>1</sup>Memorandum from Jane Armstrong and Kelly M. Brown, Co-Chairpersons to Mr. Michael P. Walsh, et.al. dated October 3, 1996 entitled "Findings and Recommendations, Compliance Working Group" is placed in the Docket for this proposal.

EPA recall program is left intact in the proposal, but would be enhanced by the in-use testing performed by manufacturers.

### C. CAP 2000 Summary

EPA considered a broad range of options in developing today's proposal. EPA considered a "self-certification" option which would entail virtually no pre-production EPA oversight. Several factors became apparent that ruled out a pure self-certification approach:

- Section 206(a)(1) of the Clean Air Act requires that the Administrator affirmatively evaluate compliance and issue certificates of conformity based on test data as specified by the Administrator.
  
- A reasonable amount of information submitted to EPA by the manufacturer is necessary to establish a description of what is covered under the certificate of conformity, and is necessary for the Agency to effectively perform in-use compliance and enforcement actions.
  
- The Agency believes that certification by the Agency is critical in pollution prevention, because it

provides the first (and only, in the case of many small volume manufacturers) screen of vehicle emission performance. Recall and SEA, while powerful design incentives for industry, do not capture all problems, and recalls occur after environmental damage has occurred.

The proposal being made today would streamline the certification program structure to retain EPA's confidence in pre-production compliance determinations while reducing costs for manufacturers. EPA proposes to streamline certification testing and information requirements for manufacturers, while allowing EPA to more effectively and efficiently audit vehicle designs for compliance. Manufacturers would be allowed more flexibilities in certification testing and timing. To verify the compliance predictions made for certification, today's proposal would also require manufacturers to conduct testing of in-use vehicles and to report the results to EPA. This would result in the generation of significant amounts of in-use FTP data that are currently not available, providing more information for the Agency's recall program and for studies of in-use vehicle emission control performance in general.<sup>2</sup> Moreover, EPA believes that the proposed CAP 2000 program

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<sup>2</sup>Important areas of non-FTP in-use data available for study include OBD repair statistics and I/M test results.

would result in overall cost savings for the industry (estimated at about \$55 million dollars per year) while improving in-use emissions compliance.

The key features of the compliance program under CAP 2000 are listed below. Section II will more fully describe the proposed changes along with the rationale for making the changes.

1. Streamlining the Certification Program

Streamlining the Certification program involves three elements: reductions in testing requirements, reductions in paperwork and reporting requirements, and allowing additional flexibilities in the timing of reporting and confirmatory testing requirements. These elements would be accomplished by making the following changes:

- a. Eliminate the current groups based on engine families and replace them with broader groups. (See Section II. A. and C. below.) "Durability groups" would be created to select the vehicles that would demonstrate similar deterioration characteristics. These are broader coverage groups than the current engine families and would result in about a 75% decrease in the number of durability demonstrations now required. "Test Groups" would be created to determine compliance levels and define the coverage of

each certificate of conformity. Test groups are slightly broader than current engine families, but today's proposal would require only one test vehicle per test group rather than the current two vehicles per engine family. This would result in about a 50% decrease in emission-data test vehicles.

b. Expand options for durability demonstrations and for test vehicle usage. (See Section II. B. below.) Today's proposal would eliminate the current "AMA" durability mileage accumulation in favor of manufacturer-developed durability cycles approved by EPA. EPA also proposes to allow the use of aged components to determine compliance rather than establishing deterioration factors. Today's proposal would also allow more use of development vehicles for certification testing.

c. Allow issuance of conditional certificates of conformity before final EPA confirmatory testing is done. (See Section II. E. below). Under CAP 2000, manufacturers could opt to produce and sell vehicles under a conditional certificate of conformity if the required manufacturer testing is completed but confirmatory testing scheduled to be performed at EPA is not yet complete. If the confirmatory test at EPA fails, the manufacturer would have to suspend sales and recall affected vehicles. This option

would give manufacturers more control on production timing, while assuring final compliance. It is unlikely that manufacturers would take this option if there is a chance the vehicle would fail the test at EPA.

d. Allow more confirmatory testing at manufacturers' laboratories while retaining a random audit sample at EPA. (See Section II. E. below.) This would reduce test vehicle shipping costs for manufacturers, improve manufacturers' certification timing control, and reduce EPA laboratory compliance testing burdens. EPA would not relinquish its right to confirmatory test any vehicle at EPA.

e. Reduce overall reporting burdens and delay submission deadlines for more detailed information. (See Section II. H. below.) Today's proposal would revamp the certification reporting requirements to reduce recordkeeping and reporting efforts. It is being estimated that the total burden-hours associated with information record keeping and reporting will be reduced from 938,600 to 428,583 hours (54%). EPA also proposes to divide the Application for Certification into two parts. Part 1 would include information deemed essential for pre-production purposes and would be required before a certificate is issued. Part 2 would consist of more detailed vehicle descriptions which is primarily needed for in-use compliance purposes and

therefore would not have to be submitted until after certification. This change would more evenly distribute over time the workload for manufacturers and EPA.

f. Allow the use of fuel economy labels before completion of confirmatory testing at EPA (see Section II. F. below.) Similar to the proposal to allow conditional certification before EPA confirmatory testing is complete, this proposal would allow manufacturers to calculate and use fuel economy label values before EPA confirmation. Manufacturers would be required to issue new labels if the recalculated labels based on EPA confirmation changed by a certain threshold. The manufacturer would also be liable for any gas guzzler tax increases as a result of the recalculation. This proposed change would give manufacturers better control of production timing.

## 2. Post-Production Testing

This rulemaking would shift the balance of EPA's compliance efforts from pre-production certification to improvements in in-use emissions. (See Section II. I. below.) EPA is proposing to require manufacturers to perform testing on in-use vehicles. If certain defined levels of potential noncompliance were identified, the manufacturer would be required to conduct or fund additional confirmatory



testing to aid in making recall determinations. The purpose of this testing is two-fold: First, the in-use data would be used to verify manufacturers' compliance and durability predictions used in the certification process.

Modifications in predictive tools used by manufacturers would have a direct bearing on the durability and calibration of future designs. Second, the information would be used to provide better targeting for EPA's recall compliance program.

EPA is proposing that manufacturers test two segments of their in-use fleets per model year. The first fleet would be tested at low mileage (minimum of 10,000 miles, but less than one year after the end of production). This low-mileage fleet would provide early warning of potential problems or failures that should be remedied before more pollution is produced during the fleet's useful life. The second (high mileage) fleet would consist of vehicles at least four years old and with a minimum of 50,000 miles accumulated. The size of the low and high mileage fleets would be dictated by sales categories. Small volume manufacturers (and small volume test groups) would have little or no testing, depending on sales limits.

### 3. Small volume sales considerations

EPA is proposing several special provisions for small

volume manufacturers and for large volume manufacturers with small volume test groups. These provisions are discussed in detail in Section II. G. below.

#### D. Legal Authority

Sections 203, 206, 207, 208 and 217 of the Clean Air Act provide EPA with the authority to revise the current emissions compliance procedures as described in this proposal. In particular, EPA's authority to make the major revisions found in CAP 2000 is based largely on sections 206 and 208(a) of the Act. Section 206 provides EPA with the authority to test, or require to be tested in such manner as the Agency deems appropriate, any new motor vehicle to determine whether the vehicle conforms with applicable emissions standards. EPA accordingly has the broad authority to streamline the current certification process to improve the efficiency of the process. Section 208(a) further requires manufacturers to establish and maintain records, to conduct tests, and to submit information that EPA may reasonably require to determine whether a manufacturer is in compliance with Title II of the Act and its implementing regulations, or to otherwise carry out the provisions of Title II. This includes information needed by EPA to make certification decisions, to determine whether vehicles built and sold are covered by the certificate, and

to ensure that defeat devices are not used. Section 208(a) also provides EPA with the authority to require post-production testing of vehicles by manufacturers to provide a means of monitoring the emissions performance of vehicles driven under real-world conditions. Such testing serves as a check on the accuracy of the certification procedures and on the levels of in-use compliance with applicable emissions standards.

## II. Requirements of the Proposed Rule and Discussion of Rationale

### A. Durability Groups

#### 1. New Durability Groups for Exhaust Emissions

Currently, vehicle grouping for the purpose of certification is accomplished through the application of the "engine family" and "emission control system" definitions in the regulations. Today's proposal drops the definitions of "engine family" and "emission control system" and establishes a new definition for "durability group."

The purpose of durability groups is to combine vehicles which are likely to exhibit similar exhaust emission deterioration over their useful lives, based on the characteristics of current-technology vehicles that most

significantly affect the deterioration of emission control over time. Under the proposal, durability groups would be based on engine type, fuel type, fuel system, catalyst construction, type of precious metals used in the catalyst, and relative engine/catalyst size and loading rates.

The engine family concept was originally developed as a way to combine vehicles of similar emission deterioration rates. At that time (in the early 1970's), the use of catalytic converters was less prevalent, and most emission reductions occurred through modifications to the engine operating characteristics. For these vehicles, all emission deterioration was due to increases in emissions coming directly out of the engine (called "engine-out" emissions). Consequently, the definition of engine family focused on engine-based parameters. Since that time, there have been many advances in exhaust emission control technology which have made the engine family concept less useful for the purposes of grouping vehicles together on the basis of emission deterioration.

In today's vehicles, most emission control is accomplished through catalytic conversion of the exhaust while the engine is controlled to operate within carefully controlled air/fuel ratios to ensure optimum catalyst efficiency. Most manufacturers have demonstrated that essentially no engine-out deterioration is experienced in

their current product<sup>3</sup>. However, the mating of the catalyst with the engine is extremely important. Appropriate sizing of the catalyst to the engine is critical to achieve an appropriate catalyst residence time (the time the exhaust gases remain in the catalyst) so that the catalytic reaction has time to be completed. Adequate levels of precious metal loading and appropriate dispersion are necessary to provide the active sites necessary for conversion and to achieve the desired conversion rates. Also, the catalyst must be placed in a thermal environment that allows it to quickly come to operating temperature but does not expose it to damaging amounts of high temperature during in-use driving.

The durability groups proposed in today's action take into account the changes in emission control technology by shifting the focus away from engine parameters to the basic catalyst formulation and the matching of the catalyst to the engine. EPA estimates that based on the current vehicle product offering, the proposal would result in a reduction in the number of required durability demonstrations by as much as 75 percent. This translates into a substantial savings to manufacturers. Broadening the grouping criteria for durability demonstrations, by itself, may add some

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<sup>3</sup>As part of the current alternative durability program, manufacturers develop their own program for estimating emission deterioration. Most manufacturers have demonstrated no engine-out emission deterioration and have developed programs which focus on thermal aging of the catalyst.

variability in emissions as compared to the current engine family definition; however, the Agency believes that the proposed broader durability groups coupled with worst case durability vehicle selections (discussed below) and in-use verification program (also discussed below) would comprise a more accurate and effective emission control program than the current procedures and result in significant environmental benefits.

Three provisions of the proposal allow manufacturers flexibility in assigning durability groups. First, manufacturers may use different criteria than relative engine/catalyst size and loading rates provided that the criteria result in at least as many groups and do not group together dissimilar vehicles. However, the other five criteria (engine type, fuel type, fuel system, catalyst construction, and type of precious metals used in the catalyst) must be followed. Second, manufacturers may further divide durability groups to meet their needs without advance Agency approval provided that vehicles with dissimilar emission deterioration or durability are not combined. Lastly, the Agency would consider requests to combine groups based on (1) substantial evidence that all the vehicles in the larger group have the same degree of emission deterioration, (2) evidence of equivalent component durability over the vehicles' useful lives, and (3) evidence that the combined groups would result in sufficient in-use

verification data to assure clear liability under the Agency's recall authority.

The Agency considered several related alternatives which would have allowed manufacturers to establish their own groups within broad guidelines (such as groupings based on engine type, fuel type and fuel system)<sup>4</sup>. The Agency believes that durability groups should contain only similar designs, particularly the catalyst design. In the Agency's opinion, catalyst design should be grouped separately for durability because deterioration of catalysts is a chief source of emissions deterioration for most vehicle designs in production today. Combining dissimilar catalyst designs into the same group may make it infeasible to accurately predict the expected worst case vehicle configuration for deterioration within that group. For instance, it may be hard to evaluate which is expected to be worse case for deterioration: a turbo charged vehicle with an aggressive axle and transmission gearing and heavier test weight but normal catalyst parameters versus a vehicle with more standard axle, transmission and weight parameters but equipped with a catalyst of different precious metal content on a different substrate with a different catalyst sizing/loading scheme. Allowing groups to contain such dissimilar vehicles would undermine the ability to

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<sup>4</sup>This alternative was proposed to the FACA panel by the manufacturers' task group and is included in the Docket.

accurately represent the entire group with a single durability demonstration and may lead to noncompliance in use. Consequently, the Agency rejected this alternative in favor of the proposal it is making today.

## 2. Evaporative/Refueling Family Definition Retained

Today's proposal does not change the certification grouping concept of evaporative/refueling family in the current regulations (40 CFR 86.000-24). The Agency believes that the current provisions for evaporative/refueling families are adequate for grouping vehicles and that the current procedures focus on the appropriate technology. Separate certificates of conformity would be issued for each evaporate/refueling family within a test group. The Agency does, however, invite comments to improve the provisions for grouping vehicles into evaporative/refueling families.

## B. Durability Demonstration

The Clean Air Act (CAA) prohibits manufacturers of new motor vehicles from selling or introducing new motor vehicles into commerce unless the vehicles are covered by a certificate of conformity. EPA is charged with the responsibility of issuing certificates of conformity based on testing which verifies compliance with the appropriate



emission standards over the vehicles' useful life. This necessitates a prediction of the durability or rate of deterioration of the vehicle's useful life emission levels before actual production begins.

The process of demonstrating emission durability for the purpose of certification begins well in advance of production. For light-duty vehicles, EPA's current standard durability process requires manufacturers to accumulate mileage on a pre-production vehicle over a prescribed driving cycle for 100,000 miles to simulate deterioration over the useful life. These vehicles are termed durability data vehicles (DDVs); the mileage accumulation cycle, specified in 40 CFR Part 86, is commonly referred to as the AMA cycle.

In this process, emission data are generated at periodic intervals during AMA mileage accumulation and a linear regression of the data is performed to calculate a multiplicative deterioration factor (DF)<sup>5</sup> for each exhaust constituent. In the current durability program, low mileage vehicles (referred to as "emission data vehicles," or EDVs) are tested with calibrations that the manufacturer intends

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<sup>5</sup>A multiplicative DF is calculated by performing a least-squares regression of the emission versus mileage data for each exhaust emission constituent and dividing the 100,000-mile emission level by the 4,000-mile emission level. The DF is then used with other test vehicles to determine compliance with the standards. The product of the emissions multiplied by the DF (referred to as the certification level) must be less than or equal to the emission standard to receive a certificate of conformity.

to produce. The emissions from these tests are multiplied by the DFs to calculate the projected emissions levels (referred to as the "certification levels") at 100,000 miles. The certification levels must be at or below the applicable emission standards in order to obtain a certificate of conformity.

Beginning with the 1994 model year, EPA durability regulations for light-duty trucks (LDTs) have permitted manufacturers to use their own methods, based on good engineering judgment, to determine DFs subject to review by EPA. Although EPA had concerns initially regarding the accuracy of the DFs generated by this method,<sup>6</sup> the manufacturers improved their processes after discussions between EPA and industry. The Agency now believes that the light-duty truck DFs generated by manufacturers using their own methods are at least as representative as those based on AMA mileage accumulation.

