

BS-AP-No. 3293

Applicant: Burlington Northern Railroad Company, Mr. William G. Peterson, Director Signal Engineering, 9401 Indian Creek Parkway, Overland Park, Kansas 66210-2007.

The Burlington Northern Railroad Company seeks approval of the proposed modification of the traffic control system, on the single main track, between Zulch, Texas, milepost 158.0 and Newby, Texas, milepost 185.0, Southern Corridor, Fort Worth Division, Houston Subdivision; consisting of the discontinuance and removal of 10 automatic signals and the installation of 20 automatic signals.

The reason given for the proposed changes is to respace and relocate signals at the time of a pole line elimination project.

**Rules Standards & Instructions
Application (RS&I-AP) No. 1092**

Applicant: Southern Pacific Lines, Mr. E.P. Reilly, Vice President and Chief Engineer, Southern Pacific Building, One Market Plaza, San Francisco, California 94105.

The Southern Pacific Lines (SP) seeks relief from the requirements of the Rules, Standard and Instructions, 49 CFR, Part 236, § 236.307, to the extent that the carrier not be required to install indication locking for approximately 224 signal locations on the SP, the aspects of which are not controlled by line circuits so arranged that a single fault will not permit a more favorable aspect than intended to be displayed.

The applicant's justification for relief is that the estimated cost of a program to achieve compliance is in excess of \$700,000 and would take several years to complete the required work.

Any interested party desiring to protest the granting of an application shall set forth specifically the grounds upon which the protest is made, and contain a concise statement of the interest of the protestant in the proceeding. The original and two copies of the protest shall be filed with the Associate Administrator for Safety, FRA, 400 Seventh Street, SW., Washington, DC 20590 within 45 calendar days of the date of issuance of this notice. Additionally, one copy of the protest shall be furnished to the applicant at the address listed above.

FRA expects to be able to determine these matters without oral hearing. However, if a specific request for an oral hearing is accompanied by a showing that the party is unable to adequately present his or her position by written statements, an application may be set for public hearing.

Issued in Washington, DC, on March 30, 1994.

Phil Olekszyk,

Acting Deputy Associate Administrator for Safety Compliance and Program Implementation.

[FR Doc. 94-8171 Filed 4-5-94; 8:45 am]

BILLING CODE 4910-06-P

National Highway Traffic Safety Administration

Announcing the Eleventh Meeting of the Motor Vehicle Safety Research Advisory Committee

AGENCY: National Highway Traffic Safety Administration (NHTSA), DOT.
ACTION: Meeting announcement.

SUMMARY: This notice announces the eleventh meeting of the Motor Vehicle Safety Research Advisory Committee (MVSRAAC). The Committee was established in accordance with the provisions of the Federal Advisory Committee Act to obtain independent advice on motor vehicle safety research. At this meeting the Committee will discuss NHTSA's Research and Development's FY 94 and FY 95 research plans, air bag field performance, status of the National Advanced Driving Simulator Program, technology transfer, and MVSRAAC's subcommittee activities.

DATE AND TIME: The meeting is scheduled to begin at 10:30 a.m., on Thursday, April 28, 1994, and conclude at 4 p.m. that afternoon.

ADDRESSES: The meeting will be held in Room 3200 of the U.S. Department of Transportation Building, which is located at 400 Seventh Street, SW., Washington, DC.

SUPPLEMENTARY INFORMATION: In May 1987, the Motor Vehicle Safety Research Advisory Committee was established. The purpose of the Committee is to provide an independent source of ideas for motor vehicle safety research. The MVSRAAC will provide information, advice and recommendations to NHTSA on matters relating to motor vehicle safety research, and provide a forum for the development, consideration and communication of motor vehicle safety research, as set forth in the MVSRAAC Charter.

The meeting is open to the public, but attendance may be limited due to space availability. Participation by the public will be determined by the Committee Chairman.

A public reference file (Number 88-01) has been established to contain the products of the Committee and will be open to the public during the hours of

9:30 a.m. to 4 p.m. at the National Highway Traffic Safety Administration's Technical Reference Division in Room 5108 at 400 Seventh Street, SW., Washington, DC 20590, telephone: (202) 366-2768.

FOR FURTHER INFORMATION CONTACT: Mary Coyle, Office of Research and Development, 400 Seventh Street, SW., Room 6206, Washington, DC 20590, telephone: (202) 366-5926.

Issued: April 1, 1994.

George L. Parker,

Chairman, Motor Vehicle Safety Research Advisory Committee.

[FR Doc. 94-8222 Filed 4-5-94; 8:45 am]

BILLING CODE 4910-59-M

DEPARTMENT OF THE TREASURY

Public Information Collection Requirements Submitted to OMB for Review

March 30, 1994.

The Department of Treasury has submitted the following public information collection requirement(s) to OMB for review and clearance under the Paperwork Reduction Act of 1980, Public Law 96-511. Copies of the submission(s) may be obtained by calling the Treasury Bureau Clearance Officer listed. Comments regarding this information collection should be addressed to the OMB reviewer listed and to the Treasury Department Clearance Officer, Department of the Treasury, Room 2110, 1425 New York Avenue, NW., Washington, DC 20220.

Internal Revenue Service

OMB Number: 1545-0745.

Regulation ID Number: LR-27-83 (Temporary Regulation).

Type of Review: Extension.

Title: Floor Stocks Credit or Refunds and Consumer Credits or Refunds With Respect to Certain Tax-Related Articles; Excise Tax on Heavy Trucks.

Description: LR-27-83 requires sellers of trucks, trailers and semi-trailers, and tractors to maintain records of the gross vehicle weights of articles sold to verify taxability.

Respondents: Businesses or other for-profit.

Estimated Number of Recordkeepers: 4,100.

Estimated Burden Hours Per Recordkeeper: 2 hours, 4 minutes.

Frequency of Response: Other.

Estimated Total Recordkeeping Burden: 4,140 hours.

Clearance Officer: Garrick Shear (202) 622-3869, Internal Revenue Service, Room 5571, 1111 Constitution Avenue NW., Washington, DC 20224.

OMB Reviewer: Milo Sunderhauf
(202) 395-6880, Office of Management
and Budget, Room 3001, New Executive
Office Building, Washington, DC 20503.
Lois K. Holland,
Departmental Reports Management Officer.
[FR Doc. 94-8215 Filed 4-5-94; 8:45 am]
BILLING CODE 4830-01-M

Public Information Collection Requirements Submitted to OMB for Review

March 31, 1994.

The Department of the Treasury has submitted the following public information collection requirement(s) to OMB for review and clearance under the Paperwork Reduction Act of 1980, Public Law 96-511. Copies of the submission(s) may be obtained by calling the Treasury Bureau Clearance Officer listed. Comments regarding this information collection should be addressed to the OMB reviewer listed and to the Treasury Department Clearance Officer, Department of the Treasury, Room 2110, 1425 New York Avenue, NW., Washington, DC 20220.

Internal Revenue Service

OMB Number: 1545-1241.
Regulation ID Number: PS-092-90
Final.

Type of Review: Extension.

Title: Special Valuation Rules.

Description: Section 2701 of the Internal Revenue Code allows various elections by family members who make gifts of common stock or partnership interests and retain senior interests. The elections affect the value of the gifted interests and the retained interests.

Respondents: Individuals or households.

Estimated Number of Respondents: 1,200.

Estimated Burden Hours Per Respondent: 25 minutes.

Frequency of Response: Other (one-time election).

Estimated Total Reporting Burden: 496 hours.

Clearance Officer: Garrick Shear (202) 622-3869, Internal Revenue Service, Room 5571, 1111 Constitution Avenue, NW., Washington, DC 20224.

OMB Reviewer: Milo Sunderhauf
(202) 395-6880, Office of Management
and Budget, Room 3001, New Executive
Office Building, Washington, DC 20503.
Lois K. Holland,

Departmental Reports Management Officer.
[FR Doc. 94-8216 Filed 4-5-94; 8:45 am]

BILLING CODE 4830-01-M

Internal Revenue Service

**Nonconventional Source Fuel Credit;
Publication of Inflation Adjustment
Factor, Nonconventional Source Fuel
Credit, and Reference Price for
Calendar Year 1993**

AGENCY: Internal Revenue Service (IRS),
Treasury

ACTION: Publication of inflation
adjustment factor, nonconventional
source fuel credit, and reference price
for calendar year 1993 as required by
section 29 of the Internal Revenue Code
(26 U.S.C. 29).

SUMMARY: The inflation adjustment
factor, nonconventional source fuel
credit, and reference price are used in

determining the availability of the tax
credit for production of fuel from
nonconventional sources under section
29 of the Internal Revenue Code.

DATES: The 1993 inflation adjustment
factor, nonconventional source fuel
credit, and reference price apply to
qualified fuels sold during calendar year
1993.

INFLATION FACTOR: The inflation
adjustment factor for calendar year 1993
is 1.8918.

CREDIT: The nonconventional source
fuel credit for calendar year 1993 is
\$5.68 per barrel-of-oil equivalent of
qualified fuels.

PRICE: The reference price for calendar
year 1993 is \$14.24.

Because the above reference price
does not exceed \$23.50 multiplied by
the inflation adjustment factor, the
phaseout of credit provided for in
section 29(b)(1) of the Internal Revenue
Code does not occur for any qualified
fuel based on the above reference price.

FOR FURTHER INFORMATION CONTACT: For
the inflation factor and credit—Thomas
Thompson, CP:R, Internal Revenue
Service, 1111 Constitution Ave., NW.,
Washington, DC 20224, Telephone
Number (202) 874-0585 (not a toll-free
number).

For the reference price—David
McMunn, CC:DOM:P&SI:6, Internal
Revenue Service, 1111 Constitution
Ave., NW., Washington, DC 20224,
Telephone Number (202) 622-3110 (not
a toll-free number).

Stuart L. Brown,

Associate Chief Counsel (Domestic).

[FR Doc. 94-8160 Filed 3-31-94; 4:23 pm]

BILLING CODE 4830-01-U

Sunshine Act Meetings

Federal Register

Vol. 59, No. 66

Wednesday, April 6, 1994

This section of the FEDERAL REGISTER contains notices of meetings published under the "Government in the Sunshine Act" (Pub. L. 94-409) 5 U.S.C. 552b(e)(3).

INTER-AMERICAN FOUNDATION BOARD MEETING

TIME AND DATE: April 19, 1994, 2:00 p.m., 4:00 p.m.

PLACE: 901 N. Stuart Street, Tenth Floor, Arlington, Virginia 22203.

STATUS: Open except for the portions specified as closed session as provided in 22 CFR Part 1004.4(b).

MATTERS TO BE CONSIDERED:

1. Approval of the Minutes of the January 11, 1994, Meeting of the Board of Directors.
2. Chairman's Report.
3. President's Report.
4. Designation of Interim President.
5. Audit Committee Report.

6. Board Meeting Schedule.

7. Procedure to Deal with Complex Issues.

CONTACT PERSON FOR MORE INFORMATION: Adolfo A. Franco, Secretary to the Board of Directors, (703) 841-3894.

Dated: April 4, 1994.

Adolfo A. Franco,
Sunshine Act Officer.

[FR Doc. 94-8398 Filed 4-4-94; 3:28 pm]

BILLING CODE 7025-01-M

DEPARTMENT OF JUSTICE

UNITED STATES PAROLE COMMISSION

Public Announcement

Pursuant To The Government In the Sunshine Act

(Public Law 94-409) [5 U.S.C. Section 552b]

TIME AND DATE: 10:00 a.m., Friday, April 8, 1994.

PLACE: 5550 Friendship Boulevard, Chevy Chase, Maryland, 20815.

STATUS: Open.

MATTERS TO BE CONSIDERED: The following matter has been placed on the agenda for the open Parole Commission meeting.

Proposal to close one of the Commission's regional offices.

AGENCY CONTACT: Tom Kowalski, Case Operations, United States Parole Commission, (301) 492-5962.

Dated: March 30, 1994.

Rockne Chickinell,

Deputy General Counsel, U.S. Parole Commission.

[FR Doc. 94-8386 Filed 4-4-94; 2:49 pm]

BILLING CODE 4410-01-M

Wednesday
April 6, 1994

Part II

**Environmental
Protection Agency**

40 CFR Parts 86, 88, and 600

Control of Air Pollution From New Motor
Vehicles and New Motor Vehicle Engines;
Refueling Emission Regulations for Light-
Duty Vehicles and Light-Duty Trucks;
Final Rule

ENVIRONMENTAL PROTECTION AGENCY**40 CFR Parts 86, 88, and 600**

[AMS-FRL-4831-6]

RIN 2060-AC64

Control of Air Pollution From New Motor Vehicles and New Motor Vehicle Engines; Refueling Emission Regulations for Light-Duty Vehicles and Light-Duty Trucks

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: This document contains EPA's final rule implementing the control of vehicle refueling emissions through the use of vehicle-based systems. It applies to light-duty vehicles and light-duty trucks. The rule applies to all fuels used by a vehicle, and includes special provisions for vehicles/fuels judged to be inherently low in refueling emissions. For light-duty vehicles, the requirements begin in the 1998 model year, and phase in over three model years. In the 1998 model year, 40 percent of each manufacturer's light-duty vehicles must meet the requirements. This increases to 80 percent in the 1999 model year and rises to 100 percent in model years 2000 and later. A special provision for phase-in is also included for small volume manufacturers of light-duty vehicles.

This requirement also applies to light-duty trucks. For light-duty trucks with a gross vehicle weight rating of 0-6000 lbs, the requirement begins in model year 2001 and phases in over three model years at the same rate as applied to light-duty vehicles. For light-duty trucks with a gross vehicle weight rating of 6001-8500 lbs, the requirement commences in model year 2004 and phases in over three model years at the same rate as light-duty vehicles. The rule does not apply to heavy-duty vehicles.