Manufacturers have long identified the durability process based on mileage accumulation using the AMA cycle as very costly and requiring extensive lead time for completion. EPA has been concerned about the ability of any fixed cycle - including the AMA cycle - to accurately predict in-use deterioration for all vehicles. In fact, EPA has particular concerns that the AMA does not represent the

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<sup>6</sup>See 57 FR 18545 NPRM (April 30, 1992) on RDP 1.

driving patterns of today and does not appropriately age current design vehicles. As a result, EPA believes that the AMA may have become outdated.

The AMA cycle, which was developed before vehicles were equipped with catalytic converters, contains a substantial portion of low speed driving to address concerns about engine deposits (which were a major source of deterioration in pre-catalyst vehicles). However, since the advent of catalytic converters, better fuel control, and the use of unleaded fuel, causes of deterioration have shifted from low speed driving to driving modes which include higher speed/load regimes that cause elevated catalyst temperatures. The AMA driving cycle does not adequately focus on these higher catalyst temperature driving modes and contains numerous driving modes which do not significantly contribute to deterioration but do make the process longer with little added benefit.

In response to these concerns, EPA began a voluntary program in the 1994 model year for light-duty vehicles which allows manufacturers to develop and use their own procedures to evaluate durability and deterioration (subject to prior Agency approval), provided that the manufacturer conduct or fund an in-use "reality check" test program to evaluate the effectiveness of its predictions. The initial program, referred to as revised durability program I (RDP I), was an interim program scheduled to expire after the 1995 model

year and was intended to serve as a bridge to an anticipated complete revision to the durability process (RDP II). The provisions of RDP I have since been extended in a series of regulatory actions.<sup>7</sup> The Agency has decided to address the revisions it was considering in RDP II as part of the comprehensive redesigned certification process which it is proposing today.

Due to Agency concerns about the adequacy of the AMA as a durability mileage accumulation cycle, the Agency is now proposing to eliminate the use of AMA for new durability demonstrations starting with the 2001 model year. The Agency is proposing to allow manufacturers to use previously generated DFs from the Standard AMA Durability Program, the Standard Self-approval Durability Program for light-duty trucks, or the Alternative Service Accumulation Durability Program for a period of three years, provided that manufacturers agree to collect the required in-use verification test data required by the proposed CAP 2000 rule<sup>8</sup>.

The Agency is proposing to replace the AMA-based durability program with a manufacturer-designed durability

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<sup>7</sup>59 FR 36368 (July 18, 1994), 62 FR 11082 (March 11, 1997), 62 FR 11138 (March 11, 1997) and 62 FR 44872 (August 22, 1997).

<sup>8</sup>The process of using previously generated emission or durability data in a subsequent model year is referred to as carryover.

process similar to the current optional RDP-I program. In today's proposal, each manufacturer (except small volume manufacturers and test groups which have special provisions discussed below) would be required to design a durability process which would match the in-use deterioration of the vehicles they produce.

As part of this process, manufacturers would also be required to collect emission data on "candidate" in-use vehicles selected under the provisions of the in-use verification program described in section II. I. below. The in-use data would be used by the manufacturer to improve the predictive quality of its durability program and by the Agency to target vehicle testing for its recall program. If a significant number of the in-use vehicles exhibit deterioration significantly higher than predicted at the time of certification, or exceed emission standards, manufacturers may be required to make changes to their durability processes and/or run further in-use testing to generate recall quality data. The in-use verification testing program and its consequences are discussed in more detail in section II. I. below.

The Agency believes that allowing manufacturers to develop their own durability programs would improve the predictive quality of the durability process. Manufacturers would be able to tailor their vehicle aging procedures to the unique driving and usage patterns of their customers,

and thus account for the effect that these patterns have on emission deterioration and emission control system designs.

The proposed program gives the manufacturer the responsibility to develop a durability plan that matches in-use performance on "candidate" vehicles (vehicles which would meet the selection criteria of the in-use verification program) and the flexibility to design an efficient program that can meet that goal. The Agency expects that manufacturers will act in good faith to design their programs. The Agency's advance approval requirements for these procedures and the in-use verification requirements should assure well designed programs are implemented by manufacturers. The Agency believes that the in-use verification data would provide feedback information to manufacturers which can be used to further refine their durability processes. The in-use verification data would also serve as a tool for targeting Agency recall investigations or would trigger changes to the manufacturer's durability processes if the goals are not met. In summary, the Agency believes that under the proposed CAP 2000 program, the level of emission noncompliance in use would be reduced, thus improving the overall ambient air quality.

In addition to the benefits to the environment, the proposed flexibilities in the durability program design and implementation would result in significant time and money

savings for manufacturers. The proposal would eliminate the need for a separate EPA durability program and would allow manufacturers to use durability techniques that they are currently using for their internal development processes. The durability procedures are discussed in more detail in the following section.

The RDP I procedures (which have been used as the basis for today's proposal) have been in place for several years, and the history of this program supports the Agency's views on the effectiveness and cost reduction likely under the proposed CAP 2000 program. Manufacturers participating in the RDP I program have reported a significant savings in the time necessary to complete certification. Although EPA has received only a limited amount of completed in-use data from the RDP-1 program (since some of the data are gathered from four-year-old vehicles), the data received show an improved level of deterioration prediction and lower in-use emissions. At the same time, no issues of noncompliance in use have been indicated so far in the program.

#### 1. Approval of Durability Programs

The Agency has a responsibility to assure that a manufacturer's durability program is accurate before it is used in the certification process. EPA has been approving manufacturer alternative durability programs under RDP-I for

several years and has provided guidance to assist manufacturers in the approval process<sup>9</sup>. To receive approval under RDP I, manufacturers are required to show that their durability processes are designed to cover a significant majority of deterioration rates experienced by vehicles in actual use.<sup>10</sup> The requirement that the procedure cover a significant majority of the deterioration experienced by vehicles in use, rather than the entire population, is not intended to relax the goal of the program but is to allow for the uncertainty inherent in any sampling plan. Two major types of durability processes have emerged from the RDP I experience: whole vehicle mileage accumulation cycles and bench aging procedures.

The whole vehicle aging concept involves driving vehicles on a track or dynamometer on an aggressive driving cycle of the manufacturer's design. Typically, the speed, acceleration rates, and/or vehicle load are significantly increased compared to the AMA cycle or normal in-use driving patterns. The vehicle can be driven either for full useful-life mileage, or, for a higher stress cycle, the vehicle can be driven for a reduced number of miles (e.g., 1 mile on the

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<sup>9</sup>Refer to the Agency's July 29, 1994 guidance letter "Alternative Durability Guidance for MY 94 through MY 98", reference number: CD-94-13.

<sup>10</sup>Manufacturers have typically shown that their durability programs cover ninety percent or higher of the distribution of deterioration rates experienced by vehicles in actual use.



high speed cycle equals 2 miles in use). In either case, the vehicle is tested periodically and a DF is calculated. By choosing the profile of the cycle carefully, manufacturers have been able to meet or exceed the in-use deterioration goals of the program (based on the limited in-use verification data receive to date) while taking significantly less time to complete the durability process. Such a program could take a quarter to half the time to complete as the AMA cycle with the attendant cost savings.

The bench aging procedures involve the removal of critical emission components (such as the catalyst and oxygen sensor) and the accelerated aging of those components on an engine dynamometer bench.<sup>11</sup> During the aging process important engine/catalyst parameters are controlled to assure proper aging. Typically, elevated catalyst temperatures are maintained while fuel is controlled to include lean and rich spikes and stoichiometric control. This process assumes that (1) most emission deterioration on light-duty vehicles and trucks is due to catalyst deterioration and (2) that catalyst deterioration is largely due to high thermal exposure during typical fuel control (including lean and rich spikes).<sup>12</sup> Through a series of

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<sup>11</sup>An engine dynamometer bench consists of an engine dynamometer, a "slave" engine, and required controllers and sensors to achieve the desired operation of the engine on the dynamometer.

<sup>12</sup>To obtain approval to use this process, manufacturers supply evidence that these assumptions are valid for their

tests, manufacturers determine the amount of time needed to bench-age a catalyst the equivalent of 100,000 miles. Typical bench aging periods are 100-200 hours. Other sources of deterioration can be accounted for by aging the catalyst for an additional amount of time. Even with the setup time of the engine test bench, the cost savings of such bench aging procedures are very significant.

While the cost savings of these procedures are very significant, the Agency believes that the programs are also more effective than the current AMA program at predicting the deterioration that occurs in actual use. Based on past experience, manufacturers' alternative durability programs should improve the effectiveness of EPA's vehicle compliance programs. To obtain approval from the Agency, manufacturers would be required to demonstrate that their durability processes were designed to generate DFs representative of in-use DFs. This demonstration would be more than simply matching the average in-use DFs; manufacturers would need to demonstrate to EPA's satisfaction that their durability processes would result in the same or more deterioration than is reflected by the in-use data for a significant majority of their vehicles. This approval process is the same as that already established for RDP-I. EPA believes it

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vehicles. Minor additional sources of deterioration may be accounted for by over-aging the catalyst to account for these sources.

continues to be appropriate because it limits the Agency's risk of allowing a manufacturer durability process that would not work in use and ultimately would require costly recalls. Furthermore, the manufacturer designed durability procedures which meet the approval requirements have been demonstrated as achievable during RDP-I and have been accomplished for significantly less cost than the current AMA mileage accumulation program. Consequently, the Agency is proposing that manufacturers target their durability processes to cover a significant majority (typically 90 percent or more of the distribution) of the deterioration rates experienced in actual use on "candidate" vehicles (the same requirement established during RDP-I).

While the Agency believes its decisions reached under the RDP-I approval process have been correct, the process currently used by EPA for reaching those decisions has, of necessity, sometimes been detailed and time consuming, given the very new and untested nature of the RDP I program. Nevertheless, during the approval process, the Agency has influenced manufacturers to make improvements to their aging procedures and identified and corrected some manufacturer mistakes. Clearly, the Agency's involvement in the development and approval of these process has benefitted the outcome and its effect on clean air. In redesigning this process, the Agency proposes to retain the before-certification point of control for the approval, but wants

to streamline the steps and make the process more predictable for manufacturers.

To obtain approval for a durability process, EPA is proposing to require that manufacturers provide data showing that the aging procedures would predict the deterioration of the significant majority of in-use vehicles over the breadth of their product line which would ultimately be covered by this procedure. The approval procedures used in RDP-I may be used to satisfy these requirements.<sup>13</sup> The Agency is proposing to allow manufacturers to determine the applicability of approved durability processes to future product offerings providing that the manufacturers use good engineering judgment in reaching those determinations. Also, the Agency is proposing to allow manufacturers to make some modifications to approved durability processes if those modifications will improve the ability to predict in-use emission levels on candidate vehicles or if they produce a more severe aging process. Such modifications will be limited to incorporating additional data into the original algorithms of the approved durability process. If a manufacturer wishes to change the algorithms used to determine the aging characteristics of the durability process, these changes will be considered a new durability process and will require advance approval by the

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<sup>13</sup>Reference EPA's guidance letter CD-94-13 dated July 29, 1994.

Administrator.

The Agency believes that the decisions made under RDP-I to approve manufacturer durability processes are equally applicable to today's proposal. Consequently, the Agency would approve the continued use of any alternate durability process approved under RDP-I in the proposed CAP 2000 program. Manufacturers would not be required to obtain a new approval to use a previously approved RDP I durability procedure under the rules proposed today.

The Agency is not proposing any changes to the current procedures used to obtain DFs for evaporative/refueling families. Because these procedures currently allow manufacturers to design their own durability demonstration program using bench testing or other methods, the Agency sees no need to propose any change. Manufacturers would continue to develop DFs for evaporative/refueling families and systems using good engineering judgement. A small amount of evaporative/refueling data would be collected during the in-use verification test program. Manufacturers are expected to use these data to improve their processes.

## 2. Approval for Using Aged Components on EDVs to Develop Certification Levels

During the discussions with the automotive industry throughout the FACA process, manufacturers suggested an

alternative method to demonstrate compliance with useful life standards for the purposes of certification. In this alternative, emission components aged to the equivalent of full useful life would be installed on EDVs, the test data from which would then serve to show compliance with the full useful life emission standards. Some manufacturers indicated that they currently use aged components on development vehicles to calibrate their vehicles and have found that this process was as effective and more cost efficient than applying DFs to EDVs. The components are aged via the bench aging process discussed above and are installed directly on the EDVs. The emissions from the EDV tested with the aged components represent those equivalent to a 100,000 mile vehicle. Furthermore, the use of aged components would save manufacturers the cost of building and accumulating stabilizing mileage on a separate DDV to calculate a DF. It may also save some of the costs of mileage accumulation to stabilize EDV emissions since the catalyst would be aged separately from the vehicle.

If this durability option were selected, the manufacturer must develop a specific aging plan (for example, 850 degrees C, 200 hours, on aging protocol "A") which would apply to all members of the durability group. Each EDV must have its catalyst and oxygen sensor (plus any other component that is part of the manufacturer's bench aging plan) removed and aged using the aging plan for the

group. The EDV must be broken-in, or stabilized (using good engineering judgment) by accumulating an appropriate amount of miles, generally around 4000 miles. The aged components must then be re-installed, and the EDV then tested for emissions. The results of the emission tests with the aged components would be treated as certification levels (equivalent to emission levels with DFs applied) and directly used to determine compliance with the standards.

Aged components would be allowed to be used on more than one vehicle as follows. If several EDVs have identical catalysts and identical oxygen sensors, a single set of aged components may be shared between vehicles. If both the specific aging plan and the aged components are identical in a subsequent model year, the same aged components may be used on those EDVs for the subsequent model year. Because of the synergistic effects between components aged together, the aged components must be kept together as a single aged system and may not be mixed with other aged components.

The Agency agrees with manufacturers that the use of aged components on EDVs could be an effective durability and emission compliance option because this process uses the same aging techniques as those used to calculate DFs in the normal durability program. Furthermore, the effect of using aged components directly on an EDV is equivalent to applying a DF to an EDV which is calculated from those same aged components. The direct use of aged components also saves

the expense of conducting a test (or several tests) to calculate a DF. Based on these facts, the Agency is proposing to allow the use of aged components on EDVs as an alternative to calculating and applying a DF. This change would reduce the cost of the certification program to the regulated industry and provide the flexibility to use existing in-house procedures for Federal compliance procedures.

### 3. Selection of the Durability Data Vehicle (DDV) Configuration

The Agency is proposing that the configuration with the highest expected level of in-use deterioration be selected as the durability data vehicle (DDV) configuration. This contrasts with the current procedure which requires the DDV selection to be based on parameters of the highest selling configuration, and requires testing to be conducted at the highest sales-weighted weight.<sup>14</sup> These selection criteria were adequate when using the much narrower classification of engine family/emission control system but are not appropriate for the larger durability groups being proposed today.

After selecting durability groups based on parameters that contribute to emissions deterioration in use, the size

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<sup>14</sup>See 40 CFR 86.000-24.



of the groups would increase for most manufacturers. Due to the larger size of the groups, the Agency believes that the new durability groups may, in some cases, exhibit more variability in emission deterioration than the current engine family/emission control systems. Selecting the DDV configuration based on sales levels (as is currently done) may overlook configurations which have higher rates of deterioration and may ultimately lead to vehicles exceeding emission standards in use. In contrast, selecting the expected worst case configuration would lead to the highest deterioration rate for the vehicles within the durability group. Requiring the entire durability group to be represented by the worst case vehicle from that group would provide adequate assurance that deterioration is not understated for the whole group. Moreover, it would accomplish this goal for the lowest possible cost in test vehicles.

If a manufacturer had a concern that a particular configuration exhibited much worse deterioration than other vehicles within the defined durability group and that applying a deterioration factor based on that vehicle would overstate the deterioration experienced in actual use, the manufacturer may use the flexibilities in the proposal to realign the configurations within a group without increasing the total number of groups. Manufacturers may also subdivide groups to meet their needs.

The Agency considered retaining the current engine family definitions and DDV selection procedures and selecting a single configuration from these selections<sup>15</sup>. However, even selecting the worst case DDV selection from among the sales-weighted configurations resulted in too much risk that a vehicle design not tested as part of the durability process would be certified as compliant with the standards when in fact it severely deteriorated in use. Under both the Agency's proposal and this alternative, one DDV would be required per durability group. However, when coupled with the grouping proposal suggested by AAMA/AIAM in the FACA process, the larger number of durability groups would require more testing. The Agency accordingly concluded that this alternative involved more risk of noncompliance and additional cost. Consequently, the Agency rejected this option in favor of the proposal made today.

#### 4. Durability and Emission Data Carryover

"Carryover" is a concept that allows the use of data generated in a previous model year to be used in a

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<sup>15</sup>Manufacturers proposed in the FACA process that current engine family definitions and DDV selection procedures be retained. Durability data would be generated on the worst case selection of the current "average vehicle" DDV selections. See Memorandum from Jane Armstrong and Kelly M. Brown, Co-Chairpersons to Mr. Michael P. Walsh, et.al. dated October 3, 1996 entitled "Findings and Recommendations, Compliance Working Group" in the docket for this proposal.

subsequent model year in lieu of additional testing. The current regulations (see 40 CFR 86.098-24 (f)) give the Agency the discretion to allow carryover of durability and emission data. The Agency's current policy allows durability carryover when, among other requirements, the current DDV is judged as having equivalent or superior durability performance.<sup>16</sup> For carryover involving alternate durability processes approved under RDP I, the Agency has established that carryover of the DF and the in-use verification data would be considered separately.<sup>17</sup>

The Agency is proposing to allow carryover of durability and emission data when the manufacturer determines, using good engineering judgment, that the new configuration is capable of equivalent or superior emission or durability performance. The proposal allows the Administrator to request catalyst temperature data prior to certification for durability data carryover decisions. The Agency expects the manufacturer to generate these data for their internal review in the circumstances currently identified in EPA Advisory Circular 17F (using the

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<sup>16</sup>EPA's current policy regarding carryover and discussion of the application of the "equivalent or superior durability performance" concept is contained in OMS Advisory Circular 17F (A/C 17F), dated November 16, 1982 and amended on January 21, 1988.

<sup>17</sup>See EPA's guidance letter CD-94-13, Subject: Alternative Durability Guidance for MY94 through MY98, dated July 29, 1994.

procedures discussed in that document or using good engineering judgment) as part of their good engineering judgment to carry over the data.

EPA is proposing not to allow in-use verification data to be carried over. This is discussed separately in section II. I below.

#### 5. In-use Verification Feedback Analysis

The proposed requirement that the manufacturer-designed durability process accurately predict in-use emission performance is a crucial part of CAP 2000. A durability process that understates in-use emission levels could lead to noncompliance in use. Although noncompliance, once detected, could be addressed by a recall, the best situation is to prevent noncompliance from the beginning. An accurate durability process facilitates a more meaningful certification process which identifies noncompliance before the vehicles are produced and avoids excessive in-use emissions. The in-use verification program is a tool which can be used by the Agency and the manufacturers to improve the durability process and avoid excessive emissions in use and costly recalls.

It is the Agency's expectation that manufacturers would use the results of the in-use verification testing to continuously improve their durability projections to better

cover the majority of emission performance in use. EPA acknowledges that, in isolated cases, a particular test group's in-use verification data may exceed the standards or be significantly higher than predicted due to the variability inherent in any sampling plan. In these cases, EPA expects manufacturers to analyze the possible causes of the apparent failure to predict in-use emissions and to assure themselves and the Agency that their processes remain valid and are an acceptable predictor of in-use emission levels for the test group in question.

It is the Agency's responsibility to become involved when the in-use verification seems to indicate a problem with a manufacturer's durability process. The Agency is proposing a program where it would formally intercede when the in-use data indicate a significant level of noncompliance in use or when the durability process significantly underestimates in-use emission levels. The Agency is also proposing that the Administrator may, from time to time, require manufacturers to analyze certain in-use data and draw conclusions regarding the validity of the manufacturer's durability process in addition to the formal requirements discussed below.

In particular, a formal response concerning the validity of the manufacturer's durability process would be required when the average in-use verification data for a test group (or several test groups) exceeds 1.3 times the

applicable emission standard and at least 50% of the test vehicles fail the standard in use<sup>18</sup>. In those situations, the Agency is proposing to require the manufacturer to perform an analysis of both the relevant in-use verification data and the ability of the manufacturer's durability plan to adequately predict in-use emission levels and/or compliance with the standard. If the manufacturer concludes that an improvement of its durability protocol (or other procedure) is warranted, these changes should be discussed as part of the analysis. EPA is proposing to allow manufacturers sixty days to complete that report.

EPA may also withdraw its approval to use a durability procedure for future certification if the Agency determines that the procedure does not accurately predict in-use emission levels. This could occur for example, if the test group data showed significant noncompliance with emission standards that did not exceed the 1.3 times the standard threshold. It is not the intention of this provision to require changes to a manufacturer's durability procedure which is inaccurate if the inaccuracy does not threaten the ability of the durability process to predict compliance with emission standards on the vehicles which it covers. An inaccurate procedure which over-estimates the amount of deterioration experienced by in-use vehicles would not

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<sup>18</sup>This is the same criteria that the Agency is proposing for requiring manufacturer-funded in-use confirmatory testing as discussed in section II. I. below.

require a change to the durability process. Prior to reaching a final decision, the Agency would invite the manufacturer to perform an analysis of the relevant in-use verification data and address the ability of its durability process to adequately predict in-use emission levels and to provide other relevant data. EPA is proposing to allow manufacturers sixty days to complete that report.

Under the proposal, EPA would review the information submitted by the manufacturer or proceed on its own initiative if the report is not submitted within sixty days. If the Agency concludes that the durability process does not adequately predict in-use emission levels or compliance with the standards in use, the Agency may revoke its approval for the applicable manufacturer's durability process for the portion of the fleet not yet certified that the Agency determines to be affected. In this case, the manufacturer would be required to develop a revised durability process. The revised durability process may consist of an adjustment factor applied to the current durability process to reflect the shortfall in predicting in-use emission performance. Alternatively, an entirely new durability process may be submitted for Agency approval.

## 6. Line Crossing

In the current regulations, emission levels from

durability vehicles must comply with all applicable emission standards. When durability vehicle test data for any constituent exceeds the standards, this is referred to as "line crossing".<sup>19</sup> The concept of line crossing is only valid as long as the durability demonstration is limited to cover vehicles meeting a single set of emission standards. Today's proposal, as discussed earlier, defines a durability group such that it may encompass several test groups, each of which may have different emission standards. This results in the likelihood that a single durability vehicle demonstration may cover several levels of emission standards. It would not be appropriate to expect a single durability vehicle to comply with multiple levels of emission standards. Consequently, the Agency is not proposing any line crossing criteria for durability data vehicles.

However, the manufacturer is responsible to assure that the DDV is adequately representative of the production vehicles which it is designed to represent and EPA thus expects the DDV emission levels to represent those of the specific test group it belongs to. If the DDV should fail to comply with the standards applicable to its associated test group, EPA would question whether the DDV is adequately representative of production and would likely require

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<sup>19</sup> Refer to 40 CFR 86.001-28 (a)(4)(i)(B)(1) for the current criteria for line crossing.



submission of the basis for the manufacturer's good engineering judgement that the DDV remains representative of production when it fails the applicable standards.

C. Emission Data and Emission Compliance Demonstration

1. Test Groups

EPA is proposing that compliance with the emission standards be demonstrated for each "test group." The durability groups discussed in section II. A. above are determined based on parameters expected to affect emissions deterioration. However, within a durability group, which could include a wide variety of vehicles and trucks, the emission levels can be quite different. This is due to technical parameters which, while not affecting engine durability and emission deterioration, are directly related to the level of emissions produced by that engine. Therefore, the test groups as proposed would consist of subdivisions within durability groups which have similar emission levels<sup>20</sup>.

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<sup>20</sup>Two factors affect emission levels: the design of the engine, and the emission control devices, such as catalytic conversion and exhaust gas recirculation. Over time, emissions out of the tailpipe will increase primarily due to deterioration of the emission control devices. The engine design does not change over time and does not significantly affect emission deterioration rates, but it does significantly affect the level of emissions. Therefore it is important to determine both the emission deterioration

EPA is proposing that test groups have the following common elements: applicable emission standards, engine displacement (within a tolerance of 15 percent or 50 cubic inches of displacement (CID)), number of cylinders, and arrangement of cylinders (e.g., in-line or V-shaped). Emission standards are a test group parameter because of the Agency's need to maintain separate compliance treatment. The engine displacement and number of cylinders were chosen as test group parameters because they determine the size of the cylinders, which affects emission formation. The arrangement of the cylinders affects the engine cooling characteristics, which in turn affect the level of emissions. EPA is proposing a number of provisions which allow manufacturers to further divide test groups to meet their needs without advance Agency approval. The Agency is also proposing to consider requests to combine test groups.

Emission data grouping for EPA's current compliance program is based on the engine family. As part of the engine family definition, vehicles are divided into groups based on basic engine (number of cylinders, arrangement of cylinders, and other parameters) and displacement (within 15 percent or 50 CID) and other parameters. As discussed in section II.A. above, the Agency believes that these parameters are not a significant source of emission

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rate, which is primarily caused by the emission control system deterioration, and the emission levels attributable to each engine group.

deterioration. However, the Agency believes that some of these parameters are expected to significantly influence the level of emissions. In today's proposal for test groups, EPA has retained those parameters from the engine family definition which it believes most directly affect emission levels. Other, more easily quantified variables that can affect emissions (such as EGR rates, vehicle weight, axle ratios, gear ratios, N/V ratios, transmission characteristics, and engine calibrations) can be used by manufacturers to select the "worst case" emission data vehicle within a test group, described below.

The test group definition would be used to group vehicles within a durability group for emission data vehicle selection and certificate coverage purposes. As discussed in section II. I., test groups would also be used for recruiting vehicles for in-use verification testing.

## 2. Selection of Emission Data Vehicles

The Agency's goal is to design an emission compliance program that would cover the diversity of configurations within a test group with the fewest number of EDVs possible. Because test groups separate vehicles according to engine characteristics which cause different fundamental emission levels, the Agency believes it is possible to evaluate the expected emission levels of the vehicles within a test group

by using sound engineering principles. It is then possible to select a single test vehicle which is the worst case vehicle for exhaust emissions by selecting the vehicle configuration which is expected to be closest to the standard for any emission constituent or emission test procedure. The Agency believes that this worst case vehicle selection would adequately represent all the vehicle configurations within the test group. Consequently, the Agency is proposing that manufacturers test one EDV in each test group within a durability group. The EDV configuration would be the configuration expected to generate the worst case exhaust emissions within the test group.

One EDV per durability group would be required to demonstrate compliance with cold CO requirements. The Agency is proposing that manufacturers select the worst case EDV within each durability group to be tested for cold CO compliance.

In the current certification program, two EDVs are selected within each engine family. One selection is defined in the regulations (and is intended to result in the selection of the vehicle most likely to fail HC or CO emissions). The other EDV is selected by the manufacturer to be the "worst case" of the remaining vehicles. From both the manufacturer and Agency perspectives, worst case selection by manufacturers has worked well. There have been very few instances where EPA has disagreed with a

manufacturer's worst case selection, and the manufacturers have been able to make worst case selections with a minimum amount of Agency involvement.

If the worst case selection is well made, a second EDV selection (as required by the current regulations) becomes redundant. In fact, EPA currently has a provision to waive the additional EDV selection if the two vehicles selected are essentially equivalent.

### 3. Use of Development Vehicles for EDVs

Currently, the regulations require that a unique vehicle be built to represent the EDV. This requirement was established to assure representativeness of the test results of the EDV. EPA established requirements that the vehicle have appropriate maintenance and sufficient representative mileage accumulation to stabilize emissions. Manufacturers typically run a second fleet of similar vehicles called "development vehicles" which they use to develop the production calibrations. These vehicles may have representative mileage accumulation and appropriate maintenance histories. The Agency is proposing that manufacturers may optionally use vehicles originally built to be development vehicles as EDVs for official certification testing. To be eligible, the manufacturer must provide a written statement that the mileage

accumulation and maintenance are appropriate and representative. Furthermore, the manufacturer must provide a written statement that the development vehicle in question was not the vehicle used to develop the calibration to be tested on the EDV.

The Agency believes that development vehicles can be representative vehicles which would generate accurate emission levels. The portability of the calibration from one prototype vehicle to another would be assured by the restriction that a development vehicle which was used to develop the calibration used on the EDV may not be used as the EDV itself. The EDV calibration must be demonstrated to be in compliance with the standards on a different vehicle than original development vehicle. The use of development vehicles rather than specially built EDVs save manufacturers the cost of building a separate vehicle, vehicle depreciation, and mileage accumulation on a separate test vehicle.

#### 4. Accept Statements of Compliance for Certification Short Tests

The certification short test was developed to assure that vehicles complying with the FTP exhaust emission standards could be accurately tested at State Inspection and Maintenance (I/M) test facilities without the need for

special test procedures. The purpose of the certification short test is also to assure that manufacturers design their vehicles to comply with Inspection/Maintenance (I/M) tests used throughout the country and to account for the variation in test fuels and waiting times that vehicle owners might encounter.

The Agency is proposing to accept a statement of compliance to satisfy the certification short test compliance requirements (see 40 CFR 86.094-8 and -9). The certification short test has been fully implemented as of the 1996 model year. EPA's review of the CST data submitted by manufacturers thus far has indicated that test results are significantly beneath the standards, with values typically near zero. There have been no instances of test vehicles failing the standards.

Under this proposal, a manufacturer could submit a compliance statement that the manufacturer has determined that all the vehicles covered by the statement will meet the applicable CST emission standards. This statement must be supported by test data (which may be historical data on similar vehicles) retained by the manufacturer and must be based on the manufacturer's good engineering judgment. The compliance statement approach would save the cost of conducting actual tests on both EDVs and development vehicles each year.

Such a statement would directly address the goals of

the short test and would apply to all vehicles that the manufacturer builds, not just vehicles which are tested as part of the certification program.