This rule also establishes certification requirements covering test procedures for integrated and non-integrated control system designs, a refueling emission standard of 0.20 g/gallon and other related certification requirements and provisions. Finally, the rule contains enforcement provisions related to liability, Selective Enforcement Auditing and nonconformance penalties.

EFFECTIVE DATES: This final rule is effective on May 6, 1994.

The new information collection requirements contained in 40 CFR parts 86 and 88 applying to 1998 and later model year vehicles have not been

approved by the Office of Management and Budget (OMB) and are not effective until OMB has approved them. EPA will publish a technical amendment in the Federal Register once the information collection requirements are approved.

ADDRESSES: Materials relevant to this final rule are contained in Public Docket No. A-87-11, located in the Air and Radiation Docket and Information Center of the U.S. Environmental Protection Agency, 401 M Street SW., Washington, DC, 20460 and is available for public review in room M-1500. Relevant materials may also be found in Public Docket No. A-84-07, established in support of EPA's assessment of air pollution regulatory strategies for the gasoline marketing industry. The dockets may be inspected from 8 a.m. to 4 p.m. Monday through Friday, except for government holidays. Under 40 CFR part 2, a reasonable fee may be charged by EPA for copying docket materials.

FOR FURTHER INFORMATION CONTACT: James G. Bryson, U.S. EPA (RDSD-12), Special Regulatory Projects Branch, 2565 Plymouth Road, Ann Arbor, MI 48105, Telephone: (313) 741-7828.

SUPPLEMENTARY INFORMATION:

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List of Key Acronyms

- AA Attainment Area
- AAMA American Automobile Manufacturers Association
- AIAM Association of International Automobile Manufacturers
- CAA Clean Air Act
- CAAA CAA Amendments
- DoT Department of Transportation
- FMVSS Federal Motor Vehicle Safety Standards
- GVWR Gross Vehicle Weight Rating
- HDV Heavy-Duty Vehicle
- LDV Light-Duty Vehicle
- LDT Light-Duty Truck
- LLDT Light LDT
- HLDT Heavy LDT
- NAA Non-Attainment Area
- NCP Nonconformance Penalty
- NHTSA National Highway Traffic Safety Administration
- NPV Net Present Value
- ORVR Onboard Refueling Vapor Recovery
- RIA Regulatory Impact Analysis
- RPE Retail Price Equivalent
- RVP Reid Vapor Pressure
- VOC Volatile Organic Compounds

I. Background

On August 19, 1987, EPA published in the Federal Register a Notice of Proposed Rulemaking (NPRM) for the control of vehicle refueling emissions (52 FR 31162). The proposal described the need for these controls as well as the conclusions of an EPA study of gasoline marketing emissions comparing the relative merits of the two available control technologies: Systems incorporated into the gasoline dispensing pump system design (known as Stage II vapor recovery) and systems incorporated into the design of the vehicle (known as onboard refueling vapor recovery (ORVR)) (see Public Docket A-84-07). Based on this study, along with EPA's analysis and response to public comments published in documents separate from the NPRM (Evaluation of Air Pollution Regulatory Strategies for Gasoline Marketing Industry—Response to Public Comments (II-A-20), Draft Regulatory Impact Analysis: Proposed Refueling Emission Regulations for Gasoline-Fueled Motor Vehicles, Vols. I and II)

(II-A-18, 19), and technical support documents related to ORVR test procedure (II-A-08) and ORVR vehicle safety (II-A-17). EPA proposed to require refueling emission control through ORVR systems. The above mentioned studies are available in public docket A-87-11. All future references of this nature can be found at the cited location in public docket A-87-11 unless otherwise indicated.

Subsequent to the publication of the NPRM, EPA held a public hearing in October 1987, followed by an extensive public comment period which closed in February 1988. Comments were analyzed by EPA and key issues were assessed. As a result, EPA determined that the final rulemaking should be delayed pending the resolution of safety concerns expressed by both the National Highway Traffic Safety Administration (NHTSA) (part of the Department of Transportation (DoT)) and a number of the commenters. The final rule was further delayed when it became evident that Congress would address issues concerning refueling controls in the 1990 Clean Air Act Amendments (CAAA).

The 1990 Amendments revised section 202(a)(6) of the CAA to read as follows:

Within 1 year after the date of the enactment of the Clean Air Act Amendments of 1990, the Administrator shall, after consultation with the Secretary of Transportation regarding the safety of vehicle-based ('onboard') systems for the control of vehicle refueling emissions, promulgate standards under this section requiring that new light-duty vehicles manufactured beginning in the fourth model year after the model year in which the standards are promulgated and thereafter shall be equipped with such systems.

Subsequent to the enactment of the CAAA, EPA continued its consultation with DOT/NHTSA related to the potential safety concerns regarding the implementation of vehicle-based refueling emission controls. In July 1991, NHTSA completed an updated safety study entitled "An Assessment of the Safety on Onboard Refueling Vapor Recovery Systems". On September 3, 1991, EPA published an additional Federal Register notice (56 FR 43682) releasing the NHTSA report for public review and seeking further comment on key issues involved with ORVR controls, most notably on circumstances that had changed since the publication of the NPRM. The notice also described and sought comment on a document entitled "Summary of Changed Circumstances", which discussed statutory changes, technology development, and potential

modifications to the refueling test procedure.

EPA held a public hearing on September 26 and 27, 1991, and public comments were received for 30 days thereafter. After reviewing these comments, EPA continued its consultation with NHTSA. Based on the outcome of the consultation, EPA determined that ORVR controls should not be required at that time. The Agency took this step because it concluded, after consultation with NHTSA and after considering the conclusions of NHTSA's safety study, that ORVR controls posed "unreasonable" safety risks relative to Stage II systems. A Federal Register notice detailing the decision and the supporting rationale was published on April 15, 1992 (57 FR 13220).

EPA's action was challenged by representatives of the petroleum refining, gasoline marketing, environmental and consumer auto safety communities. They argued that section 202(a)(6) of the CAA created a non-discretionary duty to promulgate ORVR standards for LDVs. The court agreed, holding that EPA had no choice but to promulgate such standards, and that the entire safety analysis in the April 15, 1992 notice was flawed because of the comparison with Stage II technology, a comparison not allowed by the text of the statute. *NRDC v. EPA*, 983 F. 2d 259, 261, 269-71 (D.C. Cir. 1993). The court stated further, in *dicta*, that the record did not establish that all ORVR systems present inherent and unreasonable safety risks. *Id.* at 261, 270. The court set aside the April 15, 1992 Agency action, and ordered EPA to promulgate regulations requiring vehicle-based refueling controls on LDVs in accordance with the CAA.

The petitioners further moved the court for an order requiring EPA to issue ORVR requirements by a particular date. Before the court ruled, EPA and the petitioners entered into a settlement agreement whereby the Agency agreed to promulgate such rules by January 22, 1994 (58 FR 33813, June 21, 1993).

Subsequent to the court's decision, EPA published two Federal Register notices (May 27, 1993, 58 FR 30731 and June 17, 1993, 58 FR 33418) seeking public comment on the key issues that had changed since the last public comment period. EPA also held a public hearing on these issues on July 22, 1993, and solicited comments for 30 days thereafter. EPA has analyzed these additional comments, and has revised its proposed regulations accordingly. To support this rule, two key documents, a Final Regulatory Impact Analysis and a Summary and Analysis of Comments

have been completed and are available for review in the public docket.

The remainder of the document is divided into sections. Section II describes the various aspects of the rule as listed in the Table of Contents above, and provides rationale for the approaches being implemented. Section III describes the long and extended public participation in the rulemaking process and previous study. Section IV summarizes the Regulatory Impact Analysis. Finally, sections V through X describe various aspects of the rule with regard to compliance with various administrative requirements such as the Regulatory Flexibility Act and the Paperwork Reduction Act.

II. Description of the Rule

A. Applicability

1. Application of the Refueling Emission Standard to LDVs

Section 202(a)(6) of the Act mandates that EPA promulgate requirements for new light-duty vehicles (LDVs) to be equipped with ORVR systems. In the August 1987 NPRM, EPA proposed that ORVR requirements apply to LDVs and, in this rule, is finalizing that LDV portion of the original NPRM, consistent with the statutory requirements. The model year, phase-in, certification and other requirements for LDVs are discussed in sections B through F, below.

2. Extension of the ORVR Requirement to LDTs

Under the authority provided in Section 202(a)(1) of the Clean Air Act (CAA), EPA is applying the ORVR requirement to light-duty trucks (LDTs). EPA is finalizing portions of that proposal in today's rules. Each manufacturer's LDTs will have to meet the refueling emission requirements under the phase-in schedule and compliance program for trucks described in the Implementation section below.

In reaching this decision, EPA has conducted a detailed analysis of the need for and desirability of extending the requirement beyond the LDV class. The analysis is detailed in the supporting Regulatory Impact Analysis (RIA) available in the public docket. The key points are summarized below.

First, the rule affects pollutants which "cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare" (Section 202(a)(1)). Hydrocarbons, as ozone precursors, have long been an essential object of emission control strategies (both vehicles and non-vehicles). Ambient ozone is an irritant

that adversely affects pulmonary membranes, lung tissues, and lung functions, and is also associated with adverse ecological effects. Refueling emissions also contain benzene, a Group A human carcinogen. The gasoline vapors themselves also adversely affect public health and welfare.

Second, and perhaps most compelling, is the large amount of refueling emissions which arise from these LDTs. In 1990, trucks represented about 33 percent of the gasoline used by highway motor vehicles. Using American Automobile Manufacturers Association (AAMA) figures, retail truck sales have increased at a compound annual rate of 4-5 percent over the past ten years, and this growth is projected to continue well into the next century. This increase in sales and market fraction has led to an increase in the gasoline used by trucks. The fraction of gasoline used by LDTs is projected to increase to 37 percent by 2000 and continue at that level or higher in the future. Thus, the percentage of the refueling emissions inventory attributable to LDTs is large and is expected to increase in the future.

Another way to look at the magnitude of the emissions from LDTs is the equivalent gram per mile (g/mi) emission rate attributable to their uncontrolled refueling emissions. As shown in the RIA, taking into account Phase II RVP control and the RVP effects of reformulated gasoline, the nationwide uncontrolled refueling emission rate during the ozone season for LDTs is about 0.22 g/mi. These are large emission rates in contrast to those controlled by other strategies being implemented under the 1990 CAAA and being considered by the states in their State Implementation Plans. A good example is the Clean-Fuel Fleet requirements under section 246 of the CAA and the Low Emission Vehicle program being implemented in California and perhaps in other states. In these cases the equivalent emission reductions are in the range of 0.12 to 0.18 g/mile.

Third, EPA believes that ORVR controls are technologically feasible for LDTs. Reports and other materials submitted to the docket over the past several years as well as comments by the regulated industry indicate that prototype ORVR systems have been installed on a number of passenger cars and light trucks (IV-A-06, IV-D-682, 680, 682, 685, 688, 864, 701, 712, 718, 719, 720, 721, IV-E-50, 73). As is now the case with evaporative control systems, we anticipate that the control technology used for LDT ORVR systems will be very similar to that applied to LDVs. Although there are some differences between LDV and LDT fuel systems (e.g., tank size in some larger LDTs), the general fuel system concepts, designs, and configurations are very similar. In addition, vehicles in both classes must meet the recently promulgated enhanced evaporative emission control requirements beginning in the 1996 model year. As with LDVs, EPA anticipates that the same evaporative emission control technology can be applied to control refueling emissions in LDTs. To ensure that the enhanced evaporative control system canister and purge system can be applied to ORVR controls, EPA is applying the same refueling emission test procedure approach to LDTs as is being applied to LDVs. The only significant design difference will be the need for some form of a fillneck seal. However, with the anticipated liquid seal approach this requires at most a minor fillneck modification and does not involve new hardware.

While there are vehicle-to-vehicle differences in fuel system designs, these affect both the evaporative and refueling emission rates for a given vehicle/fuel system design. To EPA's knowledge there is nothing unique about the design or function of LDT fuel systems relative to LDVs which would suggest that the test procedure approach being applied to LDVs would not be equally effective for LDTs in accomplishing the goal of allowing the widespread use of integrated enhanced evaporative/

refueling emission control systems. Although uncertainty has been expressed, no commenter provided data or even a substantiated argument to support the view that the test procedure modifications would not be equally effective in facilitating LDT use of integrated enhanced evaporative/refueling control systems. In fact, testing conducted by the Coordinating Research Council (CRC-APRAC Project VE-6) (IV-D-565) and EPA (II-A-06) indicate no significant difference between LDV and LDT uncontrolled refueling emission rates. As is the case for LDVs, the refueling test procedure approach described above should allow the widespread use of integrated refueling/evaporative control systems for LDTs. Thus, since there is no problem with applying enhanced evaporative control systems to LDTs, there should be no problem with integrated evaporative/refueling control systems.

The benefits of applying the ORVR requirements to LDTs exceed the costs of the requirement. Since EPA believes, and the manufacturers' comments indicate, that most vehicles will use an integrated evaporative/refueling control system, the incremental costs of LDT ORVR controls are relatively small. As detailed in the RIA, EPA's cost is comprised of added hardware (mostly an improved vent/rollover valve and larger diameter vapor line) and short term development costs (for emissions and safety certification, facility modification hardware/tooling modifications, and systems engineering) minus the fuel recovery credit. The size of the fuel recovery credit depends on the amount of vapor captured. This in turn depends on the fuel used, the emissions rate (g/gal), and the presence or absence of Stage II vapor recovery. Taking all of these factors into account, and assuming Stage II controls in most of the ozone NAAs, the cost estimate for LDTs/HDVs are shown below in Table 1.