#### 5. Exhaust Tests to be Conducted

The Agency is proposing to require the same type of testing as is currently performed on EDVs. Each EDV would be tested for all FTP exhaust constituents plus supplemental FTP testing and fuel economy testing. As discussed above, the Agency is proposing that a statement of compliance would be accepted for compliance with certification short test requirements. One vehicle per durability group (the worst case EDV) would be tested for cold CO compliance. All vehicles (tested or not) must also comply with all OBD requirements. EDVs designed to comply with Federal OBD requirements are liable for OBD compliance testing to assure that the OBD system operates properly.

#### 6. Determination of Compliance

The Agency is proposing two methods for determining compliance with standards based on the method of durability demonstration selected by the manufacturer.



If a manufacturer were to calculate a DF<sup>21</sup>, the DF would be applied to the results of the EDV testing and the result would be rounded to the same numerical precision as the standard. This sum or product (depending on whether an additive DF were added to the raw emission results or a multiplicative DF was multiplied by the raw emission results) is called the certification level. The certification level must be less than or equal to the emission standard in order to be in compliance. Each constituent and standard would be considered separately, and any exceedance of the standards would constitute noncompliance. All EDVs within a test group would have to comply with all their applicable standards (among other requirements) in order to obtain a Certificate of Conformity.

If a manufacturer were to choose the option to base its durability program upon testing EDVs with aged components installed, the results of the emission tests would be considered the certification level (no adjustment is required). As required of manufacturers using DFs, the certification level would have to be less than or equal to the emission standard in order to be in compliance. Each constituent and standard would be considered separately, and any exceedance of the standards would constitute

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<sup>21</sup>The DF may be additive or multiplicative.

noncompliance. All EDVs within a test group would have to comply with all the applicable standards (among other requirements) in order to obtain a certificate of conformity for that test group.

#### 7. Evaporative/Refueling Emission Testing

The Agency is proposing to retain the current evaporative/refueling testing requirements. One vehicle in each evaporative/refueling family (the worst case EDV with worst case evaporative and fuel tank hardware installed) would be tested for compliance with the evaporative and refueling requirements subject to the phase-in requirements of the applicable model year.

#### D. Scope of a Certificate of Conformity

The Agency is proposing that certificates of conformity (certificates) be issued for each test group within a durability group. Separate certificates would be issued for each evaporative/refueling family within a test group. Under this proposal, each certificate would be issued for a manageably-sized group of vehicles and for a single set of standards. As discussed in section II. H., a separate application for certification is required for each durability group. Consequently, several test groups (and

therefore several certificates of conformity) may be covered with a single application.

The Agency considered issuing certificates with broader coverage. In particular, the Agency considered the manufacturers' proposal to issue certificates based upon fuel used and standards met. Because manufacturers typically certify their product line in a piece-meal fashion, a broad certificate group such as this would require frequent revisions. Also, the complexity of the certificate language would be significantly increased to provide adequate description of all the vehicles covered by such a broad certificate. In balance, the Agency decided that it would be better to issue more certificates covering fewer vehicles than to issue fewer broad-coverage certificates requiring frequent revisions.

#### E. EPA and Manufacturer Confirmatory Certification Testing

In the current program, the manufacturer performs both emission and fuel economy tests at its own facility and submits the results of that testing to the Agency for review. The Agency has the authority to require another test to be conducted (called a confirmatory test) at a place designated by the Administrator. Currently, the Agency performs confirmatory tests on approximately 30 percent of the entire EDV test fleet, the majority of which are

conducted at the Agency's test facility. If EPA chooses to conduct a confirmatory test, the results of the Agency's test become official data, otherwise the manufacturers' data become official results. As discussed earlier, the official results (adjusted by the deterioration factor, if applicable) must comply with the standards to receive a Certificate of Conformity.

In the beginning of EPA's certification program in the 1970's, all certification vehicles (both EDVs and DDVs) had to be tested at an EPA facility. Once the procedures and equipment used for emission measurement improved as the state of the art of emission measurement grew, Agency test results became similar to manufacturer results in most cases. In a progression of changes, the Agency eventually created a confirmatory test program which targeted vehicles which were likely to fail emission standards, contained new technology or presented special concerns, were leaders in their class for fuel economy, or which exhibited higher than expected fuel economy. These vehicles reflected the Agency's concern about accurate emission compliance and fuel economy determinations.

The Agency also established a correlation program involving two elements: (1) round-robin correlation testing of a single vehicle among a series of laboratories, and (2) paired data analysis where vehicles were randomly selected for confirmatory testing at the EPA laboratory. These

correlation programs were necessary to assure that the test results conducted at manufacturers' laboratories which were not confirmatory tested by the Agency were representative of the results which would have been obtained if the vehicle had been tested at EPA's laboratory.

In all these programs, the manufacturer ran a single test at its facility and submitted the result to the Agency. A test vehicle selected for EPA confirmatory testing would be shipped to EPA for testing at the Agency's test facilities.

Confirmatory testing entails several costs for the manufacturer and the Agency. In addition to the expense borne by the Agency for conducting tests, the manufacturer bears additional costs for confirmatory testing at EPA. First, the manufacturer must ship the vehicle (as well as usually transport a technical representative from the company) to EPA's laboratory. For importers, this can represent a significant cost. Also, the test vehicle is not available to the manufacturer for other purposes while the vehicle is in EPA's custody. The second, and most important cost for manufacturers, is the cost in time for the testing to be completed. Altogether, the time needed to transport and test vehicles at EPA can cause a significant delay in manufacturer schedules.

The reasons for confirmatory testing discussed above may be grouped into four categories: (1) tests run to

address statistical outliers (e.g., higher than expected fuel economy); (2) vehicles which represent an area of concern which could be addressed by running a second test at any laboratory (such as potential fuel economy leaders and proximity to gas guzzler cut points); (3) correlation concerns about the accuracy of the manufacturer's laboratory (which need to be addressed by testing at another laboratory); and (4) discretionary tests run by the Agency to assure compliance and adequate oversight. Retests of the confirmatory test are conducted when the percentage difference between the original fuel economy test and the confirmatory test is 3 percent or higher or if the results of a test failed the standard.

As part of the discussions with manufacturers during the FACA process, manufacturers suggested that they could perform a number of the confirmatory tests at their own facilities. Ultimately, manufacturers suggested running a manufacturer confirmatory program targeting the first two categories listed above. On balance, the manufacturers determined that the costs of running these additional tests at their facility were more than offset by the savings in time and money by not shipping the vehicle to EPA's test facility.

Based on past experience, the Agency believes that manufacturers are capable of running accurate tests at their own facilities. A good correlation program, including a

sufficient level of random confirmatory testing at the Agency's facility, should assure that accurate testing continues at manufacturers' laboratories. Higher than expected fuel economy test results or the accuracy of emission and fuel economy test results near the standard would be addressed through the proposed manufacturer confirmatory test program which requires another test be conducted.

The Agency will maintain its authority to randomly select vehicles to assure proper correlation and to selectively target vehicles for other areas of concern (such as use of new technology). The Agency is proposing that the test results from the original manufacturer's test be submitted to the Agency before any manufacturer confirmatory testing is conducted. The Agency would then indicate to the manufacturer any random or other confirmatory testing which is required. In some cases, the Agency expects that it would be able to identify the vehicles that it wishes to confirmatory test before actual test data are submitted. Vehicle configurations selected for confirmatory testing by the Agency would not be tested under the manufacturer confirmatory test program discussed below. Such vehicles, selected by the Agency for confirmatory testing, would have that testing conducted at a laboratory of the Agency's choice.

The Agency is proposing to require confirmatory testing

at the manufacturer's facility when any one of the following five conditions exist: (1) the vehicle version had previously failed a standard; (2) the test exhibits high certification levels (currently set at 90 percent of the standard); (3) the fuel economy value of the test is higher than expected; (4) the fuel economy value is close to a Gas Guzzler Tax threshold value (currently set at +.3 or -.2 mpg from a gas guzzler cut point); and (5) the fuel economy value is at a level which creates a potential vehicle class fuel economy leader based on EPA-provided cut points each year. EPA intends to reduce its confirmatory testing to exclude vehicles selected for those reasons.

The Agency also proposes that manufacturers conduct retests whenever the manufacturer's original fuel economy test result and the manufacturer's confirmatory result fail to correlate satisfactorily. The criteria for satisfactory correlation is proposed to be the 3 percent difference currently used in EPA's confirmatory test program. At the manufacturer's option, the manufacturer may use a lower (e.g. 2 percent) criteria, provided that it is consistently applied to all of the manufacturer's testing. Ultimately, a second retest (total of three confirmatory tests) would be required if the retest of the fuel economy fails to satisfactorily correlate with either the initial confirmatory test or the manufacturer's original test. In lieu of conducting retests the manufacturer may accept the



lowest fuel economy data for the purpose of calculating the fuel economy values. This retesting procedure would assure that representative fuel economy data are generated during the manufacturer-funded confirmatory test program. These retest procedures are the same procedures that the Agency has been employing on EPA retests. Based on this experience, these procedures have been satisfactory at safeguarding the integrity of the fuel economy values at a reasonable cost in terms of additional tests conducted.

The confirmatory tests run by the manufacturer would constitute official tests and would be used in certification compliance determinations and fuel economy calculations.

EPA is proposing to issue a conditional certificate of conformity for a test group, upon manufacturer request and Agency approval, when the confirmatory test selected by the Administrator for testing at the EPA facility has not yet been completed. To be eligible, the manufacturer must attest that any pending confirmatory test would ultimately comply with the standards when actually conducted.

The condition for certification is the same as that for the current "alternate procedure" running change provisions (see 40 CFR 86.082-34). If the Administrator determines that the confirmatory test results in noncompliance with any standard, then upon notification of this determination, the manufacturer would immediately suspend production of all vehicles covered by this certificate (or such fraction of

the vehicles covered by the certificate that the Administrator determines to be affected); the certificate of conformity would be suspended upon such notification (pending a hearing). Furthermore, the manufacturer would have to agree as a condition of this certificate to recall all vehicles which the Administrator determines to be in noncompliance with the applicable standards, and to cause such noncompliance to be remedied at no expense to the owner.

As discussed previously, confirmatory testing can add significant time to the certification process. This is especially true for foreign manufacturers which must ship vehicles to the EPA's laboratory in Ann Arbor, Michigan. The proposal made today should mitigate the manufacturers' timing concerns without requiring EPA to waive any selected vehicles from confirmatory testing. EPA believes the risk of non-complying vehicles entering the market is minimal under this proposal because the delay between certification and confirmatory testing would be very short. Moreover, any failing vehicles produced would likely still be under manufacturer control or at dealerships, thus making recall easier.

#### F. Fuel Economy

##### 1. Conditional Fuel Economy Values Pending

### Confirmatory Testing

As explained in the previous section, confirmatory testing represents a time and cost burden to the manufacturers. In response to this concern, the Agency has proposed a manufacturer confirmatory testing requirement explained in section II. E. that would reduce the need for Agency confirmatory testing. The Agency is also proposing provisions whereby the manufacturer could obtain a conditional Certificate of Conformity to allow production of vehicles to begin before confirmatory testing at the Agency's facility is completed. For the same reasons, the Agency believes that the use of conditional fuel economy labels would address the manufacturer's concerns surrounding the time involved to perform confirmatory tests, without undermining the accuracy of the fuel economy program.

The Agency is proposing to allow manufacturers to calculate and use fuel economy labels prior to the completion of confirmatory testing selected by the Administrator, provided that several conditions are met. Once the confirmatory testing is completed, the manufacturer must recalculate all the affected fuel economy label values. The recalculated label values must be used for labeling on future production under either of the following circumstances:

- 1) If the newly calculated label value is at least 0.5 mpg lower than the original value, the manufacturer must use

the recalculated label value and annual fuel cost on the labels placed on all future vehicles produced 15 days, or more, after the completion of the confirmatory test.

(2) If the newly calculated label value is at least 0.1 mpg lower than the original value, the manufacturer must use the recalculated label value to determine Gas Guzzler Tax liability. The tax paid to the IRS must reflect the recalculated value for all vehicles produced. The gas guzzler tax statement required under the current provisions of 40 CFR 600.307-95 (f) to be placed on the fuel economy label shall reflect the recalculated values on all future vehicles produced 15 days, or more, after the completion of the confirmatory test.

All confirmatory test results must be used in CAFE calculations.

As discussed previously, confirmatory testing conducted at EPA test facilities could represent a significant delay. This is especially true for foreign manufacturers which must ship vehicles for testing. The proposal made today mitigates the timing concerns of the manufacturer while still allowing the Agency the authority to conduct confirmatory testing on any vehicle it selects for testing.

The proposal is modeled on the recalculation/relabeling provisions in the current regulations to address the impact of running changes (see 40 CFR 600.314-86). In the current provisions, EPA has acknowledged that there is an inherent

variability in fuel economy testing. Consequently, manufacturers should not be liable for small changes in the recalculated fuel economy which round to different label values. The current running change/relabeling provisions established a difference of 1.0 mpg as the threshold for relabeling.

The Agency believes that a 1.0 mpg threshold is too broad a criteria to use for confirmatory testing. The 1.0 mpg threshold was originally established to account for test-to-test variability plus fuel economy differences due to design changes. The 1.0 mpg threshold was also established to allow manufacturers to perform minor design changes without requiring new fuel economy labels.

In today's proposal, the Agency chose 0.5 mpg as the relabeling threshold to account for typical test variability while still holding manufacturers liable for actual overstated fuel economy. Fuel economy label results are rounded to a whole mile per gallon. The 0.5 mpg is half of the precision of the final label results, a threshold which the Agency believes is a fair compromise between test variability and fuel economy accuracy.

The Gas Guzzler Tax is a program where fuel economy differences of 0.1 mpg may cause different rates of tax liability. The Agency is therefore proposing that gas guzzler determinations must be held to that same higher standard. The Agency set the limit at 0.1 mpg because test

results are rounded to 0.1 mpg and the gas guzzler tax brackets are based on a tenth of a mpg precision.

2. Directly submitting CAFE to DOT

The Energy Policy and Conservation Act (PL 94-163 as amended, 89 Stat. 871) establishes requirements that EPA shall prescribe a method to calculate fuel economy and average fuel economy (CAFE) by regulation. EPA is also required to "report any measurements of fuel economy and any calculations of average fuel economy to the Secretary" of the Department of Transportation (DOT). In meeting the requirements of the statute, EPA established regulations that establish the procedures to be used in calculating CAFE values and require that manufacturers perform these calculations and submit a report to EPA detailing the calculation, the fuel economy tests used, and actual CAFE value calculated. After a review of the information, EPA transmits that report to the Secretary of DOT, who is ultimately responsible for administering the manufacturer's compliance with the CAFE standards.

Based on EPA's experience with reviewing CAFE submissions, most manufacturers submit accurate and complete data. EPA's review of the data rarely results in significant discrepancies, and delays the transfer of the CAFE reports to DOT until EPA review is completed. The

Agency is proposing to require manufacturers to submit CAFE results concurrently to the Department of Transportation as well as to EPA, which would enable DOT to begin its administration of CAFE compliance in a more timely manner. EPA would continue to review the manufacturers' CAFE submissions to determine that proper calculation procedures are followed, and would notify DOT of its findings.

### 3. Fuel Economy Testing Rates

It is anticipated that additional testing may be required to meet the CAFE testing requirements because of reduced testing of EDVs. EPA believes that the additional amount of testing would be small. Also, the manufacturer has the ability to choose which configurations to test to meet the 90 percent sales coverage requirements (see 40 CFR 600.010-86). The Agency has recently expanded its policy<sup>22</sup> allowing the use of analytically derived fuel economy (ADFE)<sup>23</sup> values to include up to 20 percent of the manufacturers' total fuel economy fleet. The Agency believes that through careful selection of the vehicle configurations to be tested and use of ADFE values, the amount of additional testing required for fuel economy

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<sup>22</sup>EPA guidance letter CD-95-08(LDV), dated May 12, 1995 entitled "Analytical [sic] Derived Fuel Economy (ADFE)"

<sup>23</sup>40 CFR 600.006-89(e).

purposes would be small.

The Agency considered raising the amount of ADFE allowed from the recently established level of 20 percent but felt that such a change might undermine the accuracy of the fuel economy program. The Agency does invite public comment on the appropriate level of ADFE testing and analyses of the potential impact on fuel economy accuracy.

#### G. Small Volume Provisions

Current regulations allow for more abbreviated certification procedures for manufacturers with model year sales of less than 10,000, and for engine families totaling less than 10,000 sales for any manufacturer<sup>24</sup>. EPA is proposing to amend the criteria for the small volume manufacturer provisions to model year U.S. sales of less than 15,000 (including light-duty vehicles, light-duty trucks, and heavy-duty engines). Similarly, EPA is proposing to allow any manufacturer to apply small volume certification procedures for any test groups, provided that the combined U.S. sales are below 15,000 units per model year.

All abbreviated certification procedures in the current regulations would be available to the redefined small volume

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<sup>24</sup>Ref. 40 CFR 86.094-14.



manufacturers and test groups (below 15,000 sales).

(However, under this proposal, manufacturers would certify based on test groups rather than engine families.) Also, any certification options provided under CAP 2000 for large volume manufacturers would be available to small volume manufacturers (e.g., bench-aged components for durability, etc.).

EPA is proposing to require in-use verification testing for manufacturers of greater than 5,000 sales for any model year, and for test groups using small volume provisions that have greater than 5,000 U.S. sales per model year. For manufacturers and test groups in these categories, the manufacturer would have to test at least two vehicles after four years of use and at least 50,000 miles of service. These vehicles may be procured from customers or may be vehicles under the control of the manufacturer as long as the service accumulation and maintenance of the vehicles are shown to be typical of customer usage. The vehicles selected for this testing would be at least one from the highest sales small volume test group, and one from the next highest sales small volume test group. If there is only one test group, then the manufacturer must test at least two vehicles from the test group. EPA could waive the 50,000 mile minimum if the manufacturer shows, using owner survey data, that the average mileage accumulated after 4 years for a given test group is less than 50,000 miles. The

manufacturer must submit an in-use testing plan to EPA prior to EPA issuance of a Certificate of Conformity for the subject vehicles.

#### H. Information requirements

##### 1. Background

Current regulations require manufacturers to submit an Application for Certification (Application) for each engine family that describes the vehicles the manufacturer intends to produce. After reviewing the application to determine compliance with all applicable requirements and emission standards, EPA then issues a certificate of conformity under §206 of the Act. Such a certificate is required by the CAA before a vehicle may be offered for sale in the U.S.

When EPA's vehicle certification program began in 1968, EPA required manufacturers to submit a large amount of detailed information. This was because EPA lacked a historical perspective of what vehicle parameters could impact emissions compliance. EPA would carefully review all of this information prior to certification. By the 1980's, EPA had gained enough experience to feel comfortable that such an extensive review was no longer necessary. Consequently, the review was scaled back to more of an audit function, that is, a spot check of the Application

information. At the same time, EPA also permitted manufacturers to retain some information, rather than submit it with the Application. In today's proposal EPA believes that it may further decrease the amount of Application information without compromising its ability to make good certification compliance determinations.

In addition to submitting the application prior to certification, manufacturers are currently required to notify EPA of any changes throughout the model year to vehicles already certified (running changes). This notification must be submitted with each running change, and must describe any changes (e.g. deletions, insertions, additions) to the original application pages. Frequently the updated information is not critical for certification compliance determinations, but is needed for future in-use compliance efforts. The paperwork burden associated with the reporting of running changes is, in the Agency's opinion, another good candidate for streamlining. EPA is therefore proposing to allow manufacturers to submit running change information closer to the time when it is actually needed by the Agency.

## 2. Overview of New Information Requirements

EPA estimates that this proposal will reduce the record keeping and reporting requirements of EPA's light-duty

vehicle compliance program between 13% and 57%<sup>25</sup>. To accomplish this, the application would only contain information that is routinely needed by the Agency, some of which is needed to make initial certification decisions and some which is needed to conduct EPA's various post-certification compliance programs. Therefore, it is being proposed that information be submitted to the Agency at two different times; Part 1 of the Application would be submitted prior to certification and Part 2 would be submitted by January first of the applicable model year (e.g. a model year 2001 Part 2 Application would be due by 1/1/2001). Any updates to the Part 1 would also be due by January first of the model year.

A final, end-of-model-year Application update would be due by January first of the following model year (e.g. the final Application update for model year 2001 would be due by 1/1/2002). This would include any updates to Part 1 and Part 2 of the Application necessary to reflect any running changes which occurred since January first of the model year. Information not previously submitted that might be needed by the Agency from time to time would be required to be submitted upon request.

Part 2 and any updates to Part 1 of any test group certified fewer than 30 days prior to January first of the applicable model year would need to be submitted within 90

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<sup>25</sup>see EPA cost analysis

days of the effective date on the corresponding certificate of conformity (e.g. if a test group was certified on December fifth, Part 2 would be due by March fifth). A manufacturer may request the Agency to grant, for extenuating circumstances, an extension of the end-of-model-year submission beyond the normal due date of January first of the following model year.

A goal of today's proposal is to streamline the information reporting requirements to the greatest degree possible while still retaining access to information necessary to run the certification and in-use programs. Therefore, the information proposed to be submitted is of critical importance to the Agency. This makes it incumbent upon the manufacturer to submit all required information by the proposed due dates, including any Agency requests for additional information not required to be submitted to the Agency with either the Part 1 or Part 2 Application. A manufacturer delinquent in reporting or failing to provide complete and accurate information may be subject to such penalties as: requiring the manufacturer to submit all information for all test groups prior to being granted any certificates of conformity for subsequent model years (this would include Part 1, Part 2 and any additional information as deemed necessary by the Agency); voiding *ab initio* the applicable certificate of conformity; and formal enforcement action, including civil penalties.

EPA would determine when the manufacturer subject to an information penalty would again be allowed to submit only the Part 1 Application to receive a certificate. EPA has already implemented a similar approach in the current certification program, whereby the "Abbreviated Certification" process can be denied to a manufacturer that cannot handle the additional responsibility. EPA believes that continuing this approach for failure to submit information would provide a simple, yet effective means of encouraging manufacturers to comply with the information reporting requirements.

### 3. Detailed Descriptions of Application Requirements

#### a. The Part 1 Application

EPA is proposing that the Part 1 Application be much abbreviated from that currently required. EPA believes that many of the more detailed, lengthier items included with the current Application such as technical descriptions of emission control components, part numbers, and calibration specifications are not normally necessary to make a certification decision. By eliminating these items from Part 1, and requiring only information essential for certification, the information which must be submitted to the Agency would be much shorter and easier for

manufacturers to compile.

Another voluntary mechanism is currently in place which serves the purpose of providing EPA with certification information - the manufacturer preview meeting. Most manufacturers have been providing EPA with a pre-certification overview of their upcoming model year plans. These annual certification preview meetings provide EPA with a manufacturer's certification and production schedules, durability and emission test plans, special test procedures, carry-over requests, new vehicles or technology, and compliance plans for new standards or test procedures. Manufacturers prepare very informative materials that often provide a greater understanding of their product line in a shorter time than would be possible from reviewing a current Application. These meetings help EPA expedite the certification process by enabling EPA to anticipate compliance issues before they might cause unanticipated delays. Because these previews necessarily take place far in advance of certification, the information provided must be considered as tentative, and not a substitute for the Application. Hence, EPA does not feel it appropriate to require manufacturers to conduct preview meetings. However, EPA strongly encourages manufacturers to continue the practice under CAP 2000, as a means to expedite the certification process.

EPA is proposing that one Application be submitted for

each durability group. Part 1 consists of general information about the manufacturer and the entire product line, durability group descriptions, evaporative/refueling family descriptions, OBD information and information specific to each test group.

General information is information which is applicable to all durability and/or test groups and which only has to be submitted once per model year. Such information will typically consist of communications information about manufacturer representatives authorized to communicate with EPA, manufacturer phase-in compliance plans (if any), descriptions of evaporative/refueling families, OBD information and statements of compliance.

For durability group and evaporative/refueling family descriptions, the manufacturer would be required to provide a description of how each group/family was determined and the type of process used to establish component durability and deterioration factors. Because of the broad definitions for durability groups, EPA anticipates that durability groups would most likely consist of more than one test group and that test groups might be certified at different times throughout the model year. Similarly, evaporative/refueling families would cut across test groups. Therefore, EPA is proposing that the durability information would only need to be submitted with the first test group to be submitted to the Agency and would not need to be resubmitted for



subsequent test groups within that durability group or evaporative/refueling group.

Specific test group information is proposed to consist of the associated evaporative/refueling family (or families), a list of all auxiliary emission control devices (AECDs) that reduce the effectiveness of the emission control system including descriptions and justifications, a summary of all vehicles to be produced within the test group, OBD information, test vehicle selections and descriptions (including any use of carry-over or carry-across test data), official certification emission test results, and a letter requesting a certificate.

The request for a certificate would be required to be signed by a corporate principle representative. This request would notify the Agency that a test group is ready to be certified and must state that all testing and other actions required under the regulations were performed and that all required information has been submitted to EPA. The request must also include the required statements of compliance.

The proposed product line summary would include descriptions of all vehicle configurations to be produced within each test group which would allow an in-use vehicle to be identified and tested for emissions purposes. This would include items such as model name, sales area, engine displacement, tire size and make, engine codes,

transmission, and basic test parameters (such as test weight and road load force information). Ranges for the tires and test parameters may be submitted with the initial Part 1 Application, although the actual values would need to be submitted with Part 2 Application. EPA will issue guidance establishing a suggested format.

This proposal would not change current OBD information requirements. The Part 1 Application must include for each diagnostic system: a description of the functional operation characteristics of the diagnostic system, the method of detecting malfunctions for each emission-related powertrain component, and a description of any deficiencies-including resolution plans and schedules. A test group certified to California OBD 2 regulations would be required to comply with California ARB information requirements. EPA may consider abbreviating the OBD information requirements at such time in the future when it gains confidence that manufacturers are designing OBD systems that are fully compliant with all applicable regulations.

b. The Part 2 Application

The information that is proposed to be included in the Part 2 Application is information which is primarily needed by EPA for post-certification compliance purposes. Part 2 would be due on January first of the applicable model year

(e.g. the deadline for model year 2000 would be 1/1/2000). Historically, most certification activity and production startups are completed by this time.

Part 2 is proposed to include part numbers of each emission related component for each engine code, certain calibration specifications, owners manuals, service manuals and technical service bulletins. All of this information will continue to be necessary for the Agency to perform its in-use activities such as identifying mis-builds (non-certified vehicle configurations), evaluating manufacturer defect reports, and conducting in-use recall testing programs. This information is not needed with the Part 1 Application since EPA's in-use activities do not begin until customer-owned vehicles have begun to accumulate in-use mileage. A description of what would be required with the Part 2, as well as explanations for why EPA needs this information, follows.

EPA is proposing that calibration summary information be submitted for each engine code such as fuel pump flow rate, EGR valve flow rate, tune up specifications, and oxygen sensor output. EPA would issue via separate guidance a suggested format to ease the submittal and review of this calibration summary information.

Owners manuals, service manuals and technical service bulletins would need to be submitted to the Agency as soon as they become available but no later than the Part 2 due

date.

Manufacturers are required per 40 CFR 85, Subpart T to submit an Emission Defect Information Report (defect report) any time that an emission related defect exists in 25 or more vehicles of the same model year. The defect regulations point to devices, systems or assembly "described in the approved Application for Certification". Because the proposed Application is much abbreviated, the Agency fully intends to consider any information submitted or required to be submitted in Parts 1 and 2 as constituting being "described in the Approved Application for Certification." for the purposes of 85.1902(b). This includes, but is not limited to part numbers, service manuals and other descriptive information provided by a manufacturer to comply with the proposed certification requirements.

The Agency also uses the information in Part 1 and Part 2 (including owners manuals, service manuals, and technical service bulletins), to target specific vehicle classes to test in use, to procure customer vehicles, to reset the vehicles to manufacturer specifications before testing, and to determine the cause of an emission exceedance when in-use vehicles fail to comply with the emission standards. EPA also uses this information to determine if all the vehicles in the durability or test group can be expected to have the same problem or if the problem might exist in several durability or test groups.

c. Running Changes

As was mentioned previously, changes are often made to vehicle production plans throughout the model year. Manufacturers are currently required to submit all updated Application pages with each running change notification. Manufacturers currently have the option to either request EPA approval of changes in advance of implementing the change, or to concurrently notify EPA and make the change, with the caveat that EPA may not approve the change. This second option is commonly referred to as the "alternate procedure running change" and is located at 40 CFR 86.082-34. Under CAP 2000, EPA is proposing to adopt only the alternate procedure running change. Manufacturers would continue to be required to notify the Agency of all running changes concurrently with implementation of each change, but would not be required to submit any updated application pages until January first of the applicable model year. This was suggested during discussions of the Compliance Work Group of the Mobile Sources Technical Advisory Sub-committee (part of the FACA CAA Advisory Committee). EPA is proposing this suggestion since the information which is typically effected by a running change would now be submitted with the Part 2 Application, after implementation of most running changes. A final, end of the model year Application update would also need to be submitted. The manufacturer may opt

to submit only the updated pages, rather than resubmit a complete Application. No changes are being proposed to the Agency's current process for reporting field fixes.

Each running change notification is proposed to include a detailed description of the change, the reason for the change, the portion of the product line that is affected by the change, and the effect the change would have on emissions (both on and off the FTP and SFTP driving schedules), including, as appropriate, any test data that demonstrates compliance with applicable emission standards.

This information would modify the description of the vehicles covered by the certificate of conformity with respect to vehicles manufactured after the date of the running change. It is also being proposed that a running change summary log be submitted for each test group showing all changes that have been incorporated since certification. EPA believes the revised running change proposal should provide significant savings to manufacturers and the Agency.

While manufacturers are encouraged to notify EPA of any mistakes made in the application or running change notice, a manufacturer may not update its application to correct a misbuild situation with respect to vehicles already introduced into commerce.

#### 4. Information to be Submitted Upon Request

As has been mentioned above, much of the information which must currently be submitted in the Application is only rarely needed by EPA. Thus EPA believes it is appropriate to collect some information on an "as needed" basis. This includes many of the more detailed items, such as detailed calibration information and the basis used by manufacturers to make certain decisions. EPA is proposing to require that any "as needed" information requested by EPA be submitted within 15 working days. EPA is aware that some manufacturers have indicated that they, as a precautionary measure, maintain virtually all information which EPA may request. However, EPA is not proposing to require manufacturers to keep special compilations of information designated for EPA use alone. EPA believes that the information it would be requesting would be the type that manufacturers would keep on hand for other reasons, and which could be retrieved within 15 working days. Further, such "as-needed" information would not have to be submitted in any EPA-prescribed format.