TABLE 1.—ESTIMATED PER-VEHICLE COSTS OF ORVR SYSTEMS IN LDTs

Vehicle group	Hardware (\$/vehicle)	Develop (\$/vehicle)	Operating cost (NPV)	Short term net cost	Long term net cost
LDT	\$4.79	\$2.65	-\$3.70	\$3.74	\$1.09

For vehicles operating in nonattainment areas (NAAs), the recovery credits are smaller and the short and long term net costs increase by about \$3 per vehicle over those in the table above.

As was discussed above, LDTs represent over 33 percent of the nation's gasoline consumption. With the test procedure and control system approach mentioned above, EPA expects that the in-use control efficiency of LDT ORVR

systems will exceed 95 percent. Incremental to Stage II controls, LDT ORVR controls would provide a nationwide average annual emission reduction of 115,000 tons between 1998 and 2020. Reductions in NAAs with

Stage II controls are large as well. With no Stage II phase-out, the average annual emission reduction in the NAAs is 31,000 tons. If Stage II is phased out when ORVR is in widespread use (2010), the average annual emission reduction in the NAAs attributable to LDT controls increases to 68,000 tons. These incremental reductions in NAAs are large relative to the other control options available.

As is discussed below, reductions in refueling emissions have value in all areas of the country. However, the main focus of the ORVR requirement is to provide ozone NAAs additional reductions to assist them in complying or maintaining compliance with the ozone standard. Thus, the important areas to consider are those which are not now in compliance with the ozone standard. At present there are 54 marginal or worse ozone NAAs, which represent about 54.9 percent of the nationwide highway gasoline consumption. Of these 54 areas, about 43 now have, or are expected to have, Stage II vapor recovery systems in place. Since ORVR controls are required on all LDVs, and Stage II vapor recovery is (or will be) in place in most moderate or worse ozone NAAs, the key comparison to be made is (1) retaining Stage II controls in the moderate or worse ozone NAAs solely for the purpose of controlling LDT/HDV refueling emissions, versus (2) requiring ORVR controls for LDTs and possibly HDVs, assuming the Stage II control that is or will be in place. This comparison provides a worst case perspective on the LDT/HDV cost effectiveness, since benefits outside NAAs are ignored and planned Stage II is assumed to continue after the ORVR requirement is promulgated.

As is described in the RIA, EPA has conducted the analysis for both the Stage II retention and ORVR options. The cost effectiveness of retaining Stage II solely for the purpose of controlling LDT/HDV refueling emissions is about \$3400 per ton. The cost effectiveness of the LDT ORVR controls incremental to the Stage II now in place is about \$200 per ton if Stage II is phased out when ORVR control is in widespread use (2010) and only about \$700 per ton if Stage II is never phased out. Under either scenario the cost effectiveness of the ORVR option is attractive. Thus, even with the Stage II controls, it is more cost effective to require ORVR controls on LDTs than to retain Stage II solely for controlling LDT/HDV refueling emissions.

In addition to the VOC emission reduction benefits cited above, LDT ORVR controls have other benefits.

These benefits have not been considered in the calculations above, but would further enhance the attractiveness of LDT ORVR. LDT ORVR controls would result in an average annual fuel savings equivalent to about 31 million gallons of gasoline per year between the period 1998 and 2020 assuming no Stage II phase-out, and about 43 million gallons per year if Stage II is phased out. In addition, there will be health benefits as a result of reductions in air toxic emissions. Best estimates are the avoidance of 2-3 cancer incidences per year as a result of lower refueling benzene emissions. Additional cancer avoidances are possible depending on the assumption regarding the toxicological impact of the remainder of the constituents of the gasoline vapor. Reductions in potential non-cancer health effects and welfare benefits such as reduced crop and material damage due to ozone would occur as well.

In summary, EPA has decided to implement ORVR controls for LDTs for several reasons: Their contribution to the VOC inventory is significant and there is a need for additional VOC reductions to address air quality concerns, the control is technologically feasible and inexpensive, there are additional valuable benefits, and, as discussed in the RIA, the cost effectiveness is very attractive, especially when compared to other programs being implemented and under consideration. The analysis shows that the cost effectiveness of implementing ORVR controls for LDTs is superior to retaining Stage II controls for the same purpose. The overall benefit to cost ratio for LDT ORVR is about 1.5. If the application of ORVR controls to LDVs and LDTs allows phaseout of Stage II controls in the future, the cost savings attributable to Stage II operations/maintenance which would no longer occur would make the average annual costs of ORVR controls negative (an average annual savings of over \$40 million). Based on the cost effectiveness analysis and benefit-cost ratio, one could also justify implementing LDT ORVR controls incremental to Stage II controls. However, the long-term retention of Stage II would seem problematic since it would be needed only for heavy-duty vehicles.

3. Heavy Duty Vehicles

In the NPRM, EPA proposed to require ORVR controls for all HDVs. However, as discussed below, this requirement is not being finalized in this rulemaking.

Information available to EPA indicates that an HDV ORVR system would be conceptually similar to those

applied LDVs and LDTs and the initial costs should be relatively small. However, motor vehicle manufacturers have argued that the design and production of ORVR systems for HDVs would be considerably more difficult than for LDVs and LDTs. Commenters have maintained that the technological step from light-duty technology is greatest with regard to HDVs which have the largest fuel tanks and different fuel/vapor system component designs and configurations than many smaller LDTs. Comments regarding incomplete HDVs expressed concern that secondary manufacturers would improperly modify or incorrectly complete the vehicle fuel system (which is usually not fully installed for incomplete HDVs) and perhaps affect the proper function of the manufacturer-provided ORVR system. Concern was also expressed that secondary manufacturers might not have the expertise to correctly install the ORVR systems in all cases. In each case the primary manufacturer may have legal liability for potential problems. It is also worth noting that many HDVs are also produced by the primary manufacturer as an incomplete HDVs, perhaps compounding the concern.

EPA recognizes the manufacturers' strong concerns about ORVR implementation issues that are unique to HDVs, and agrees that in many cases the application of ORVR controls to HDVs would be more difficult than for LDTs. Oftentimes the fuel and vapor control systems are differently configured than those on LDTs and the fuel tanks are larger and of different design. The large number of commercial applications for HDVs leads to a larger number of unique body/chassis designs (e.g., 12 passenger vans, crew cabs, long bed pick-ups, dual wheel axle trucks) and thus a larger number of different fuel system configurations. Another significant difference is that the engine in the HDV would be certified separate from the ORVR system and thus there are additional challenges in matching the canister purge provided by the engine with the needs of each ORVR system. The manufacturers' comments discussed above lay out the special concerns for incomplete HDVs, including potential legal liabilities for the primary manufacturer. Finally, it should be noted that unlike LDVs and LDTs EPA is not aware of any prototype ORVR-equipped HDVs.

Given these concerns, the effort needed to implement LDV and LDT ORVR systems, the relatively small number of gasoline-fueled HDVs, and the fact that the application of ORVR standards to HDVs is discretionary, EPA

is not finalizing the portion of the NPRM which applies to HDVs.

Even without implementing HDV ORVR requirements at this time, the ORVR program still provides significant benefits. When viewed as a percentage of sales, ORVR still applies to 91 percent of all gasoline-fueled trucks and 97 percent of all gasoline-fueled vehicles. Similarly, control is still achieved over 86 percent of all gasoline-fueled truck refueling emissions and 94 percent of all gasoline vehicle refueling emissions. Thus, EPA's final decision that ORVR requirements are not required for these vehicles does not significantly reduce the effectiveness of the ORVR program.

4. Applicability to California Vehicles

As discussed further in the summary and analysis of comments, today's final rule implements a federal standard applicable to all vehicles sold in the United States. Based on the language in section 202(a)(6) of the Act, EPA considers refueling emissions control to be an evaporative standard. Although California has motor vehicle standards in place for model year 1998 and beyond, including evaporative emission standards, to date EPA has issued no section 209(b) waivers which consider a federal ORVR refueling program when evaluating the protectiveness, in the aggregate, of those standards. However, EPA interprets section 209(b)(3) to provide that once a section 209(b) waiver is granted, compliance with the state program is deemed compliance with the federal program standards. (See 42 FR 3193, January 17, 1977). To the extent that a new federal standard is established subsequent to a waiver, such standard will be considered in a waiver reconsideration or future waiver request consideration. EPA is making no finding at this time how stringency, in the ORVR context, may be considered in a waiver proceeding, should one occur. (It should be noted that EPA in this notice is restating its consistent interpretation for the convenience of rulemaking participants, and does not intend to reopen for reconsideration the issue of the effect of existing section 209(b) waivers on post-waiver regulations.)

The California Air Resources Board (CARB) staff has held one workshop to discuss the proper application of refueling control (November 2, 1993). CARB is considering three courses of action: adopting the federal ORVR rule, adopting a California-specific ORVR rule, test, or standard, or maintaining that California's current motor vehicle program, taken in the aggregate, is at least as stringent as the federal program notwithstanding the lack of ORVR

controls. If California submits a waiver request for its evaporative emission control program applicable to model year 1998 or thereafter, which does not include federal ORVR requirements, EPA will decide at that time whether California's motor vehicle program is at least as protective as the federal program.

5. Fuels Covered

In the September 1991 and May 1993 notices, EPA specifically solicited comments on applying the ORVR requirements to highway motor vehicles powered by fuels other than gasoline. Consistent with EPA policy on fuel neutrality and establishing a consistent set of requirements for all fuels, today's rule requires that LDVs and LDTs operating on any fuels be capable of meeting the refueling emission standard described below. It applies to vehicles certified under both 40 CFR part 86 and 40 CFR part 88. Although many commenters stated that the refueling standard should not apply to vehicles operating on diesel fuels, the section 202(a)(6) requirement by its terms applies to all LDVs regardless of the type of fuel used. (In contrast, section 202(k) requires evaporative emission controls only for "gasoline-fueled motor vehicles".) However, EPA has attempted to tailor the refueling emission certification requirements to the fuel used.

Manufacturers of vehicles capable of operating on gasoline, alcohol, or gasoline/alcohol blends must show that these vehicles comply when refueled with such fuels through testing as described later in this preamble. This requirement applies to dedicated neat alcohol fuel vehicles and vehicles using alcohol blends. Bi-fuel or dual-fuel vehicles must meet the requirements on both fuels. Flexible-fueled vehicles must meet the requirements on all fuel combinations. At the present time the only alcohol fuel affected is methanol.

However, a waiver of emission testing requirements is available for those vehicles/fuels which are considered to be inherently low in refueling emissions. EPA believes that a general engineering evaluation approach is acceptable for diesel vehicles and diesel fuels for several reasons. Diesel fuel today has a Reid Vapor Pressure (RVP) of less than one pound per square inch (psi) (7 kPa) and diesel engines today do not raise the temperature of fuel in their tanks substantially more than do gasoline engines (less than 130 °F under most conditions). For these reasons, the vapor space over the fuel in diesel tanks has a very low concentration of fuel vapor compared to that in gasoline tanks

and thus displacement refueling emissions are low. EPA thus expects diesel fuel vehicles to meet the refueling emission standard without a control system.

Under this approach, the vehicle manufacturer's certification application must include a statement that there is nothing about the vehicle, its fuel system, or fuel that is counter to EPA's assessment as discussed above, and the manufacturer's certification that the vehicle meets the refueling emission standard (even without a control system).

EPA retains the opportunity to test vehicles to ensure that they comply with the emission standard during certification confirmatory testing, Selective Enforcement Audits, and in-use testing. EPA also retains the right to retract the engineering evaluation option for diesel vehicles if the RVP of in-use diesel fuel increases or is expected to increase beyond 1 psi (7 kPa) or a significant increase in fuel tank temperatures is expected.

Since exhaust and evaporative emission requirements now exist for all new methanol-fueled (neat and blend) vehicles, these shall be required to comply with the ORVR standards under the same phase-in schedule as gasoline-fueled vehicles. EPA expects that these vehicles will use a technology similar to that used to comply with the evaporative emission requirement.

The refueling control requirement will be applied to other dedicated, dual-fuel, bi-fuel, and flexible-fuel vehicles using other fuels (e.g., dedicated and hybrid electric vehicles, ethanol and ethanol blends, compressed and liquid natural gas, liquified petroleum gas) as regulations covering these fuels are implemented in the future. Lead time, safety, and other factors will be considered in the course of these actions. Full testing and engineering evaluation certification options will be considered.

B. Implementation

1. Leadtime, Effective Model Year and Phase-in Requirements

Section 202(a)(6) of the Act specifies a four model year lead time before ORVR requirements are to become effective for LDVs ("vehicles manufactured beginning in the fourth model year after the model year in which the standards are promulgated"). After this four-year lead time, a three-year phase-in period begins, during which 40 percent, 80 percent, and 100 percent, respectively, of each manufacturer's sales of new LDVs will need to meet the ORVR requirements.

Today's action is occurring early in the 1994 model year. Thus, ORVR requirements for LDVs will become effective with the 1998 model year. At least 40 percent of each manufacturer's LDV sales will need to meet ORVR requirements in model year 1998, 80 percent for model year 1999, and 100 percent for model years 2000 and later.

Since the application of ORVR requirements to LDTs is under the general authority in section 202(a)(1), the specific lead time and phase-in requirements of section 202(a)(6) do not automatically apply. Rather, the standard "shall take effect after such period as the Administrator finds necessary to permit the development and application of the requisite technology, giving appropriate consideration to the cost of compliance" (Section 202(a)(2)).

As discussed elsewhere in this preamble, EPA believes that the nature of ORVR technology for LDTs will be very similar to that for LDVs and that the cost of controls, incremental to the cost of enhanced evaporative emission controls, is minimal. EPA also does not believe that ORVR controls for LDTs present different safety issues than canisters on LDVs where there is now general consensus that there are no unreasonable risks. We therefore believe that the lead time required for developing these systems could be similar regardless of vehicle class.

While several commenters requested a delay in the LDT ORVR requirement, commenters did not indicate that it was not technically feasible to develop ORVR controls for LDTs during this timeframe. However, comments from the vehicle manufacturers did express a concern that resource and facility constraints would make simultaneous development of ORVR systems for LDVs and all trucks problematic. They have also indicated that design, development and some in-use experience with ORVR systems on passenger cars would be helpful in the design of LDT systems.

EPA has concluded that the resource and facility concerns expressed by the manufacturers and the desirability for in-use experience with ORVR systems can be balanced against the need for emission reductions by beginning the phase-in of ORVR requirements for LDTs after the program for LDVs has been fully implemented. In the mid-to-late 1990's gasoline-powered vehicle manufacturers will need to respond to new evaporative emission requirements, cold CO exhaust emission standards, and California and Clean Fuel Fleet exhaust emission standards among others. Most of these requirements apply to all three vehicle classes and

entail several hundred vehicle/engine families. Under the statutory requirement the manufacturers will need to comply with LDV ORVR requirements in the same timeframe. And while complying with the enhanced evaporative and ORVR requirements simultaneously using an integrated control system reduces the burden relative to separate approaches for LDTs, a delay for LDTs is not unreasonable given the already existing requirements. This trade-off is also acceptable in the short-term since Stage II refueling controls are or will be in place in many ozone NAAs. However, for the reasons discussed above, EPA believes that ORVR controls are the preferred long term approach for control of refueling emissions from LDTs.

Therefore, the requirements promulgated today for LDTs will be implemented in two stages. The first stage will cover LDTs with a GVWR of 6,000 or less (LLDT), the second will cover LDTs with a GVWR of 6,001 to 8,500 lbs GVWR (HLDT). LLDTs represent about 70 percent of LDT sales. HLDTs represent the remaining 30 percent. For LLDTs, the ORVR requirement will begin implementation in the 2001 model year and will phase in over three model years according to the same percentages as LDVs. For HLDTs, the ORVR requirement will begin implementation in the 2004 model year and will phase in over three model years according to the same percentages as LDVs (40/80/100). This schedule will permit the development and application of cost-effective, economically achievable technology, as required by section 202(a)(2) and will still allow consideration of the Stage II phaseout provisions of section 202(a)(6) of the CAA in the long term.

Provisions of 40 CFR 86.085-1(b) permit manufacturers to certify HDVs with a GVWR of 8,501-10,000 lbs GVWR as LDTs. This option will remain in effect for refueling controls. HDVs certified under this option would be treated as HLDTs for purposes leadtime, phase-in and sales compliance determination.

EPA does not view the provisions of section 202(a)(3) as applying to refueling controls, as that provision was probably intended to apply only to exhaust emission standards, as did its predecessor provision. However, even if it did apply, this section would provide for at least four years of leadtime. Since EPA is allowing this much leadtime for HLDTs anyway, designating section 202(a)(2) or 202(a)(3) as authority for HDV leadtime has no practical significance here.

2. Small Volume Manufacturers

Today's rule includes a short-term provision for small volume light-duty vehicle manufacturers. Several small volume manufacturers commented that, as a practical matter, they cannot phase in their compliance due to their small size and limited product lines. Small volume manufacturers also claimed that they sometimes rely on control technology developed by larger manufacturers to develop their compliance strategies, and this would not be possible if they must comply at essentially the 100 percent of sales level before the larger manufacturers. R&D cost concerns were cited as obstacles as well.

EPA believes that these comments state valid concerns. As is described in three recent Federal Register notices, EPA has allowed small volume manufacturers to delay compliance to the last model year of the phase-in: in the Tier 1 exhaust emission standard rule (June 5, 1991, 56 FR 25724), the cold CO exhaust emissions rule (July 17, 1992, 57 FR 31888), and the enhanced evaporative emission standards rule (March 24, 1993, 58 FR 16003), and has decided to allow the same accommodation for the ORVR requirement for light-duty vehicles. This provision is included, not only for the reasons raised by the manufacturers, but also because it would be inconsistent to face ORVR compliance before evaporative emission compliance when the comments indicate that most manufacturers plan to use integrated refueling/evaporative control systems and these are desirable for both cost and safety reasons. In addition, requiring phased compliance for these manufacturers effectively denies them the opportunity Congress intended to phase in the control technology. (Cf. *State of Ohio v. EPA*, 997 F.2d 1520, 1535 (D.C. Cir. 1993) (*de minimis* exception to seemingly literal statutory language can be allowed where failure to allow the exception frustrates a Congressional goal or leads to absurd results)). Thus, small volume manufacturers of light-duty vehicles, as defined in 40 CFR part 86, may delay compliance to model year 2000 (i.e., the third model year of the phase-in), but must comply with 100 percent of sales in that and subsequent model years. Because of the additional leadtime EPA is affording to LDTs, the Agency is not implementing this small-volume manufacturer provision for these vehicles.

3. Inclusion of Inherently Low Refueling Emission Vehicles

As was discussed in the May 1993 notice, vehicles meeting the refueling emission standard because they are inherently low in refueling vapor emissions (those certified without a control system using the engineering evaluation option), and thus are waived from testing, cannot be counted in either the vehicles complying or base sales figures in determining compliance with the sales requirements of the statute. Compliance for these vehicles is to be calculated separately.

C. Refueling Emission Test Procedures and Standard

This final rule includes test procedures for the measurement of refueling emissions and a corresponding emissions standard by which to judge the adequacy of ORVR control system designs. The test procedures accommodate integrated system designs, which control both refueling and evaporative emissions with a common vapor storage unit, as well as non-integrated system designs, which do not share vapor storage units.

The test procedures for these two types of control systems, although different in some ways (explained below), involve the same basic steps: Load the storage canister with hydrocarbon vapor, drive the vehicle to provide opportunity for canister purge, and refuel the vehicle while measuring emissions (see Figures 1 and 2). The first two steps together are referred to as the preconditioning phase and are discussed in detail further on in this section.

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Figure 1
ORVR Test for
Integrated Systems

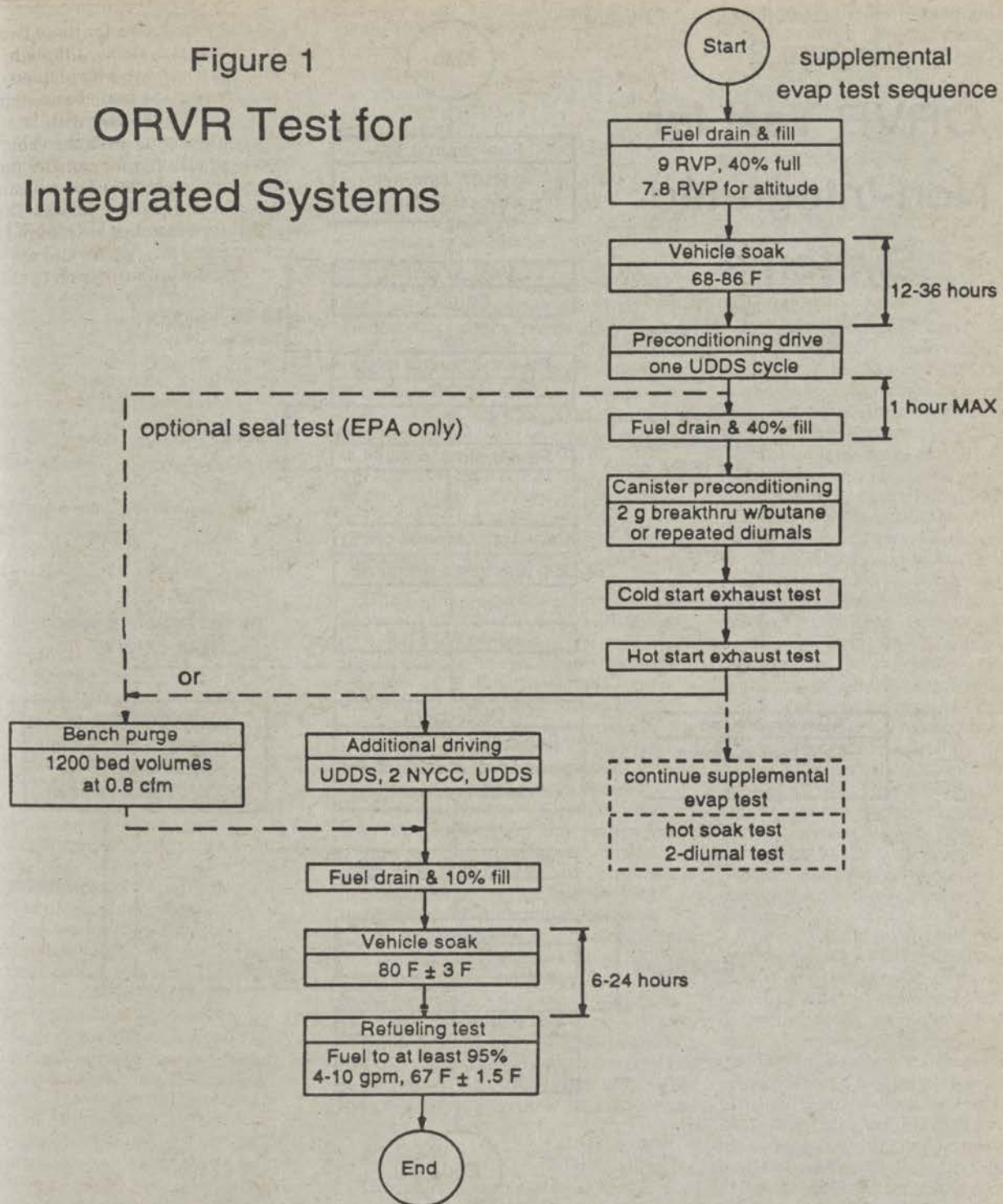
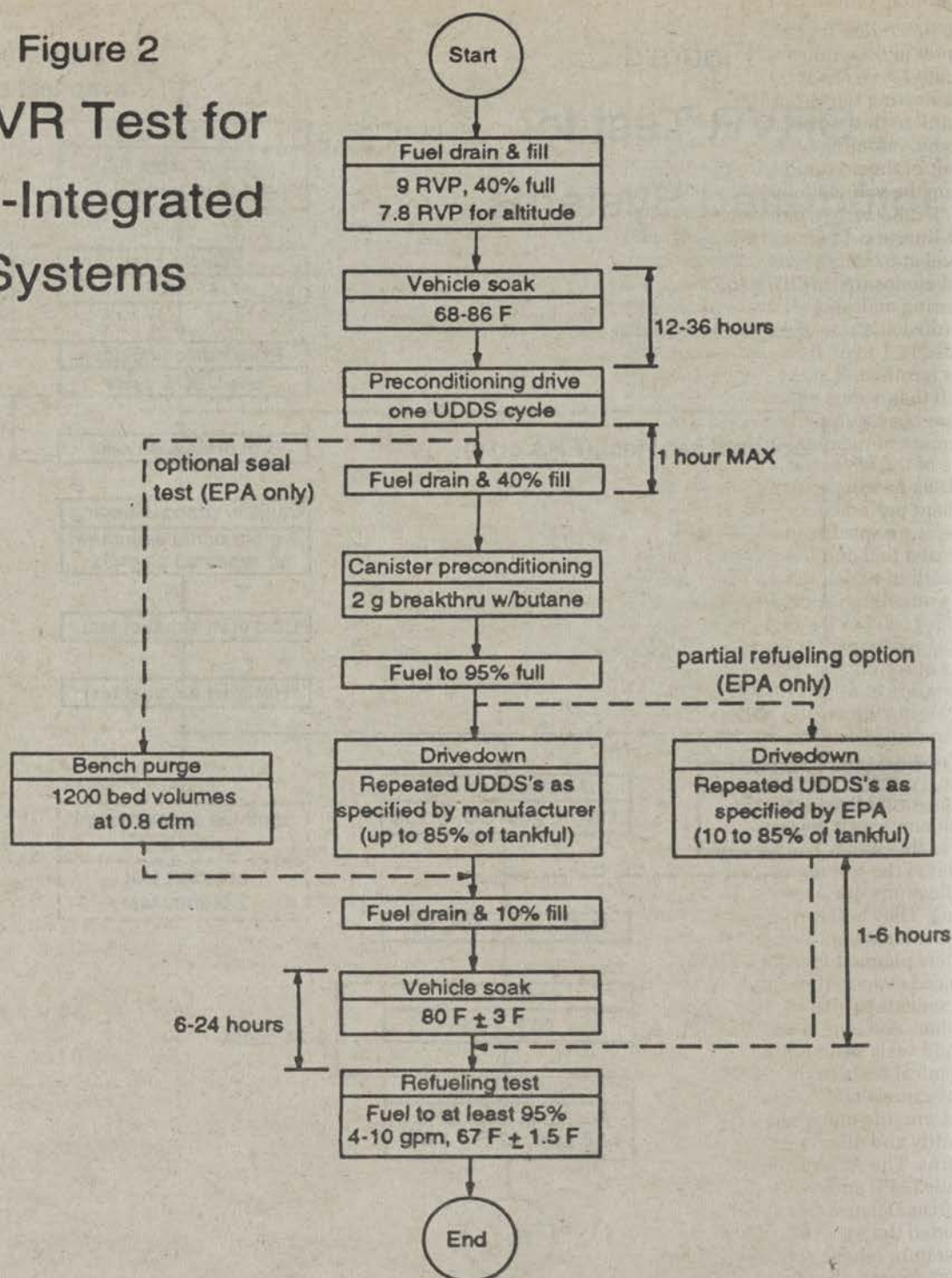


Figure 2
ORVR Test for
Non-Integrated
Systems



1. Refueling Emissions Test

The procedure for the refueling step is common to both integrated and non-integrated systems. It involves disconnecting the vapor line from the fuel tank to the canister, draining the fuel tank, refueling with test fuel to 10 percent of the nominal tank capacity, soaking the vehicle for 6 to 24 hours at $80 \pm 3^\circ\text{F}$ ($26.7 \pm 1.7^\circ\text{C}$), reconnecting the vapor line, and fueling the vehicle with test fuel at $67 \pm 1.5^\circ\text{F}$ ($19.4 \pm 0.8^\circ\text{C}$) in a sealed enclosure (SHED) while measuring emissions. Fueling is performed at a rate of 4 to 10 gallons per minute (15.1 to 37.9 liters per minute) and is terminated at the first automatic shutoff that occurs after a quantity of fuel has been pumped equal to at least 85 percent of the nominal tank capacity.