#### 5. Electronic Submission of the Application

EPA currently utilizes an electronic computer database, referred to as Certification and Fuel Economy Information System (CFEIS), which contains vehicle descriptions and certification emission test results

submitted by the manufacturer. Although CFEIS is designed around the current certification program, it is expected that CFEIS would be redesigned in accordance with the final CAP 2000 program. EPA believes that CFEIS would continue to play an important role under CAP 2000, as many of the items within the proposed Application are already being submitted into the CFEIS database. Any required Application information which has been completely and accurately submitted into CFEIS would not have to be re-submitted separately in hard copy.

EPA would continue to encourage, but would not require manufacturers to submit the Application electronically. EPA believes electronic submissions would provide even greater savings for both manufacturers and EPA by simplifying the process of updating, storing and disseminating information. Confidential information could be submitted in hard copy or in a separate electronic file to help ensure its confidentiality. EPA encourages any manufacturer wishing to submit an electronic version of their Application to do so, with the only condition being that the format be compatible with EPA software. EPA would work with any manufacturer to help develop procedures for submitting electronic information.

#### I. In-Use Testing



## 1. Overview

One of the major goals of the program being proposed today is the redirection of industry and Agency resources from pre-production certification to focus on improved in-use emissions performance. Accordingly, the regulations proposed today would require manufacturers, under the authority of section 208(a) of the Act, to provide EPA with emission test data on a specified number of in-use vehicles, procured and tested at the manufacturer's expense (either via a contract test facility or by the manufacturer's own laboratory). The proposed program consists of two basic categories of manufacturer-funded in-use testing: (1) in-use verification testing of vehicles representing virtually all of the test groups produced by each manufacturer in each model year and, (2) in-use confirmatory testing consisting of additional, more rigorous, testing of test groups or subsets of these test groups (limited to transmission types) which, in the in-use verification testing, demonstrated potentially high emissions.

## 2. In-Use Verification Testing.

This element of the proposed program, identified as the "In-Use Verification Program" (IUVP) is based upon EPA's "in-use reality check" currently required in the alternate

service accumulation durability regulations at 40 CFR 86.094.13 (RDP 1), and would replace that program. The purpose of the IUVP is to provide the Agency and the industry with emission data feedback from vehicles driven under real-world conditions. The data generated from the IUVP would be used to assess and improve the effectiveness of the manufacturer's certification durability and emission demonstration processes. In addition, the IUVP data would be used to determine the need for further manufacturer funded in-use testing (In-Use Confirmatory Testing) which could be used by the Agency in determining non-conformity under Section 207(c) of the Act.

The basic elements of the proposed IUVP are low mileage (10,000 mile minimum vehicle mileage, approximately one year of operation) and high mileage (50,000 mile minimum mileage and approximately four years of operation) emission testing of in-use vehicles. These mileage and age test points were selected to provide feedback to the Agency and the industry on the emission performance of vehicles at both an early point in their operating life (to allow early identification of any problems which occur in production or early in the life of the vehicle to minimize the emission impact of the defect or deficient design), and at a point well into the vehicle's statutorily-defined useful life (to identify and correct any problems which occur only after extended in-use operation) but not at such a high mileage that high emitting

vehicles would not be identified until the end of their useful life. The total number of vehicles a particular manufacturer would be required to test for the IUVP under the requirements of this proposal would be dependent upon the number of test groups in the manufacturer's product line and the number of sales within those groups. The sample sizes required for the low and high mileage test programs and test group sales volumes are intended to reflect the increased potential for emission contribution by high production test groups, the increased likelihood of problems occurring as vehicles reach higher mileage, and the desire of the Agency to minimize the resources required to conduct the program.

Additionally, EPA is proposing that a manufacturer may increase the required sample size specified for a specific IUVP test group sample with prior EPA approval prior to the initiation of the additional testing. The Agency believes that prior approval of an increase in sample size is needed to prevent the unrestrained addition of vehicles which could mask or dilute potential emission problems. EPA seeks comment on the proposal for sample size flexibility and the associated process.

EPA is proposing that the vehicles tested in the IUVP be procured following the vehicle selection and procurement protocols described in the proposed regulations. The procedures and protocols being proposed are intended to meet

the Agency's goals of testing vehicles in the In-Use Verification Program which have experienced typical real-world use and maintenance while screening out only those vehicles which are tampered, unsafe to test, or are in such a condition that restoration to a condition suitable for testing would be too costly. To preclude underestimating the emissions of the in-use fleet through possible climate related bias (the Agency believes vehicles operated primarily in warm weather areas may be subject to less harsh durability conditions than those operated in cold weather), EPA is proposing that a certain number of vehicles in each sample be procured from above 40 degrees N. latitude (about the northern half of the United States).

EPA is also proposing to require that manufacturers perform an analysis to determine if their certification durability processes are still capable of accurately predicting in-use performance, should the IUVP data from a test group sample at either the low or high mileage test point exceed certain criteria. This aspect of today's proposal is discussed in more detail in section II.B.

A full description of the requirements of the In-Use Verification Program is found in section 86.1841-01 of today's proposed regulations.

In addition to the various elements of the IUVP proposal described above, EPA is also requesting comment on several other elements set forth in proposed regulation and

described below.

a. Small Volume Manufacturers and Small Volume Sales.

EPA believes manufacturers with very small U.S. sales volumes may have difficulty procuring in-use vehicles for the proposed in-use testing. First, the small population of vehicles makes procurement difficult. Second, many of the small volume vehicles comprise a specialty, high-end market, and owners may be disinclined to participate, regardless of the incentives provided to encourage participation. Larger manufacturers with test groups of small actual U.S. sales volumes may encounter similar difficulties. Therefore, EPA is proposing to decrease and, in some cases, eliminate the requirement to perform the in-use testing being proposed for those manufacturers meeting the prescribed sales criteria. A cap on the total number of vehicles allowed to be considered under small volume provisions (15,000 units) has been proposed for large volume manufacturers to prevent the circumvention of the in-use testing requirements by the purposeful creation of small test groups. The proposal for decreased testing by small volume manufacturers or for small volume test groups of larger manufacturers (two vehicles tested at the high mileage test point only, and permitting the test vehicles to be manufacturer-owned vehicles) at certain sales volumes (5001-15,000) reflects EPA's belief

that in-use feedback is critical even in the case of smaller volume sales. At the same time, the proposal addresses the potential difficulties which could be associated with procuring such vehicles from private owners. Tables 1 and 2 in the proposed regulations set forth the number of vehicles to be tested for each test group as a function of the number of vehicles sold within each group.

b. Alternative Fueled Vehicles.

Vehicles certified to alternative fuel standards (for example, methanol or compressed natural gas) would be subject to the proposed in-use verification regulations. However, based on current production numbers, these vehicles would likely fall under the "small volume" considerations, and thus would be exempted from in-use testing. These vehicles would be subject to the program requirements applicable to higher sales groups if their sales volume were to increase above the low volume limits.

c. Carryover of In-use Data.

Today's proposal would not allow manufacturers to carry over (that is, re-use) in-use verification test data from one model year to the next. The purpose of the IUVP is to collect real-world data on actual in-use cars. Allowing

manufacturers to represent current or future model years in-use performance with data from previous model years fails to satisfy this purpose. First, EPA believes vehicles are almost never identical in terms of design, materials, and component suppliers from one model year to the next; even within a model year manufacturers frequently perform running changes, allowable under both the current and proposed regulations, that may have an undetermined impact on in-use performance. Second, driving patterns and climatic and fuel conditions that may impact in-use deterioration may fluctuate from year to year or change over time. By allowing manufacturers to carry over previous model year in-use data, the effects of any such trends or fluctuations would not be measured; the carried-over in-use data would merely provide a "snapshot" of the conditions of a single year rather than the desired "real-time picture" of in-use conditions over a number of years. In its cost analysis, EPA has accounted for the cost to manufacturers of running the IUVP every model year, with no allowance for in-use test data carryover. As shown in this analysis, the cost for the IUVP would be offset by the savings gained in the certification program, in which carryover of durability and emission data is allowed.

d. Required In-Use Verification Testing.

Vehicles are required to meet the applicable emission standards when in actual use. As of model year 2000, emission standards will exist for tailpipe emissions as measured by the "Federal Test Procedure" (FTP) at low and high altitudes, supplemental FTP (SFTP), cold CO, evaporative/refueling emissions and onboard diagnostics. Because EPA believes the supplemental FTP is an integral part of the FTP, EPA is proposing that the FTP and supplemental FTP be performed for each in-use vehicle tested. To lessen manufacturers' test facility burden for in-use SFTP testing (which may require the use of an environmental test chamber), the Agency is proposing that only the US06 high speed cycle be performed for the in-use verification program. Manufacturers would determine the composite in-use SFTP emission level by combining the in-use US06 and in-use FTP test levels with the test level from the pre-production certification air conditioning test (without deterioration factors applied).

In addition to the FTP/SFTP exhaust emission testing, EPA proposes that the evaporative/refueling emissions procedure be performed on the basis of the vehicle's evaporative/refueling family, rather than the vehicle's test group. EPA is proposing that a manufacturer perform a single in-use evaporative test and on-board refueling loss test per evaporative/refueling family at both the low and high mileage test points. There are currently ongoing



evaporative test streamlining efforts between EPA, California ARB and industry which are separate from today's proposal. EPA intends to adopt the resulting procedure for the in-use evaporative testing once it becomes available.

Because the cold CO standard is a 50,000 mile standard and the minimum mileage requirement associated with the IUVP high mileage testing requirement(50,000 miles) would likely result in in-use vehicles with mileage beyond this compliance liability limit, EPA is proposing not to require manufacturers to conduct a cold CO test for purposes of the IUVP. Instead, the Agency would continue to perform in-use evaluations of cold CO performance as part of its routine in-house in-use compliance program.

Because EPA's emission standards currently apply at high altitude as well as low altitude, EPA is proposing that one vehicle per test group be tested under high altitude conditions for FTP. EPA is proposing to require this testing only at the high mileage test point in order to minimize the expense and facility constraints, if any, associated with this testing.

e. In-Use Test Facility Correlation.

Traditionally, EPA has verified the ability of manufacturers' test facilities to provide precise, accurate, and reproducible results by comparing certification test

data generated at EPA's Ann Arbor, Michigan facility to the data generated at the manufacturers' facilities.

Additionally, most, if not all, manufacturers have participated in voluntary "round-robin" correlation testing programs whereby a single vehicle is tested at a number of facilities, thus checking the correlation of many laboratories. EPA has never specified regulations requiring a level of correlation; rather, the regulations in 40 CFR Subpart B specify the accuracy and precision of the test equipment and procedures to be used in emission testing which, if adhered to, should result in an acceptable level of correlation. The same correlation procedures would apply to the IUVP. As EPA's existing approach to correlation has worked well for the past 20 years, EPA is planning to apply the same basic approach for this program.

### 3. Impact of IUVP on Other EPA Mobile Source Programs.

The IUVP program is not designed to replace EPA's existing compliance programs. Rather, it is designed to improve the effectiveness of the existing programs by vastly increasing the quantity of in-use emission data available while decreasing the resources directed toward pre-production certification. Nevertheless, the generation of IUVP data would, to a greater or lesser extent, impact each of EPA's existing compliance programs as discussed below.

a. Recall Program: Today's proposal does not change the Agency's current recall program regulations. However, the data made available by the proposed IUVP would enhance the recall program by enabling EPA to better focus Agency testing on potential recall candidates.

b. Emission Factors: The IUVP data would supplement the Agency's emissions factor program's database of in-use vehicle emission performance used for assessing current and projecting future mobile source impacts on air quality.

c. Certification: IUVP data would provide a real-world picture of the effects of time and mileage on emission performance, which can be compared to the durability demonstration required to be made at the time of certification. The data would also be used to determine if improvements to manufacturers' durability processes are needed, as discussed in section II. B.

d. Selective enforcement audits (SEA): The Agency has the statutory and regulatory authority to test new production line vehicles to determine if the vehicles produced by a manufacturer conform with the regulations with respect to which the certificate of conformity was issued<sup>26</sup>. The IUVP proposed today has an element requiring all but the smallest volume manufacturers to test in-use vehicles in the

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<sup>26</sup>Clean Air Act section 206(b); 40 CFR Part 86, Subpart G.

first year of service at low mileage (10,000 miles or less). It is anticipated that this low mileage in-use testing element of IUVP would to a large degree replace the need for assembly line testing. However, because many small volume manufacturers would not be performing in-use verification testing, the Agency believes that SEA regulations should be retained as a discretionary alternative compliance tool. Also, should the low mileage IUVP test data from the large volume manufacturers or other data sources indicate a chronic low mileage problem such as consistently high emissions or On-Board Diagnostic (OBD) problems, the Agency may choose to perform an SEA to ensure compliance.

#### 4. Manufacturer Funded In-Use Confirmatory Testing

Today's proposal also includes regulations which would create a manufacturer funded in-use confirmatory testing program. This program would require manufacturers to conduct additional testing of a test group when the IUVP data for the test group exceeds a specified trigger level. Additionally, EPA is proposing that the Agency could require testing of a transmission-type subset of a test group if emissions shown by the entire test group sample meet the specified triggering criteria.

The proposed criteria that would trigger confirmatory testing are based upon the emission standards to which the

test group was originally certified. The proposed criteria (a mean of 1.3 times the standard with a 50 percent or greater failure rate for the test group sample at either the low or high mileage test point) was derived after considering the purpose of the confirmatory testing (generation of test data to determine the need for a remedy of classes which do not conform with the applicable standards under the provisions of 207(c)); the fact that the IUVP data is based on vehicles essentially unscreened for maintenance and use history, thereby necessitating some allowance for possible maintenance and use effects; the trigger point (1.5 times the standard) of the OBD systems which would be present at the time this proposed regulation would go into effect; and the desire (again recognizing the nature of the test vehicle procurement criteria) that manufacturer funded confirmatory testing not be required based on poor performance by only a small percentage of the test group sample. The results of the high altitude and evaporative/refueling emission testing, because they would be limited to one vehicle per test group or evaporative/refueling family respectively, would not trigger manufacturer-funded confirmatory testing. They would instead being used as a means of focusing Agency and industry attention on in-use problems that warrant additional attention in EPA's recall program and/or by the manufacturer.

The Agency intends to periodically review and, if necessary, revise these criteria, and intends to do so after it has gathered sufficient information to support any revisions.

It is the Agency's expectation that the data generated in the proposed manufacturer funded in-use confirmatory test program would be based on vehicle samples and on test practices and procedures upon which a non-conformity determination under Section 207(c) of the Act may be based. EPA believes that manufacturers would consider it to be in their best interest to design test programs which both the Agency and the manufacturer are confident accurately reflect the emission performance of properly maintained and used vehicles within their useful life. The Agency expects that manufacturers would act responsibly and voluntarily to correct emission problems identified in either the IUVP or manufacturer funded in-use confirmatory program; nonetheless, it is the Agency's intent that the data generated in such confirmatory programs be of sufficient quality that the affected manufacturer has confidence in the emission results shown and that the Agency can utilize the data, if the test group's emission performance warrants, to determine whether a substantial number of the vehicles in a class do not conform with applicable standards when properly maintained and used.

The Agency believes that it would be beneficial to both

the Agency and industry if, prior to initiation of a manufacturer-funded in-use confirmatory test program conducted under these regulations, the Agency and the relevant manufacturer agree, to the extent possible, upon the vehicle procurement, maintenance and testing procedures (not otherwise specified by regulation) which would be used by the manufacturer in conducting the confirmatory testing. The Agency would encourage the establishment of such "up-front" agreements as EPA believes that it would decrease the likelihood of post-testing disagreements pertaining to the validity of the testing, thus facilitating the expeditious resolution of any action indicated by the test data. In cases where the Agency and a manufacturer reach agreement prior to a program on the practices to be used in the confirmatory test program, the Agency will not contest the use of those practices subsequent to the program.

A full description of the proposed in-use compliance program requirements is found in §§ 86.1841-01 through 86.1843-01 of the proposed regulations. EPA requests comment on any provision within these proposed regulations.

#### J. Fees

##### Background

EPA has been collecting fees to recover Agency costs

for its motor vehicle compliance activities since the 1993 model year. The final rule promulgating fee regulations was published in the Federal Register on July 7, 1992. The regulations are contained in 40 CFR Part 86, Subpart J. Today's proposal impacts only light-duty vehicles and light-duty trucks<sup>27</sup>. The fee regulations are proposed to be modified as described below.

Collection on test group basis.

The current fee program assesses fees on the basis of "certification request type". Because certificates of conformity are currently issued for each engine family/emission control system combination, this has been the basic unit for fee collection. Because today's proposal eliminates the unit of engine family/emission control system combination as the certification basis for light-duty vehicles and light-duty trucks, a new base unit upon which to assess fees is needed.

To retain consistency with the current fee assessment procedure, EPA is proposing to continue collecting a fee on a per-certificate basis. Because the test group would be the unit receiving a certificate, a fee would be collected

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<sup>27</sup>The fees charged for heavy-duty vehicles, heavy-duty engines, and motorcycles remain the same because they are not affected by the compliance procedures being proposed today. Any changes to these fees will be addressed in separate rulemakings.



for each test group to be certified. In the 1996 model year EPA issued 400 certificates, with a separate fee collected for each engine system combination. For CAP 2000, EPA estimates that there will be approximately 320 test groups per year, resulting in 20% fewer fee submissions.

#### Fee Cost Analysis

EPA established the current fee provisions in a rule issued in 1992, 57 FR 30055 (July 7, 1992). That rule was based in large part on a 1991 cost analysis that the agency prepared. Since that time there have been several changes in the costs of the Motor Vehicle and Engine Compliance Program, such as increases due to inflation and additional costs related to performing tests using procedures not in effect in 1991, including supplemental FTP, enhanced evaporative and onboard vapor recovery. EPA recognizes that the 1991 cost analysis is in need of updating, but the best time to do a comprehensive reevaluation would be after the implementation of the CAP 2000 changes and the test procedure changes noted above. This would allow a more accurate and complete analysis of the combined effects of the changes since 1991. The revisions to the fee provisions proposed today are therefore based solely on the revisions proposed for CAP 2000, using the 1991 cost analysis as a starting point.

This approach is reasonable for various reasons. The types and the amount of work the Agency performs for certification and fuel economy compliance is not anticipated to change much as a result of today's proposal. The individual elements contained in the original 1991 fee cost analysis continue to be applicable. The EPA costs for confirmatory testing, certification compliance, fuel economy compliance, and in-use compliance are still appropriate as a starting point, pending any future update. A few exceptions which will change the EPA costs under this rule are a lower EPA certification confirmatory testing rate, lower EPA resources in administering the pre-production certification program, and a new element of EPA resources in administering the in-use verification testing program.

EPA's resources for SEA are anticipated to be very low, because, as stated in section I.3. above EPA will instead utilize the low-mileage in-use verification testing performed by manufacturers to provide an early indication of the ability of production vehicles to comply with the emission standards.

The current fee analysis includes a cost of \$1,947,600 for confirmatory certification tests performed by EPA. EPA plans to reduce its confirmatory testing by 50 percent, which translates to a total dollar reduction of \$973,800. The new EPA efforts for administering the manufacturer-run in-use verification test program will consist of creating

and maintaining a new database, making administrative decisions as required by the proposed regulations, performing analyses of the data, and overseeing any corrective actions resulting from the outcome of the analyses. Because of the broad scope of the in-use verification program (proposed to be performed for every test group for all but the smallest manufacturers), EPA plans to redirect part of existing staff currently working on SEA, confirmatory testing, and certification activities to the new EPA activities related to this rule, namely administering the manufacturer-run in-use verification test program. EPA estimates that the additional EPA personnel cost of administering the new in-use program will be offset by the savings from SEA, certification, and confirmatory testing programs. However, EPA is anticipating a net reduction in EPA laboratory costs as a result of the 50 percent reduction in confirmatory tests. As a result, the total EPA costs are proposed to be reduced by \$973,800.

The proposed new fee schedule has been calculated by using the original \$9.4 million costs of baseline expenditure and reducing it by \$973,800 to account for the reduced amount of confirmatory testing under CAP 2000. The figures from the fee cost study were adjusted accordingly in two places. The Table 1 figures were adjusted to reflect the reduced confirmatory testing amount. The Table S-2 figures were adjusted to reflect the reduced number of the

certification requests, based on the 20% fewer test groups than engine family/emission control system combinations. The fee schedule for LDVs and LDTs is proposed to be revised as follows:

Federal signed:	\$27,211
California only signed:	\$ 8,956
Fed only unsigned:	\$ 2,738
Cal only unsigned:	\$ 2,738

While these fees are for the most part numerically higher than those currently assessed for each engine family/control system combination, each manufacturer would have 20% fewer payments; thus no payment increase in the aggregate should occur. The aggregate fees collected would be \$973,800 less than the current fee program. EPA is proposing to retain the waiver provision in the current fee regulations when the fee exceeds 1% of the aggregate projected US sales of vehicles covered by the certificate (40 CFR 86.908-93).

As with the current fee program, the proposed new fee includes all EPA costs for evaporative/refueling certification and fuel economy compliance activities. This practice reduces burden on both EPA and manufacturers by limiting the complexity of the fee schedule and combining like costs under the test group category.

## K. Reorganization of Compliance Regulations

1. Overview. The proposed regulatory language in today's action is located in a new Subpart S of Part 86. An outline of regulations in Subpart S is located at the beginning of the proposed regulatory language. Previously, most of the emissions compliance regulations were contained in Subpart A, including emission standards and compliance procedures for light-duty vehicles, light-duty trucks, heavy-duty vehicles and heavy-duty engines. The numbering system used in this subpart has become more difficult to use as new language has been added and old language revised.

The Agency considered completely re-writing and re-numbering Subpart A. This would entail renumbering every section and paragraph, as well as renumbering the hundreds of cross-references to Subpart A, both within this and other Subpart in Part 86 as well as other Parts of the CFR. The new language resulting from today's proposal would need to be inserted, and any cross-references to the new language would have to be changed.

The Agency decided to create a new Subpart for today's proposal for the following reasons:

1. The compliance regulations proposed today are significantly different than those contained in Subpart A.
2. The federal government initiative to streamline regulations can be honored by phasing out those portions of

Subpart A as the applicable model years expire, eventually leaving only applicable regulations.

3. Compliance procedures and emission standards for heavy duty vehicles and engines (which are significantly different from those of light-duty vehicles) would be self-contained in Subpart A.

4. The Agency would be spared the time-consuming process of identifying and changing every cross reference in Subpart A.

Some of the Subpart A language has been directly imported into Subpart S without modification, while some has been modified for clarity and conciseness, without changing the original intent.

A new reference in Subpart A directs the reader to subpart S for regulations dealing with model year 2001 and later light-duty vehicles and light-duty trucks.

## 2. Organization of Emission Standards

In addition to the overall reorganization of the compliance regulations, EPA is proposing a major reorganization to the emission standards in an effort to make them easier to read and use. It should be emphasized that no new emission standards for new light-duty vehicles and light-duty trucks are being proposed today. In a few instances, errors have been corrected.

Emission standards in the current Subpart A regulations are roughly divided into four sections: light-duty vehicles, light-duty trucks, diesel heavy duty engines and gasoline heavy duty engines. With the increasing complexity of light-duty emission standards (brought about by phase-ins, alternate fuel provisions, and the expansion of light-duty truck standards into four classes), this organization has become admittedly cumbersome and difficult to use. Today's proposal isolates the light-duty emission standards from the heavy duty by placing them in a separate subpart S. It also addresses each of the four classes of light-duty trucks individually so that the reader can see in one section what numerical standard applies to a particular truck class, rather than try to interpret a tabular presentation containing multiple class standards. The following discussion details the applicability and organization of the emission standards in today's proposal.

**Applicability:** The emission standards included in Subpart S are applicable only to light-duty vehicles and light-duty trucks for model year 2001 and beyond. Standards for heavy duty engines remain in Subpart A of part 86. Standards for model years prior to 2001 remain effective in Subpart A. This is necessary for both compliance purposes (some MY 2001 light-duty trucks classes would still have to comply with emission standards which have commenced, but not completed

phase-in) and for enforcement purposes. Once these regulations are no longer necessary for those purposes, they would be removed. Eventually, Subpart A would contain language applicable only to heavy duty engines.

Organization: The emission standards are organized into six sections. The first contains general provisions applicable to all light-duty vehicles and light-duty trucks. The other five sections contain the specific emission standards for light-duty vehicles and the four classes of light-duty trucks.

The general provisions include items like prohibition of crankcase emissions, prohibition of toxics and unsafe conditions, vapor venting prohibition, and altitude requirements. The general standards section also contains the implementation schedules for those emission standards which, as of the 2001 model year, have been promulgated but have not yet been fully implemented. This includes the Supplemental FTP standards and the Onboard Refueling emission standards. The reader of those implementation tables is referred to the specific emission standards sections to obtain the numerical standards which will be applicable. So doing eliminates the current problem of proliferation of sections due to phased-in emission standards. In the future, as new standards are promulgated, they will be assigned a section number with the appropriate



model year suffix (e.g. 04 or 05). Finally, the general emission standards section contains those elements of emission standards which are common to all classes of light-duty vehicles and light-duty trucks, such as refueling receptacle requirements, determination of sales percentages to meet phase-in requirements, high altitude provisions, etc. This has been done to eliminate some of the redundancy prevalent in the current emission standards regulations.

The decision to split light-duty truck emission standards into four separate sections was made to facilitate use by the reader. Because some of the emission standards (such as CST and Cold CO) are the same in all four truck classes, this results in some redundant language. However, the SFTP standards and Tier 1 tailpipe standards are not the same within the truck classes. As a result, the redundancies seemed to be a small price to pay in return for easy-to-read emission standards. Another feature of the specific emission standards sections is the standardization of location. In all five sections, paragraph (a) contains the Tier 1 tailpipe standards, paragraph (b) contains the SFTP standards, and so on. If a standard does not apply to a certain class, the section is held as "reserved". EPA intends to continue to continue this standardization in any future emission standards regulations.

### 3. Corrections and changes

The language prohibiting crankcase emissions has been modified to prohibit crankcase emissions from all light-duty vehicles, rather than from Otto-cycle and methanol-fueled diesel light-duty vehicles. This is being done to standardize light-duty vehicle regulations with those for light-duty trucks, which currently prohibit crankcase emissions from all light-duty trucks, regardless of fuel or duty cycle.

CAA section 206(f) establishes the requirement that all vehicles meet the requirements of section 202 of the Act regardless of the altitude at which they are sold. In promulgating the regulations for this requirement, EPA included high altitude exemption provisions for those vehicles and trucks meeting specific design limitation criteria (see 40 CFR 86.094-8(h) and (i)). EPA has reviewed the last five years of certification activity which shows that no manufacturer requested the use of high altitude exemptions, indicating that the design limitation elements needed to qualify for the exemption no longer exist. Therefore, EPA is proposing to eliminate the high altitude exemption provisions.

In the current regulations, 40 CFR 86.094-16(a) specifically prohibits gasoline-fueled LTDs and LDVs from being equipped with defeat devices. This regulation was promulgated as part of the cold CO emission standards (57 FR 31900), which are applicable only to gasoline-fueled

vehicles; hence the regulation excluded all but gasoline from the defeat device prohibition. However, the Agency believes that defeat devices should be prohibited regardless of the fuel consumed, consistent with longstanding EPA policy as outlined in EPA Advisory Circular 24 "Prohibition of use of Emission Control Defeat Devices." Therefore, EPA is proposing to incorporate its defeat device policy into regulatory language which applies to all types of fuels rather than just to gasoline. This language is found in section 86.1809-01 in the proposed regulation.

L. Harmonization with California Air Resources Board Compliance Procedures

The Agency worked closely with California ARB as it developed today's CAP 2000 procedures. Currently, EPA and California ARB have procedures for certification which, while similar in nature, have a few fundamental differences which add to the manufacturers' testing, paperwork and reporting burdens. When California ARB, EPA, and automotive manufacturers signed the statement of principles for redesigning the compliance program, it was understood that the two agencies would work together to reduce these burdens, by harmonizing the certification procedures to the fullest extent possible. In today's proposal, virtually all features have been coordinated with those of California ARB,

including the durability and emission data vehicle selection procedures; the concepts of test groups and durability groups; low and high mileage in-use verification testing; confirmatory in-use testing; and paperwork and information collection. California ARB has also indicated to EPA that it intends to issue separate regulations based on the final outcome of today's proposed regulations that can be implemented at the same time as the EPA regulations.

#### M. Implementation

EPA is proposing that CAP 2000 be implemented in the 2001 model year (MY) for light-duty vehicles and light-duty trucks. EPA is proposing to give manufacturers the option of participating in the CAP 2000 program one year early (2000 MY) with all or some of their product offering, provided that the program is adopted in its entirety. Thus, early opt-in must include all provisions of CAP 2000. In MY 2001, all manufacturers would be required to comply with CAP 2000 regulations.

EPA considered providing a phase-in period; however, the Agency believes that concurrent administration of two certification programs would present an unacceptable burden to EPA and manufacturers. For example, it would entail two sets of applications, computer data, confirmatory testing procedures, and certificates of confirmatory for each

program. In addition, the grouping procedures of CAP 2000 were designed to cover the manufacturer's entire product lines. Applying these procedures to a portion of a manufacturer's product line would result in little savings and could result in more cost for manufacturers than the current program, in some circumstances.

In spite of the logistical concerns with administering two different programs, EPA believes that the proposed early opt-in provision is beneficial overall. Early opt-in would allow manufacturers to take earlier advantage of the time and cost savings from the reduced testing requirements, less paper work, and broader certification groups of CAP 2000. EPA also anticipates that the rate of early opt-in participation would be small and would most likely occur when the savings outweigh any administrative difficulties. The overall reduction in pre-certification activities would offset the cost and implementation requirements needed for CAP 2000. Finally, the Agency believes that early opt-in of CAP 2000 is beneficial because it would push forward by one year the in-use feedback, thus enabling manufacturers to identify and fix any problems one year sooner.

Special consideration was given to implementing the proposed durability procedures. The Agency believes the proposed new durability process, while improving upon the current procedures, requires some lead time to implement. Therefore, the Agency is proposing to allow manufacturers to

continue using durability data they may have already generated using either the AMA procedure or the manufacturer-determined light-duty truck procedures for model years 2001 through 2003. The Agency is also proposing to accept the procedures approved under the current RDP-1 provisions for use in CAP 2000 without further Agency approval.