One of the key issues raised in the July 1993 hearing and the subsequent comment period concerned the test temperature specifications for the dispensed fuel and the residual in-tank fuel, both of which have a major impact on the refueling vapor generation and therefore on ORVR system designs. Hearing participants discussed the merits of setting the test dispensed fuel temperature at 67°F (19.4°C) while maintaining the residual in-tank fuel temperature specification of 80°F (26.7°C). Previous proposals had included a dispensed fuel temperature specification of $81\text{--}84^\circ\text{F}$ ($27.2\text{--}28.9^\circ\text{C}$).

Comments were received on both sides of this issue. The manufacturers supported the test temperature specifications discussed at the July 1993 hearing. They believed these specifications would enable the canisters planned for meeting the enhanced evaporative emission requirements to also capture refueling emissions and would facilitate the use of liquid seals as an option to mechanical seals in the fillneck. Manufacturers commented that this would provide much needed design flexibility and alleviate their safety concerns. The American Petroleum Institute (API) and the Natural Resources Defense Council (NRDC) supported the $81\text{--}84^\circ\text{F}$ dispensed temperature range proposed earlier. They expressed concern that 67°F is not representative of actual dispensed fuel temperatures on high ozone days and therefore might lead to a situation where the test procedure does not adequately represent in-use conditions with the result that refueling emissions are controlled inadequately in use.

EPA's goal in establishing test parameters is to ensure that the combination of test conditions results in designs that will achieve a very high

level of control in use. Therefore, the representativeness of any one test parameter, such as dispensed fuel temperature, is of less concern than the net effect of the total test. For example, in-use RVPs in many parts of the nation during the summer months are lower than that specified in the test. What is important is the combined effects of the key parameters during an in-use refueling event. EPA's analysis of in-use effectiveness described in the Regulatory Impact Analysis and Summary and Analysis of Comments indicates that these test conditions will yield designs that achieve in-use control in excess of 95 percent during the ozone season in the NAAs (even assuming the accuracy of data showing that one region of the country has dispensed fuel temperatures within or exceeding the $81\text{--}84^\circ\text{F}$ range, a potentially questionable assumption, as explained in the next paragraph). Based on this analysis and the manufacturers' comments, EPA has concluded that the test specifications being finalized in this action are appropriate.

The dispensed gasoline temperature parameter discussed in the NPRM was derived using limited survey information on in-use refueling events. The $81\text{--}84^\circ\text{F}$ dispensed temperature value in the NPRM was driven by refueling events in the Southeastern U.S. These dispensed fuel temperature values are seven or more degrees higher than any other region of the country. There is no obvious technical reason why the Southeastern U.S. values were so much higher than those found in other regions of the country. Thus, there is some possibility that they may be unrepresentative, in which case the 67°F temperature used in the refueling test is even more representative. (EPA is not completely disavowing the Southeastern U.S. dispensed fuel data, since it is the only data available to EPA at this time. The Summary and Analysis of Comments contains an analysis of the sensitivity of the in-use effectiveness of the ORVR requirement to this dispensed temperature value.)

2. Integrated System Preconditioning

The nature of integrated systems allows for a corresponding integration of ORVR and evaporative emission preconditioning procedures. This integration is desirable because of potential test resource savings. A major revision of the evaporative emission test procedure was completed recently and will be implemented beginning in the 1996 model year (58 FR 16002, March 24, 1993).

EPA proposed three integrated system preconditioning options for the

refueling test in the May 1993 Federal Register notice. Option A places the refueling test after the exhaust emissions portion of the supplemental evaporative emissions test procedure. Option B places the refueling test after the running loss portion of the evaporative emissions test sequence. As a logical extension to this option, EPA also proposed Option B1, which adds more driving to Option A in order to allow for more purging of the canister, similar to Option B, while avoiding the complexities of the Option B running loss procedure.

EPA has selected Option B1, based on the above-described advantages and the support for this choice expressed by commenters. This procedure follows the supplemental evaporative emission test preconditioning procedure, involving an initial fuel tank drain and fill with certification test fuel to 40 percent full, a 12 to 36 hour soak at 68° to 86°F (20° to 30°C), a preconditioning drive over one Urban Dynamometer Driving Schedule (UDDS) cycle, another fuel tank drain and fill to 40 percent, a canister preconditioning step detailed below, and then the exhaust emissions test. At this point the refueling test departs from the evaporative test sequence. Instead, additional driving is conducted to provide more opportunity for canister purge. This driving consists of a UDDS cycle followed by two New York City Cycles (NYCC) and then by another UDDS. This driving schedule corresponds to the driving specified for the evaporative running loss test, though not at the same high temperatures. After the driving, the above-described refueling procedure is conducted.

The canister is preconditioned by loading it with a 50/50 mixture of butane and nitrogen, at a rate of 40 grams of butane per hour, until 2 grams of hydrocarbons are emitted from the canister (referred to as the 2-gram breakthrough point). Alternatively, the canister can be loaded to this point with gasoline vapors by conducting repeated diurnal heat builds. All detailed aspects of the supplemental evaporative emission test procedure, up through the exhaust emission test, apply to integrated ORVR system testing as well (58 FR 16002, March 24, 1993). The three test sequences (full 3-diurnal evaporative, supplemental evaporative, and refueling) may be performed in any order and exhaust emissions measurements from any of the three may be considered valid. If either evaporative emission sequence has been conducted before the refueling test, the fuel tank drain and fill and vehicle soak that precede the one UDDS

preconditioning drive in the refueling test sequence may be skipped.

3. Non-Integrated System Preconditioning

Non-integrated ORVR systems store only refueling vapors and therefore warrant a preconditioning driven down of 85 percent of the fuel tank capacity before being subjected to the 85 percent refueling event. This driving consists of repeated UDDS cycles, either on a track or on a dynamometer, until a volume of fuel equal to 85 percent of the fuel tank nominal capacity has been consumed. During the actual refueling test, the vehicle will be filled to at least 95 percent of tank capacity, as is the case for the integrated system. If manufacturers exercise the option to do less driving in certification testing, EPA may perform subsequent confirmatory and in-use testing using the same reduced driving schedule.

At its discretion, EPA may test non-integrated systems with a partial refueling test procedure. This procedure helps to ensure control in those in-use refueling events in which less than a tankful of fuel is pumped. Because the non-integrated system test allows a nearly complete driven down of the fuel tank capacity, thus enabling purge design strategies that inappropriately minimize purge during the exhaust emissions test, EPA considers the partial refueling test necessary. It also allows EPA to assess the basic question of whether the system has the capacity to handle a partial fill, a common refueling event in use.

In this partial fill test, following the loading of the canister with butane and fueling of the vehicle to 95 percent of the fuel tank capacity, the vehicle will be driven some integer number of UDDS cycles such that some amount of fuel between 10 and 85 percent of the fuel tank capacity is consumed. After a one to six hour soak, the vehicle will be subjected to the refueling emissions measurement test with no intervening drain and fill. The fuel pumped in the test will be a metered amount, corresponding to the amount consumed in the drive. This amount will be based on the vehicle's fuel economy, as determined at certification.

4. Seal Test

Also at its discretion, EPA may perform a seal test of integrated and non-integrated designs, aimed at verifying the integrity of fillpipe seals and vapor lines. This test eliminates consideration of potential canister emissions by thoroughly bench purging the canister prior to the refueling event. The canister preconditioning and

preparatory driving are therefore likewise eliminated, although EPA may perform the test procedure up through the exhaust emission test (in order to obtain this measurement) and then conduct the bench purge and refueling test. Failure of the seal test would be considered equivalent to failing the full refueling emissions test and the same standard would apply to both.

5. Cap Removal Emissions

In the May 1993 Notice, EPA requested comment on including a test to measure and control the "puff loss" emissions from a pressurized fuel tank when the fuel cap is removed for refueling.

In addition to refueling emissions, vehicles can have emissions when the fuel cap is removed from a pressurized fuel tank before the refueling event. Although these emissions potentially warrant control, EPA does not view them as "refueling" emissions for purposes of section 202(a)(6), since they precede a refueling and are more akin to evaporative emissions. EPA in fact proposed, but did not finalize, such a cap-off test in the evaporative emissions NPRM (55 FR 1914, January 19, 1990) rather than in the ORVR NPRM. Thus Congress would not have been considering such emissions when it enacted the 95 percent minimum control standard in section 202(a)(6) in the 1990 CAAAs.

Manufacturers commented that the puff loss test would provide no additional control over that achieved by the refueling test and the evaporative emissions rule requirement that tanks pressurized to over 10" (25 cm) H₂O be vented to the canister upon cap removal. EPA disagrees with this assessment. The refueling test does not measure emissions from cap removal directly after vehicle operation. The evaporative emissions requirement allows for the venting of tank pressures under 10" H₂O to the atmosphere. These emissions can be appreciable. General Motors (GM) calculated that the puff loss from venting a 10 percent full, 20 gallon (76 liter) tank at 10" H₂O would be about 3 grams. EPA agrees with this estimate but disagrees with the contention that this is minor, given that this same vehicle would only be allowed to emit a little over 3 grams during the refueling test.

GM also argued that the execution of a cap-off test involving a warm-up drive followed immediately by a cap-off step in a SHED would be complex and formidable. EPA agrees with GM's contentions that hot soak emissions could confuse the puff loss measurement and that the time required

to move a vehicle from a dynamometer cell to a SHED and remove the cap would be overly long compared to the actual in-use event, which typically involves less than a minute from key-off to cap-off. These two concerns would affect the measured emissions in opposite directions and would make it difficult to ascertain a puff loss emission corresponding to the in-use event.

EPA remains concerned about puff loss emissions, particularly considering that the new evaporative emission control requirements may prompt manufacturers to rely more heavily on pressurized tank designs in the future. However, EPA believes it necessary to defer action on this issue so that an effective test procedure can be developed, involving more complete public participation. Therefore, EPA is leaving this portion of the rulemaking open for now and intends to take up this issue as part of the planned further action on pressurized designs announced in the evaporative emissions control final rule (58 FR 16012). However, it should be noted that the enhanced evaporative emissions rule will require controls for systems whose pressure exceeds 10 inches H₂O, and thus control is already in place for these extreme situations.

6. Spitback Test

EPA believes, and manufacturers' comments indicate, that vehicles would not be expected to comply with the refueling emission standard if they emitted significant spitback emissions during the refueling test. Fuel spilled on the side of the vehicle or in the SHED when the fuel nozzle shuts off will evaporate and be included as part of the refueling emissions. In recognition of this effect, this final rule also waives the spitback testing requirement for vehicles being certified to meet the ORVR requirements. Similar to the provision for "inherently low refueling emission vehicles" discussed above, manufacturers can, at their option, certify as part of the certification application, that they agree with EPA's assessment regarding the effect of spitback emissions on the ability to pass the refueling emission standard and that their vehicle passes the spitback test standard. Of course, manufacturers may elect to comply with the spitback test in lieu of using this waiver option.

Compliance with the spitback standard is still required, and EPA is retaining the spitback test and standard promulgated in the enhanced evaporative emissions control rule (58 FR 16002, March 24, 1993). EPA may conduct or require manufacturers to conduct the spitback test to demonstrate

compliance should concerns over vehicle spitback arise.

7. Nozzle Geometry Standards

In the NPRM, EPA asked for comment on the need for fuel nozzle geometry standards as part of an ORVR program, and suggested that auto makers and nozzle manufacturers undertake a voluntary initiative to develop national consensus standards in this area. This initiative is being undertaken under the auspices of the Society of Automotive Engineers (SAE). An SAE technical committee, comprised of auto maker, fuel nozzle manufacturer, and other representatives, is considering revisions to SAE standard J285 "Gasoline Dispenser Nozzle Spouts".

It is important that nozzles used in the design and testing of ORVR-equipped vehicles be similar to those found in use. Should this committee reach consensus on fuel nozzle geometry specifications, EPA will use a nozzle meeting this standard in all refueling emissions compliance testing, if the nozzle manufacturers agree to adopt these specifications for future retail and commercial fuel nozzles and the auto manufacturers design their ORVR systems to accommodate a nozzle with this geometry. If no standard is developed for nozzle geometry or if the above agreements cannot be reached, EPA will use any commercially available nozzle in its testing.

8. Level of the Standard

This final rule adopts a refueling test standard of 0.20 grams of hydrocarbon emissions per gallon (g/gal) of fuel pumped (0.053 g/liter). This standard applies to all vehicle classes covered by this rule and covers the full useful life. Setting the standard at this level ensures that the standard that meets the statutory requirement to provide a minimum emission capture efficiency of 95 percent, as discussed below.

The August 1987 NPRM included a proposed refueling emission standard of 0.10 g/gal (0.026 g/liter) of fuel pumped, which at that time represented about a 98 percent emissions reduction from uncontrolled levels. Subsequently, the 1990 CAAA called for a refueling emission standard representing at least a 95 percent reduction over uncontrolled levels. EPA determined that this reduction corresponds to a standard of about 0.25 g/gal (0.066 g/liter) and requested comment in the May 1993 notice on the setting of a standard in the 0.10 to 0.25 g/gal range.

Manufacturers supported a standard of 0.20 g/gal, arguing that this standard would satisfy the CAA minimum requirement while providing for full

useful life compliance and design flexibility. API and other commenters felt that a standard providing a 98 percent level of control is justified based on demonstrated and cost effective technology.

After analyzing the comments and the projected in-use emission impacts, EPA has selected a standard of 0.20 g/gal. This standard was chosen because it meets or exceeds the statutory minimum requirement and, since it is representative of most refueling situations reasonably likely to occur (Cf. *Edison Electric Institute v. EPA*, 2F.3J 438, 446-47 (D.C. Cir. 1993)). At the same time, it meets the manufacturers' need for adequate design margin and flexibility. As is discussed in the Summary and Analysis of Comments, the nature of the canister-based control technology is such that setting the standard at a lower level would not be expected to achieve additional emission reductions in use. Systems will need to be designed for essentially zero emissions, with the standard providing an allowance for vehicle and test variability. It may also enhance the use of liquid fillneck seals which are projected to have lower costs, good in-use performance, and present no safety concerns.

D. Safety of ORVR Systems

1. Background

Section 202(a)(6) of the 1990 CAA Amendments (as well as its predecessor provision) requires EPA to consult with the Secretary of Transportation regarding the safety of vehicle-based (ORVR) systems for the control of vehicle refueling emissions. EPA began this consultation in the Spring of 1986, prior to the NPRM, and the consultation has continued throughout the various stages of this rulemaking. DoT was represented by NHTSA throughout this process. A record of this consultation and the various analyses conducted by EPA and NHTSA to assess the safety issue is available in the public docket and is discussed in the April 15, 1992 Federal Register notice regarding ORVR controls (57 FR 13220). Early in the consultation process, NHTSA raised concerns about the safety of ORVR canister systems, and throughout the various stages of the rulemaking, safety has been a central issue in the public comments and in the deliberations on the ORVR rulemaking. Unresolved concerns regarding the safety of ORVR canister systems (at least relative to Stage II systems) delayed promulgation of the NPRM prior to the 1990 CAAAs and, in April 1992, led EPA to decide not to require ORVR controls at that

time. Given the concerns raised about vehicle safety, it is important to address the potential safety concerns as part of the implementation of the ORVR requirement.

2. Test Procedure/Safety

The safety comments regarding ORVR canister systems focused primarily on the concern that ORVR systems would increase fuel system complexity and that this would create vehicle safety risks. Many manufacturers' comments on the NPRM indicated that the test procedure, as proposed in 1987, would force the use of non-integrated (separate) systems for refueling and evaporative emissions control. They characterized these systems as making the fuel vapor control system more complex than current evaporative control systems, thus creating the potential for a safety risk.

As noted earlier, the DC Circuit held that the consultation requirement in section 202(a)(6) does not alter EPA's duty to issue ORVR requirements. After the decision was issued and after publication of EPA's May 27, 1993 Federal Register notice (58 FR 30731), EPA held technical discussions with representatives of AAMA regarding the ORVR test procedure (See items IV-E-101,102,105,106 in the public docket for this rulemaking). The purpose of these discussions was to identify potential changes to the ORVR test procedure which, if enacted, would facilitate the use of an integrated evaporative/refueling control system approach with a liquid seal in the fillneck. (As was discussed above, in March 1993, EPA published a final rule requiring enhanced evaporative controls on gasoline-powered LDVs, LDTs, and HDVs. The enhanced evaporative requirements will lead to an increase in the size of the canister used to capture evaporative emissions, an upgrade in the purge system capabilities, as well as other system changes and improvements.) An integrated system approach would allow manufacturers to make use of the upgraded evaporative control hardware (common carbon canister, purge system, vapor hoses, etc.) as part of their ORVR control strategy and thus address both system complexity and cost issues. This approach would be used in lieu of the non-integrated control system approaches which were characterized as being complex and potentially less safe.

ORVR test procedure changes which would ease the use of integrated evaporative/refueling control systems with liquid fillneck seal approaches were identified. EPA explained this option at the July 22, 1993 public

hearing and requested additional public comment.

Auto manufacturer comments supported this approach. For example, Chrysler Corporation's comments indicated:

"Chrysler believes that the proposed AAMA revisions to the test procedure and the 0.20 g/gal. standard will allow Chrysler to design safe, efficient ORVR systems."

Ford Motor Company's comments stated:

"Ford recommends that EPA adopt the test procedure changes and standards outlined by AAMA at the Hearing on July 22, 1993, and contained in the attached comments. These changes should allow for the design and development of a canister-based, integrated refueling and evaporative emissions system which is less complex than a nonintegrated system and which addresses the safety issues raised in previous rulemakings. These procedural changes along with others identified in the comments should allow EPA, in consultation with NHTSA, to find that integrated systems do not present an unreasonable risk to automotive safety."

General Motors expressed similar views:

"The ORVR test procedure changes described in these comments are critical to permitting manufacturers to develop ORVR systems for passenger cars that minimize or eliminate any adverse impact upon motor vehicle safety."

And, in summary, an October 13, 1993 AAMA letter to NHTSA stated that:

"We believe this procedure will allow the use of an integrated ORVR/evaporative emissions system including a common carbon canister. An integrated ORVR/evaporative emissions system will allow manufacturers to design and build safe, efficient ORVR systems."

Comments by other manufacturers also supported this position. Accordingly, this rule enacts the test procedure option identified above. It is supported by AAMA, the Association of International Automobile Manufacturers (AIAM), and the individual manufacturers and, according to their comments, minimizes their longstanding vehicle safety concerns.

3. DOT Consultation

In response to the changed circumstances since its prior safety analysis, DOT/NHTSA undertook an independent assessment of vehicle safety concerns associated with ORVR systems. In November 1993, NHTSA completed a study entitled "An Assessment of Onboard Refueling Vapor Recovery System Safety". This document reexamined the conclusions raised in their July 1991 study, upon which EPA relied heavily on its April 1992 decision not to require ORVR controls.

In this recent study, NHTSA revisited the principal findings of its July 1991

report to consider the positive safety impacts of the test procedure changes and other changed circumstances. The NHTSA report, which is available in the public docket, reached the following general conclusion regarding ORVR safety:

"Basically, there were three principal areas of concern pointed out in the July 1991 report: the increased size of vapor canisters to hold the fuel vapors, the mechanical complexity of the ORVR system, and the ability of the ORVR system to safely manage and purge the increased volume of vapors."

As discussed above, technical developments, and test procedure and regulatory changes that have occurred since the July 1991 safety assessment, have had the net effect of reducing the safety concerns raised in the July 1991 report. The majority of vehicle manufacturers have stated that it is now possible to design safe ORVR systems that will function properly under all operating conditions. However, there still remains some small unquantifiable increase in safety risk due to the addition of the ORVR systems. This risk is unquantifiable since there are no data upon which to base a numerical estimate."

Thus, NHTSA views the changed circumstances, including the final test procedure and the use of integrated systems, as addressing many of their previous concerns. They also acknowledge that absent actual data they cannot determine the level of risk, and thus conclude that risks are unquantifiable. While the NHTSA report contained a brief assessment as to why trucks might be different than cars and stated that truck prototype systems and field tests for truck ORVR systems would be beneficial, no special safety risks were cited for using ORVR canisters to control LDT/HDV refueling emissions.

4. EPA Assessment

EPA is withdrawing its April, 1992 finding that ORVR canisters pose unreasonable safety risks. First, that determination was based on an improper comparison with Stage II controls. *NRDC v. Reilly*, 983 F.2d at 271. Considered on their own, ORVR canisters do not appear to pose significant safety risks. Indeed, as the Agency noted in 1987, this appears to be particularly true for integrated evaporative/refueling control systems—which now appear to be the preferred control system.

Second, EPA is swayed because NHTSA has reviewed the safety of ORVR systems in light of recent developments and subsequently has withdrawn most of the adverse conclusions in the 1991 report. NHTSA also indicates (1993 Report pp. 17-24) that some of its remaining concerns can

be addressed by choosing proper designs for canister systems. As noted above, EPA has taken NHTSA's views strongly into account throughout the course of this rulemaking, and accordingly is influenced by NHTSA's more positive outlook on ORVR canister safety.

The record further indicates that installation of ORVR canisters can have some positive impacts on safety. See EPA's "Summary and Analysis of Comments on the Potential Safety Implications of ORVR Systems" (IV-H-04). Safety benefits include removal of the external fuel vapor vent line from the fillneck of these vehicles, the expected move of the canister from the engine compartment to the rear of the vehicle, the resultant shortening of the vapor vent line, and the capture of fuel vapor previously vented at the service station during refueling. All of these actions directionally reduce the risk of vehicle fires in crash and non-crash situations.

In sum, given that the manufacturers indicate that integrated evaporative/refueling control systems minimize their safety concerns, NHTSA's significant reduction in concerns, EPA's longstanding view of the safety of integrated refueling/evaporative control systems and the safety benefits of ORVR controls, EPA has decided to withdraw its April 15, 1992 finding (57 FR 13230-13231). Specifically, EPA concludes that onboard canister controls do not pose an unreasonable risk to public safety. ORVR canister systems are not inherently unsafe.

Several commenters expressed concern about applying the ORVR requirement to trucks and incomplete vehicles (i.e., those produced by secondary manufacturers). However, for the most part, EPA does not believe the technical circumstances here to be substantially different than for LDVs. All trucks, including those produced by secondary manufacturers, are subject to the enhanced evaporative emission requirements and will have to upgrade their control systems in response to these new requirements. Also, the ORVR test procedure for these vehicles, as for LDVs, would facilitate the use of integrated evaporative/refueling control systems. Potential safety concerns of vehicles completed by secondary manufacturers should not be substantially different for integrated enhanced evaporative/refueling control systems than they are for enhanced evaporative control systems alone. This is especially the case for those incomplete vehicles delivered to the secondary manufacturer with a complete fuel system as are most

incomplete LDTs. Also, the potential safety benefits of ORVR systems would accrue to trucks and secondary manufacturer vehicles as well as to LDVs. Thus, EPA believes the safety concerns, if any, to be similar to those for LDVs. In fact, while the manufacturers opposed extending the ORVR requirement to trucks on several grounds, none indicated that safe truck ORVR systems were not possible.

In any event, EPA's decision not to finalize ORVR requirements for HDVs (both complete and incomplete HDVs) at this time and to delay LDT implementation for three years or more should minimize any remaining safety concerns about ORVR systems for trucks (IV-H-23).

5. Safety Reviews

Nonetheless, EPA is very sensitive to the uncertainties expressed by NHTSA, and plans a program to implement its authority to ensure safe systems. Sections 202(a)(4) and 206(a)(3)(A), (B) of the CAA give EPA broad authority to address the safety of emission control systems. Section 202(a)(4) reads:

Effective with respect to vehicles and engines manufactured after model year 1978, no emission control device, system, or element of design shall be used in a new motor vehicle or new motor vehicle engine for purposes of complying with standards prescribed under this subsection if such device, system, or element of design will cause or contribute to an unreasonable risk to public health, welfare, or safety in its operation or function.

and section 206(a)(3)(A), (B) reads:

(A) A certificate of conformity may be issued under this section only if the Administrator determines that the manufacturer (or in the case of a vehicle or engine for import, any person) has established to the satisfaction of the Administrator that any emission control device, system, or element of design installed on, or incorporated in, such vehicle or engine conforms to applicable requirements of section 202(a)(4).

(B) The Administrator may conduct such tests and may require the manufacturer (or any such person) to conduct such tests and provide such information as is necessary to carry out subparagraph (A) of this paragraph. * * *

This authority has been implemented for more than ten years. The Code of Federal Regulations § 86.084-5(b) requires that any system installed on a new motor vehicle to enable such a vehicle to conform to standards shall not in its operation, function, or malfunction result in any unsafe condition endangering the motor vehicle, its occupants, or persons or property in close proximity to the vehicle. Furthermore, § 86.091-23(d)

requires that manufacturers certify that the vehicles for which emission certification is requested conform to the requirements of § 86.084-5(b). The manufacturer must also agree to provide descriptions of the tests conducted, the results of such tests, and other information upon which that determination is based. Presently this safety certification is submitted in the application for certification which manufacturers must submit for every vehicle model they plan to produce for commerce in the United States. EPA intends to use this authority and the approach described above to implement the ORVR requirement. See also *NRDC v. Reilly*, 983 F.2d at 267 (ultimate issue of safety is to be addressed at certification).

The ultimate responsibility for ORVR system safety (both design and performance in use) rests with the manufacturers. As part of the application for certification, manufacturers will be required to make the declarations prescribed in § 86.091-23 (d). During review of the certification application, EPA will study the design of the vehicle's ORVR system, its on-vehicle configuration and operation, and will consult directly with NHTSA on these applications. Special consideration will be given to the potential concerns raised in the course of the rulemaking process such as component locations, materials used in the components, and connections between components. For canister-based systems, items of special interest will include canister location and shell construction, canister/vapor hose access for I/M testing, vapor hose routing and wall thickness, integrity of connections, and proximity of potential ignition sources. In addition, manufacturers will want to consider concerns raised in past NHTSA safety assessments. The November 1993 NHTSA report makes it clear that proper design is critical in system safety performance.