The Agency is proposing that manufacturers wishing to carry over AMA, alternate service accumulation durability or light-duty truck durability data to the 2001 through 2003 model years be responsible for determining that their new durability groups are eligible to utilize that data using good engineering judgement. The Agency believes that sufficient documentation exists to assist the manufacturers in reaching accurate decisions.<sup>28</sup> The Agency can make specific eligibility rulings if requested by a manufacturer, and would review such determinations when making decisions on an application for certification.

The MY 2001 implementation date takes into consideration the time needed for manufacturers to plan, implement, contract, and/or build facilities needed for performing in-use testing and meeting other provisions required by CAP 2000. EPA is aware of a concern expressed

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<sup>28</sup>EPA Advisory Circular 17F, "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" dated November 16, 1982.

by some manufacturers associated with the cost to manufacturers in creating additional space or facilities for in-use testing. The Agency believes that the associated cost savings arising from the proposed reductions in pre-production testing would offset the costs added by the in-use testing requirements. For manufacturers with laboratories in the United States, the emission data and durability testing saved by the reduced certification requirements under CAP 2000 should provide the necessary test capacity to conduct the required in-use testing. For manufacturers without laboratories in the United States, the money saved from the reduced certification testing in their laboratories should be sufficient to fund their in-use testing at a contractor facility in the United States. To accommodate the special test facility requirements of the evaporative/refueling procedures, EPA is proposing not to require in-use testing for those procedures until the 2004 MY.

The Agency is proposing to allow manufacturers to forgo the low-mileage in-use testing requirement for three model years to allow additional time for test facility preparation.

N. Incentives to Encourage Better In-use Emission Performance

Consideration of incentives to encourage better in-use emission control performance was a feature of the aforementioned Statement of Principles signed by EPA, California ARB, and manufacturers. The Agency believes that encouraging good in-use emissions performance can serve to improve air quality in the long run. To be effective, any incentives offered should motivate manufacturers to produce vehicles which are cleaner and more durable than they would have otherwise been built.

The current recall program actually acts as an incentive program because manufacturers would rather invest in assuring that vehicles meet standards in use rather than risk future testing and possibly an expensive recall. The in-use testing proposed for CAP 2000 will serve to bolster this incentive. Recall is effective because of the large cost and public image risk of recall. However, the recall program is a negative incentive, in that no rewards are given for good performance. The Agency would like to propose positive incentives for both good performance (e.g., consistent in use compliance at high mileage in the as-received condition) and exemplary performance (consistent in use performance at high mileage that is significantly below the standards). This is a significant challenge because rewards will have to be of such value as to offset the manufacturers' costs of changing vehicle designs or manufacturing practices. The Agency does not currently have



the information necessary to assess the levels of reward needed to offset these costs, or what these costs might be. Therefore, the Agency requests specific information from manufacturers on what incentives would motivate them to achieve various levels of improvements to in-use emission control performance.

The Agency would also like comment on an incentive program concept that involves at least two levels of in-use achievement. The first level would be that of good, solid in-use compliance. The second level would be that of exemplary in-use performance. Each of these levels would carry rewards that would be of increasing benefit for manufacturers. The benefits would involve more cost savings and flexibility in certification and information requirements submittal, as well as potential reductions in the in-use testing requirements for exemplary performance. The Agency believes it would be able to offer these benefits without significant increased risk of noncompliance in cases where the manufacturer has a proven track record of solid compliance or exemplary performance. The more confidence the Agency has in a manufacturer's likely performance, the more oversight EPA could forego without significant added risk.

An example of Level 1 incentives could be criteria such as passing results for all CAP 2000 high mileage in-use testing for two consecutive model years, or, alternatively,

an average high mileage compliance level of no more than 75% of the standards for two consecutive model years. Added to either of these could be a record of two consecutive model years of no emission related recalls, either ordered or voluntary (for any reason), and of no significant violations of the prohibited acts found in section 203 of the Clean Air Act. These criteria would represent a convincing case that the manufacturer would likely continue such performance. Therefore, the Agency would be willing to forego a significant amount of oversight for that manufacturer, as long as this record of compliance is achieved. Some types of rewards, for example, could be wider flexibility in choosing durability groups (within the technical constraints of good engineering judgement), a lower confirmatory test random rate by EPA, or the virtual elimination of certification audits.

The Level 2 incentives would be for manufacturers exhibiting exemplary emissions performance. In making this determination, the Agency could consider the same criteria as for level 1, but with a stronger demonstration of in-use compliance (such as 2-year average high mileage compliance of 50% of the standard, as proposed to 75% of the standard). The Agency also believes that it would be appropriate to consider in-use data and information obtained apart from the in-use verification and recall programs, such as OBD data, I/M data or other credible in-use information sources. EPA

would expect that manufacturers wishing to be considered "exemplary" would provide such information to EPA. The rewards for such exemplary performance might be: all level 1 rewards, plus the elimination of low mileage in-use testing, reductions in high mileage in-use testing, and public recognition for the manufacturer by the Agency.

Although the specific procedures for the above concept have not been developed, it is intended that the criteria be evaluated for each model year. That is, the most recently available in-use data would be evaluated prior to awarding the benefits for the upcoming model year. The Agency would like comments on other procedural problems that would have to be solved, as well as on the criteria and rewards.

Many of the rewards in the above example do not require regulatory change or the addition of regulatory authority. Nevertheless, the Agency would like comments on this concept, and any other ideas for incentives. Today's proposal contains regulatory language that will allow the Agency to waive or modify certain other regulatory requirements to allow the structuring of an incentive program. The Agency would use this authority along with other discretionary actions to design incentive programs. To retain program flexibility, and to allow time to learn what level of in-use performance to expect once the program is underway, the Agency is not proposing specific performance criteria or rewards at this time. Rather, the

Agency would prefer to establish the regulatory basis in this rulemaking and establish specific incentive packages by guidance.

O. Good Engineering Judgment and Decision Making under the Regulations.

The regulations proposed today require that many different decisions be made leading up to and following the certification of a group of vehicles. In each case, the regulations specify the criteria that apply to these decisions. For example, the vehicles within a manufacturer's product line must be divided into durability groups with vehicles exhibiting similar emissions deterioration throughout their useful life (§ 86.1816-01); within each durability group the vehicle configuration expected to generate the highest level of exhaust emission deterioration must be selected (§ 86.1818-01); an approved durability program must be applied to those durability groups, including those in future model years, whose deterioration is accurately predicted by the durability program (§ 86.1819-01); emissions data vehicles from a test group must be selected based on the vehicle configuration which is expected to exhibit the worst in-use emissions (§ 86.1824-01); the vehicle or engine parameters which would be subject to adjustment must be determined, based on various

specified criteria (§ 86.1829-01); and so on.

Unless otherwise specified in the regulations, the manufacturers would initially make all of these decisions. This allows manufacturers to most efficiently structure their programs to apply for certification, and allows EPA to reserve its resources for appropriate review and auditing of decisions made by the manufacturer. EPA reserves the authority in all cases to reject the decision made by the manufacturer if the regulatory criteria are not properly applied. In general, issuance of a certificate of conformity by EPA would reflect EPA's decision to accept for purposes of that certification the decisions made by the manufacturer. However, if EPA later determines that incorrect or misleading statements were made by a manufacturer, EPA may void a certificate *ab initio*. EPA reserves the right not to issue a certificate where a manufacturer's decision is not consistent with the regulations.

This process has been employed under the current regulations for many years for various regulatory requirements. For example, manufacturers routinely divide their product line into engine families, using the criteria specified in the regulations. Prior approval by the Administrator is not required; however, EPA may reject this determination and not issue a certificate if the Administrator determines that the regulatory criteria were

not properly applied. Today's proposal takes this approach and extends it throughout the regulations.

EPA is also proposing an explicit requirement that manufacturers exercise good engineering judgment in making the decisions required under the regulations. This would ensure that manufacturers routinely review and update their internal decision making processes, so that the best available data and information are brought to play in making the decisions called for under the regulations. Failure to apply good engineering judgment may result in EPA overruling the manufacturer's decision. As long as manufacturers do not deliberately overlook information, use incorrect information, or make decisions without using a rational decision process, EPA is limiting the consequences of making incorrect good engineering judgments to future corresponding decisions. Also, the Agency is proposing that such overruled decisions be applied as soon as practicable. In the case of some durability decisions, a practical implementation for a new decision may require notice of a whole model year. For example, if a durability problem regarding selection of the appropriate durability calibration reaches a final Agency decision to require a change in the manufacturer's decision process in December of 2002 calendar year, the 2003 model year vehicles will already be certified and could not be affected by this decision. Also, the 2004 model year durability vehicles may

have completed the durability process by that time, in which case it would not be practical to apply this decision until the 2005 model year.

The Agency is proposing harsher remedies for intentional and deliberate acts or decisions made without a rational basis. Intentional disregard for good engineering judgment could result in voiding certificates *ab initio*, with provisions for an administrative hearing, in addition to any civil or criminal enforcement actions which may result.

P. Optional Applicability for Heavy Duty Engines.

EPA is proposing to modify the option available to manufacturers of heavy-duty engines to certify heavy-duty vehicles up to 10,000 pounds GVWR as light-duty trucks, in accordance with the light-duty standards and procedures. The modification consists of raising the weight limit to 14,000 pounds GVWR. EPA believes this change is appropriate because a) it is strictly optional; b) it is environmentally beneficial, because any engines utilizing it will be subject to the more stringent light-duty truck emission standards; c) it provides more flexibility to manufacturers of heavy-duty engines, in that they may incorporate more engines into their light-duty program, potentially eliminating the need to run two separate compliance programs; and d) the 14,000 pound weight limit is common to that of California's

mandatory Medium Duty Vehicle program, thus enabling more harmonization.

### III. Cost Effectiveness

The Agency estimates that manufacturers should realize a total annual savings of about \$55 million as a direct result of today's proposal. These figures include savings gained from streamlined certification activities, such as fewer durability and emission data demonstrations, and accounts for the new costs incurred by the proposed in-use verification testing requirements.

A detailed discussion and table of costs/savings are contained in the Support Document to this proposed regulation and are filed in the Docket.

The Agency is not claiming any environmental benefits for this proposal because no new emission standards are being proposed. The anticipated outcome of the proposed requirements should, however, result in some benefits because of improvements to durability demonstration requirements, and because of the potential to identify and improve upon vehicle emission performance based on the in-use verification test results.

### IV. Public Participation



## A. Comments and the Public Docket

EPA welcomes comments on all aspects of this proposed rulemaking. Commenters are especially encouraged to give suggestions for changing any aspects of the proposal. All comments, with the exception of proprietary information should be addressed to the EPA Air Docket Section, Docket No. A-96-50 (see ADDRESSES").

Commenters who wish to submit proprietary information for consideration should clearly separate such information from other comments by 1) labeling proprietary information "Confidential Business Information" and 2) sending proprietary information directly to the contact person listed (see "FOR FURTHER INFORMATION CONTACT") and not to the public docket. This would 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 non-confidential 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 notify the contact person (see "FOR FURTHER INFORMATION CONTACT") no later than five 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. Testimony will be scheduled on a first come, first serve basis. 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 serve basis to follow the previously scheduled testimony.

EPA requests 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 advanced 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 advanced 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 submission of rebuttal and supplementary testimony. All such submittals should be directed to the Air Docket Section, Docket No. A-96-32 (see "ADDRESSES"). The hearing will be conducted informally, and technical rules of evidence will not apply. A written transcript of the hearing will be placed in the above docket for review. Anyone desiring to purchase a copy of the transcript should make individual arrangements with the court reporter recording the proceedings.

If no one indicates to EPA that they wish to present oral testimony by the date given, the public hearing will be cancelled.

## V. Administrative Requirements

### A. Executive Order 12866

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

- (1) have an annual effect on the economy of \$100 million or more or adversely affect in a material way

the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities;

(2) create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;

(3) materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or,

(4) raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order.

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

#### B. Unfunded Mandates Act

Section 202 of the Unfunded Mandates Reform Act of 1995 (signed into law on March 22, 1995) requires that EPA prepare a budgetary impact statement before promulgating a rule that includes a federal mandate that may result in expenditure by state, local and tribal governments, in

aggregate, or by the private sector, of \$100 million or more in any one year. Section 203 of the Unfunded Mandates Reform Act requires EPA to establish a plan for obtaining input from and informing, educating and advising any small governments that may be significantly or uniquely affected by the rule.

Under section 205 of the Unfunded Mandates Act, EPA must identify and consider a reasonable number of regulatory alternatives before promulgating a rule for which a budgetary impact statement must be prepared. EPA must select from those alternatives the least costly, most cost-effective, or least burdensome alternative that achieves the objectives of the rule, unless EPA explains why this alternative is not selected or the selection of this alternative is inconsistent with law.

Because this proposed rule is expected to result in the expenditure by state, local and tribal governments or private sector of less than \$100 million in any one year, EPA has not prepared a budgetary impact statement or specifically addressed selection of the least costly, most cost-effective or least burdensome alternative. Because small governments will not be significantly or uniquely affected by this rule, EPA is not required to develop a plan with regard to small governments.

C. Regulatory Flexibility Act

The Regulatory Flexibility Act generally requires an agency to conduct a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small not-for-profit enterprises, and small governmental jurisdictions. This proposed rule would not have a significant adverse impact on a substantial number of small entities because it relates to requirements applicable only to manufacturers of motor vehicles, a group which does not contain a substantial number of small entities. See 1996 World Motor Vehicle Data, AAMA, pp. 282-285.

Therefore, I certify that this action will not have a significant impact on a substantial number of small entities.

D. Executive Order 13045

This proposed rule is not subject to E.O. 13045, entitled Protection of Children from Environmental Health Risks and Safety Risks (62FR19885, April 23, 1997), because it does not involve decisions on environmental health risks or safety risks that may disproportionately affect children.

#### E. Paperwork Reduction Act

The information collection requirements in this proposed rule have been submitted for approval to the Office of Management and Budget (OMB) under the Paperwork Reduction Act, 44 U.S.C. 3501 et seq. An Information Collection Request (ICR) document has been prepared by EPA (ICR No. 1872.01) and a copy may be obtained from Sandy Farmer by mail at OPPE Regulatory Information Division; U.S. Environmental Protection Agency (2137); 401 M St., S.W.; Washington D.C. 20460, by email at [farmer.sandy@epa.gov](mailto:farmer.sandy@epa.gov), or by calling (202)260-2740. A copy may also be downloaded off the internet at <http://www.epa.gov.icr>.

The information collection burden associated with this rule (testing, record keeping and reporting requirements) is estimated to total 700,154 hours annually for the manufacturers of light-duty vehicles and light-duty trucks. The hours spent annually on information collection activities by a given manufacturer depends upon manufacturer-specific variables, such as the number of test groups and durability groups, production changes, emissions defects, and so forth.

Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review

instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information.

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

Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, OPPE Regulatory Information Division; U.S. Environmental Protection Agency (2136); 401 M St., S.W.; Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, 725 17th St., N.W., Washington, DC 20503, marked "Attention: Desk Officer for EPA." Include the ICR number in any correspondence.





List of Subjects in 40 CFR Part 86

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

Dated: \_\_\_\_\_

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Carol M. Browner, Administrator.