As was mentioned above, EPA could ask for any or all of the information supporting the manufacturer's safety assessment and EPA will consider all information presented by the manufacturer in this assessment whether it is based on testing, engineering analysis, or some other source. As is present practice, EPA expects that manufacturers will conduct engineering risk assessments and component, system, and vehicle tests to assess the safety of various ORVR system designs and on-vehicle configurations and make any modifications or devise and implement the engineering solutions needed to address potential problems.

ORVR-equipped vehicles would have to meet the applicable FMVSSs, including FMVSS 301 related to Fuel System Integrity. As noted above, NHTSA is considering amending the latter to address ORVR system safety. However, section 206(a)(3)(B) of the CAA provides EPA with broad latitude to require manufacturers to conduct tests or provide other information as may be needed to determine if an ORVR system meets the vehicle safety requirements prescribed in section 202(a)(4).

In the May 27, 1993 Federal Register notice, EPA asked for comment on whether any specific tests or other information should be required up front as part of the certification process and, if so, what information and in what form would be most appropriate. No commenter provided input on this point and, given the resolution of the safety issue, EPA has decided not to require any specific information at this time.

In the same notice, EPA also asked comment from auto manufacturers and other interested parties on the desirability of developing a process, after promulgation of the final rule, through which there could be a dialogue with EPA and NHTSA on design questions related to the in-use safety of ORVR systems. Manufacturers' comments indicated that resolution of the safety issue as part of the rule was most important, and they expressed little interest in establishing a dialogue at this time. EPA remains willing to work with the auto manufacturers in this area at any time in the future.

Although ultimate safety determinations must await the certification process, EPA wishes to repeat that it knows of nothing that would preclude the certification of properly designed ORVR canister systems on LDVs and LDTs. EPA stresses that it has never determined for purposes of certification under section 206 that any specific ORVR system (including ORVR canisters) would present an unreasonable risk to public safety within the meaning of section 202(a)(4), 58 FR 30740-30741. Consequently, the potential existence of means other than canisters to control refueling emissions should not preclude certification of properly-designed canister-based control systems.

6. Alternative Control Technologies

As part of the technical analysis supporting the NPRM, EPA indicated that control technologies such as collapsible fuel bladders and cloth impregnated with activated carbon absorbers were potential alternatives to carbon canisters. As part of the

technology assessment for this final rule, EPA reviewed the record of the rule to see what options had been put forth and to assess what progress had been made in applying these technologies to vehicle fuel systems. The collective determination from the review was that, in some cases, parties have pursued development of these technologies for other applications, such as aircraft fuel systems and chemical protection suits, but that less overall progress has been made in applying these technologies to automotive applications. In some cases no progress was made, and the technical feasibility of these designs therefore remains problematic. In one case commercial development was dependent on industry or government support. While EPA cannot arbitrarily preclude the use of any control system design approach, EPA concludes that such alternatives are not generally likely to be available for production application in the time frame when manufacturers must begin to install ORVR systems on their vehicles. The potential existence of these alternative control approaches does not preclude certification of properly designed canister-based ORVR controls.

E. Certification Provisions

1. General

Today's action modifies the certification process by adding the requirement for demonstrating compliance with refueling emission standards according to the prescribed phase-in schedule. This action is expected to have no direct impact on manufacturers' fuel economy programs. The following paragraphs summarize EPA's certification and fuel economy requirements with regard to ORVR controls.

The regulations promulgated in this action provide new definitions for refueling families and refueling emission control systems. For LDVs and LDTs, manufacturers will normally perform a refueling test on one emission-data vehicle per refueling emission control system and submit this test data (low altitude data) to EPA for possible confirmatory testing. Data submitted to EPA should include the exhaust emissions data from the exhaust emissions test which is contained in the refueling test sequence. The data should demonstrate compliance with all applicable emission standards. Manufacturers may submit high altitude test data to EPA for possible confirmatory testing, or provide a statement in the application for certification that vehicles will comply

with applicable emission standards at high altitude. Note that this action requires manufacturers to perform exhaust and evaporative emission tests using pre-loaded canisters. Also note that vehicles inherently low in refueling emissions can be certified using an engineering evaluation approved by the Administrator in lieu of testing.

After the testing has been completed, manufacturers typically submit to EPA an application for certification, containing information about the vehicles intended for production, emission test data used to support certification, statements of compliance with emission standards and device safety, and other information required by EPA. This action will require manufacturers to provide refueling information in their application for certification. To determine compliance with applicable emission standards, this action requires the refueling emission test data to be adjusted by an additive deterioration factor, developed by the manufacturer using good engineering judgement to assure that vehicles will comply in actual use for the useful life of the vehicle/engine. Should EPA have any concerns about the safety of the ORVR refueling system used by the manufacturer, certification may be delayed or denied, under section 202(a)(4) and 206(a)(3) of the CAA. This should not happen, however, with properly designed systems.

2. Fees

EPA-incurred costs associated with the certification program can be recovered in the Motor Vehicle and Engine Compliance Program (MVECP) fee program [see 40 CFR part 86, subpart J]. Today's action is likely to increase the amount of the MVECP fee which is collected during the certification process since the Agency's burden is expected to increase. As discussed in the Fee Updating Procedure section of the Fees final rule, (57 FR 30049, July 7, 1992), EPA will periodically review its fees. During that fee updating process, the Agency intends to assess the additional burden incurred due to this action, and if, as a result of the review, EPA determines that there has been a significant change in the MVECP costs, a proposal to revise the fee schedule will be published in the *Federal Register*. Thus, manufacturers will be provided with sufficient notice and comment period prior to any changes in the amount of the fee collected.

3. Fuel Economy

This action does not have any direct impact on fuel economy labeling,

Corporate Average Fuel Economy (CAFE), or gas guzzler data submission requirements. Because the changes to the test procedure promulgated in this action may affect fuel economy measurements,¹ EPA will not require use of the new procedure for fuel economy testing. Therefore, to generate city fuel economy values, manufacturers may use the previously established Federal Test Procedure or may optionally use the pre-loaded canister test procedures established in this action (which are essentially the same test procedures established in the enhanced evaporative emission final rule, ref. 58 FR 16002, March 24, 1993). EPA will normally use the same procedure for confirmatory testing as used by the manufacturer.

F. Onboard Diagnostics Requirements

Today's action extends the existing provisions for onboard diagnostic (OBD) systems to ORVR equipment. (The final rule for the existing program was published February 19, 1993, 58 FR 9468). ORVR systems are very similar to evaporative systems and this action requires that the OBD performance requirements which currently apply to evaporative systems apply on LDVs and LDTs also to ORVR systems, both integrated and non-integrated.

As with the current OBD program for evaporative-only systems, OBD monitoring of the ORVR system is not mandatory. However, the same approach to in-use testing will be used. That is, any in-use vehicle with evaporative emissions of 30 g/test or higher measured over the first 24 hours of the three-day diurnal from the revised evaporative test procedure will be flagged for further evaluation. That evaluation will consist of making any necessary repairs to ensure system integrity, and then making a 0.04 inch (1 mm) orifice anywhere within the system. To demonstrate compliance, operating the vehicle in this condition over the full FTP must cause the malfunction indicator light (MIL) to illuminate. A failure of the OBD system to signal a problem could contribute to a decision to initiate a recall action. While a system operating in such a manner (i.e., without the MIL going on) may not detect a malfunction related solely to refueling events, EPA

¹ The fuel economy measurements may be affected because vehicles will now be tested with pre-loaded evaporative/onboard canisters. Purging these canisters during the city and highway tests could affect the air/fuel ratio of the engine which, in turn, could affect the measured fuel economy values for the test vehicle. EPA expects the effect to be minimal, although it is possible that measured fuel economy values could change for some vehicles.

nevertheless believes that such a system will be sufficient if it detects general problems with vapor and purge system integrity.

For integrated ORVR systems, manufacturers can use the same OBD systems they use to monitor evaporative systems. For non-integrated systems, both the evaporative and refueling sides of the system will need to be monitored. It should be possible for the same technology to be used for both monitoring tasks in most cases. For example, a strategy that uses engine vacuum to draw a certain minimum level of vacuum or uses a small pump to generate a positive pressure in the entire vapor system could include a non-integrated ORVR canister in the monitoring as well. For both integrated and non-integrated systems, EPA believes this approach will result in an adequate level of certainty that key potential malfunctions in ORVR systems will be identified and repaired. Since a 0.04 inch orifice would emit only about 3 grams of hydrocarbon vapor in a normal refueling event, this approach will assure a high level of in-use control.

G. Enforcement and In-Use Performance

1. Liability Periods

In accordance with the CAAA of 1990, ORVR controls for new LDVs must have useful lives of 10 years or 100,000 miles (160,000 km) or the equivalent, with recall testing allowed up to 7 years or 75,000 miles (120,000 km) or the equivalent, whichever occurs first (CAA section 202(d)(1); 42 U.S.C. 7521(d)(1)). LDTs with loaded vehicle weight up to 3,750 pounds (1,700 kg) have the same useful life requirement as LDVs. All other LDTs have a useful life requirement of 11 years or 120,000 miles (190,000 km) or the equivalent, whichever occurs first. Pursuant to section 207(i), expected designs for ORVR controls are not "specified major emission control components," because they cost less than \$200. Therefore, unless more expensive components are utilized, manufacturers need only warrant them for 2 years or 24,000 miles (39,000 km) or the equivalent, whichever occurs first. If, at some time in the future, the Administrator should determine that the ORVR controls are "specified major emission control components," manufacturers must warrant them for 8 years or 80,000 miles (130,000 km) or the equivalent, whichever occurs first (CAA section 207(i)(2); 42 U.S.C. 7541(i)(2)).

2. Selective Enforcement Audit Testing

Pursuant to CAA section 206(b), the Administrator is authorized to test new motor vehicles in order to determine whether vehicles being manufactured do in fact conform to the regulations with respect to which a certificate of conformity was issued. Therefore, LDVs and LDTs that are certified to meet the refueling emission standard are subject to this standard in a Selective Enforcement Audit (SEA).

In the 1987 NPRM, EPA discussed two testing issues which resulted from performing the refueling test on newly built motor vehicles. The first issue regarded the possible influence of new vehicle background evaporative emissions (i.e., hydrocarbon emissions from such things as the fresh paint on a new vehicle which has not fully cured) on refueling emission measurements. Historically, EPA has not conducted SEA testing for evaporative emissions due to the relatively large non-fuel background emissions emitted from newly built vehicles. However, EPA expected that background emissions would not significantly affect refueling emission measurements because the actual time for background evaporative losses to occur would be very short (refueling emission measurements have a duration of less than five minutes). Also, refueling measurements would be taken at an ambient temperature of approximately 80° F, so fuel and non-fuel evaporative emissions would not be increased by heating of the tank, engine, or other subsystems, as would occur during the usual evaporative emissions test. However, to address any concerns over the effects of background emissions, EPA proposed an additional SEA testing procedure where background emissions would be measured and then subtracted from the refueling emissions measurement. This additional procedure would be used if manufacturers provided evidence that newly built vehicle background emissions would significantly exceed in-use vehicle background emissions, which were intended to be included in the refueling standard.

Because manufacturers' comments raised concerns about conducting the refueling test without measuring for background emissions, and about the extra time needed for the measurement, this final rule will include the new vehicle background emissions measurement proposed in the 1987 NPRM as an optional procedure. However, this decision must be made before SEA testing is conducted. It will apply to all vehicles tested. EPA realizes

that when this background procedure is performed, in-use background emissions, which are included in the refueling standard, will also be subtracted from the refueling measurement. At this time, EPA has no way of separating new vehicle background emissions from in-use background emissions. For purposes of SEA testing only, both may therefore be subtracted off. Background emissions from the refueling measurements during in-use testing will not be subtracted since the standard includes measurement of such emissions and there is no concern regarding the higher background emissions from new vehicles. Additionally, upon approval by EPA, a manufacturer may develop and use its own background emissions measurement procedure for use during SEA testing. Revisions to 40 CFR part 86, subpart G, § 86.608 (for LDVs) and to subpart K, § 86.1008 (for LDTs) incorporate this additional procedure.

The second issue pertained to the unstabilized condition of the vapor storage canister(s) prior to SEA testing. In the NPRM, EPA proposed that the canisters of SEA vehicles be stabilized through a bench procedure, prior to refueling emissions testing, to help account for any large differences that may exist between an unused canister and a broken-in (aged) canister.

Most manufacturers commented that artificially aging canisters prior to emissions testing using either the procedure in the 1987 proposal or the evaporative emissions rulemaking is inconsistent with SEA testing and that performing the aging process would significantly add to the time needed to complete testing. This would make it difficult to conduct the correct number of tests per twenty-four hour period as proposed by § 86.608(g) for LDVs and § 86.1008(g)(3) for LDTs. Additionally, several manufacturers indicated that if their vehicles were to undergo the entire refueling test procedure (with all of the necessary preconditioning drive-downs), the vehicles may accumulate too many miles to be sold as new.

EPA agrees that the proposed bench-aging procedure, as well as the updated procedure, adds significant time to SEA testing and, therefore, this final rule does not include an artificial aging procedure. EPA would have preferred to include an aged canister in the SEA test requirement, but at this point sees no practical way to incorporate the aged canister requirement and also address the manufacturers' concerns. Manufacturers are required to perform the complete refueling test with new canisters for both integrated and non-integrated designs. However, if

manufacturers still have concerns about conducting the required number of tests per twenty-four hour period or accumulating too much mileage, they may, upon EPA approval, perform the seal test described in Section C above, for either integrated or non-integrated designs, during an SEA. The seal test is aimed at verifying the integrity of fillpipe seals and vapor lines and eliminates consideration of potential canister emissions by thoroughly bench purging the canister prior to the refueling event. The canister preconditioning and preparatory driving are also eliminated, allowing manufacturers to complete testing without the additional mileage accumulation associated with the full test. Finally, the same 0.20 g/gal standard would apply and failure of the seal test would be considered equivalent to failing the full refueling emissions test.

During an SEA, manufacturers will test selected SEA vehicles until a pass or fail decision has been reached for both the exhaust emission test and the refueling test. The 0.20 g/gal refueling standard is subject to 40 percent Acceptable Quality Level, which is the same criteria used for exhaust emissions.

3. Nonconformance Penalties (NCPs)

In the regulations governing NCPs (40 CFR 86.1103-87), EPA specifies the criteria which must be met before an NCP will be made available for a new emission standard applicable to any subclass of heavy-duty vehicles (i.e., vehicles with a GVWR in excess of 6000 lbs, including the LDTs with a GVWR between 6,001 and 8,500 lbs, which are covered in this regulation (HLDTs)). As described in those regulations, an NCP may be established for a new emission standard if substantial work will be required to meet the new standard and a technological laggard is likely to exist. Substantial work means the application of technology not previously used in a vehicle class or subclass or the significant modification of existing technology or design parameters.

While ORVR systems have not been used to control refueling emissions on HLDTs and HDVs, EPA does not believe that an ORVR requirement constitutes substantial work as defined in the NCP regulations nor does EPA believe that a technological laggard will exist in the vehicle groups. The ORVR system is expected to be a minor extension of existing evaporative emission control technology rather than the application of new technology or the significant modification of existing technology or design. EPA expects manufacturers

would use activated carbon for storage of refueling vapors and air stripping for regeneration, just as are now used in evaporative emission control systems on LDTs and heavy-duty gasoline vehicles. The purge systems will essentially be the same as those used for evaporative controls.

While there may be some subjective disagreement on whether "substantial work" will be involved in meeting the standard, EPA believes all the manufacturers of HLDTs will be able to comply with the standard and that no technological laggard will exist. EPA recognizes that effort will be required to equip the HLDTs with ORVR systems, but the control technology required is well defined and available to all affected manufacturers. Furthermore, this regulation provides a generous leadtime and control is phased in over a three-model-year period. Both of these factors will provide relief to any manufacturer who is having difficulty. In addition, the adopted test procedures address the manufacturers' technical concerns and should negate the need for an NCP for any manufacturer.

The regulations also permit consideration of NCPs for other emission standards, for which NCPs are not already provided, if the standards become more difficult to meet as a result of a new standard. However, as the test procedure is structured, EPA does not believe that manufacturers will encounter significant additional difficulty in maintaining compliance with exhaust or evaporative emission standards as a result of the ORVR requirement.

In sum, "substantial work" will not be required and no technological laggards are expected. Therefore, EPA will not make NCPs available for refueling exhaust or evaporative emission standards.

4. In-Use Performance

As in the case of other evaporative emissions, the control of refueling emissions is highly dependent on vehicle operating and environmental factors such as vehicle speed and ambient temperature. EPA recognizes, therefore, that simply passing a test procedure cannot always ensure vehicle designs that achieve good control in use.

EPA expects that manufacturers will design vehicles that pass the test and perform well in use. However, in order to best achieve the statutory goal of a high degree of control efficiency, the Agency will, if necessary, make full use of existing regulations against defeat devices. Thus, EPA may deny certification upon determination that a particular refueling emission control

system design constitutes a defeat device (40 CFR 86.094-16).² EPA could also invoke the defeat device regulations in the course or on the basis of the results of selective enforcement audit (SEA) and recall testing.

The following discussion, while not necessarily all-inclusive, provides examples of potential defeat devices related to compliance with refueling emission standards. EPA's main concern is that some purge strategies used to pass emission tests may be ineffective over a wide range of in-use driving patterns. For integrated systems, this concern will be addressed in the Agency's evaluation of evaporative system purge strategies during the certification process, as discussed in the evaporative emissions final rule (58 FR at 16007). The Agency will extend this evaluation to non-integrated refueling system purge strategies as well.

This evaluation is intended to identify vehicle designs that, though capable of passing emission tests, may not function effectively in use. These would include non-integrated system designs that purge well during the prolonged warm-vehicle driving allowed in the refueling test drivetrain, but not in the driving patterns involving frequent cold starts often encountered in use.

EPA also will consider to be defeat devices those designs that purge at substantially higher rates during high-speed operation than during low-speed operation, such that they primarily depend on the high-speed purge to pass emission tests. Even if such designs do pass the test, they may produce high refueling emissions if they purge substantially less during typical non-freeway urban driving than during the refueling test drivetrain. Also, designs that shut purge off at any time for other than safety reasons would be closely examined by EPA for possible classification as defeat devices.

III. Public Participation

ORVR controls have been under consideration by EPA since the CAAAs of 1977. The public process, which first began in 1978, has proceeded through various stages over the past 15 years.

In response to the provisions of section 202(a)(6) of the 1977 CAAAs, EPA initiated a public process in 1978 to receive comments on the feasibility and desirability of implementing ORVR controls. In 1980, EPA published a technical report which tentatively concluded that ORVR controls were feasible for LDVs. However, no action

² "Prohibition of Use of Emission Control Defeat Devices," MSPC Advisory Circular No. 24, December 11, 1972.

was taken at the time due to concerns over economic difficulties in the auto industry.

EPA reinstituted its assessment of ORVR controls in 1983 as part of a broad assessment of the strategies available to control emissions in the gasoline marketing industry. As part of this study, in August 1984, EPA published an extensive analysis of the options available to control refueling emissions including ORVR controls. Supporting documentation for this analysis are in public docket A-84-07, along with the public comments received on the "Gasoline Marketing Study".

After receiving comments on the study, EPA prepared an in-depth analysis of the comments, developed further work on several key issues related to ORVR controls, and conducted enhanced assessments of the options under consideration. This resulted in a draft Regulatory Impact Analysis, Response to Public Comments, and related analysis and documentation related to ORVR controls. This information is also in public docket A-84-07. A public meeting regarding the ORVR test procedure was also held during this time frame.

The results of EPA's study of emission control options for the gasoline marketing industry culminated in an August 1987 proposal to require ORVR controls on gasoline-powered LDVs, LDTs, and HDVs. A public hearing was held in October 1987 and the comment period closed in February 1988.

Information supporting the NPRM and comments on the proposal are in public docket A-87-11. However, due initially to safety concerns raised by some commenters and later to pending revisions to the CAA, EPA deferred action on finalizing the ORVR rule.

The 1990 CAAAs contained provisions requiring an integrated program of LDV ORVR and Stage II controls. In response to the ORVR provisions, on September 3, 1991 (56 FR 43682), EPA published a Federal Register notice seeking further comment on the NPRM and the safety issues related to ORVR controls including a safety assessment prepared by the DoT. A public hearing was held to receive comment on these issues on September 26, 27, 1991. The comment period closed in late October 1991. These comments and related materials are in public docket A-87-11. On April 15, 1992, EPA published a Federal Register notice (57 FR 13220) announcing its decision not to proceed with implementing ORVR controls at that

time, based on safety concerns raised by DoT.

Subsequently, a panel of the DC Circuit overturned EPA's 1992 action. EPA then published another Federal Register notice (May 27, 1993, 58 FR 30731) raising issues for public comment and allowing approximately 90 days for comment. Another public hearing seeking comment on the NPRM and other changed circumstances was also held. This hearing was held on July 22, 1993 and comments closed 30 days later. These comments are in public docket A-87-11 as are EPA materials in support of the notice.

During the years in which ORVR has been under consideration, there have been at least five formal opportunities for oral and/or written public comment. In addition, numerous other public interactions have occurred on this matter and have been documented and placed in the docket for public review.

Over the fifteen years of the ORVR public process, EPA has received hundreds of written comments regarding this requirement. However, many of the past comments have essentially been addressed by changed circumstances or other developments. Major issues such as fuel volatility and improved vehicle evaporative emission controls have now been decided by regulation, and the control of refueling emissions using Stage II equipment was addressed by the 1990 CAAAs. Also, many previous comments in areas such as ORVR costs and test procedures were factored into subsequent analyses and notices, making only the most recent set of comments applicable.

The public docket contains a Summary and Analysis of Comments document which addresses still-relevant issues raised by the commenters. It generally does not address past comments on issues which have been resolved by related statutory or regulatory action or through subsequent published analyses or Federal Register notices. Also, it does not address comments which were received at one point but later negated by subsequent comments due to further developments and changed circumstances. The Summary and Analysis of Comments focuses primarily on comments received in response to the June 1993 Federal Register notice and unresolved comments from both the August 1987 NPRM and September 1991 Federal Register notices.

IV. Regulatory Impact Analysis

As part of the assessment and decision making process regarding ORVR controls, EPA has prepared an in-depth Regulatory Impact Analysis (RIA).

This RIA is available in the public docket. The RIA assesses the environmental impact, costs, and cost effectiveness of ORVR controls, as well as other associated benefits, for the combined LDV and LDT program described above for a number of scenarios. It also includes a sensitivity analysis for several key parameters. It should be noted that the RIA was completed prior to EPA's decision to delay the requirements for LDTs and to exclude HDVs. These controls were included in the analysis and were assumed to begin in 1998. EPA expects that inclusion of these items in the analysis has no significant effect on the results and does not affect the conclusions which are based on the analysis. The major findings of the RIA for LDV and LDT ORVR controls are presented below.

Before discussing these key findings, it is important to note that EPA analysis has assumed that ORVR controls will apply nationwide to all vehicle classes. However, the scenarios analyzed focus not only on the overall nationwide control program, but also on the control in the ozone NAAs. Furthermore, since Stage II controls are in place or expected in most of the ozone NAAs, the incremental impacts of ORVR controls relative to Stage II are assessed as well.

A. Environmental Impact

While refueling emissions control has value whenever it occurs, it is most critical during the ozone season. The five month ozone season refueling emission inventory is about 200,000 tons per year; when annualized, this value increases to approximately 475,000 tons per year. Refueling emissions vary directly with fuel use and fuel RVP/temperatures. Approximately 52 percent of refueling emissions occur in AAs and 48 percent occur in NAAs. Of this 48 percent, about 33 percent currently are, or are expected to be, subject to Stage II control equipment. The percentage of gasoline consumption in the NAAs and covered by Stage II is slightly higher (55 and 44 percent respectively) than the contribution to the refueling emission inventory, primarily due to RVP controls.

The emission reductions achieved by ORVR controls depend on the in-use efficiency of the control system and the area in which the control is applied. Based on the stringency of the test procedure the full life useful life certification requirement, and the salutary effect of Inspection/Maintenance (I/M) programs and onboard diagnostics, EPA expects very high in-use efficiency from ORVR

systems. In the ozone NAAs, where RVP control and basic and enhanced I/M are prevalent, EPA expects in-use efficiency of over 95 percent, with a somewhat lower value in attainment areas due to lack of RVP control and I/M. In the ozone NAAs, EPA expects in-use efficiency of approximately 97 percent. The in-use efficiency in attainment areas (which would lack RVP control and enhanced I/M) is somewhat less, and in some cases is predicted to be less than 95 percent. The Agency notes, however, that this prediction is skewed because data for the southeast U.S. indicate that average dispensed fuel temperature in that region is seven fahrenheit degrees higher than anywhere else in the country. EPA is basing its predictions on this information because it is the only available data. However, the Agency knows of no reason why dispensed fuel temperatures should be so much higher in this region. If the same range of dispensed fuel temperatures were used for the southeast region as for the southwest U.S., the in-use efficiency of properly operating systems in all areas would be predicted to average 95 percent.

The benefits vary over time and with the scenario analyzed. Benefits vary over time because of the phase-in of the ORVR requirement and the need for fleet turnover to occur before full implementation of ORVR-equipped vehicles occurs. The key variable with regard to scenarios is the presence and possible phase-out of Stage II controls. ORVR benefits in NAAs include control over service stations in NAAs without Stage II, control at service stations which now receive waivers, and control over vapors missed by Stage II equipment.

For the rulemaking as a whole, neglecting the presence of Stage II controls, LDV/LDT ORVR would achieve average annual emission reductions of over 420,000 tons per year. With Stage II phaseout when ORVR and Stage II would cover the same percent of fuel in use, the average annual emission reduction is about 378,000 tons. Even if Stage II controls are retained, an incremental benefit of 285,000 tons occurs nationwide. Of these reductions, approximately 20 percent occur in NAA areas, with the overall percentage in NAAs increasing substantially if Stage II is phased out.

B. Costs of Control

ORVR costs of control are comprised of control system hardware costs plus short term (five year) costs for research, development, and testing (R,D,& T) minus fuel vapor recovery credits. Costs

were derived incremental to the effects of enhanced evaporative emissions and RVP control, with the assumption that most vehicles would use integrated evaporative/refueling control systems with liquid seals in the fillneck. The retail price equivalent (RPE) for hardware and R,D,& T costs range from \$6-8 for LDVs and LDTs.

Even these small costs are somewhat offset by ORVR fuel recovery credits. The level of the ORVR recovery credit depends on whether Stage II equipment is used when refueling. For the nationwide case, which involves Stage II and non-Stage II areas, the NPV of the recovery credit ranges from \$2-\$4 per vehicle for LDVs and LDTs. Accounting for these recovery credits, both short and long term net costs are under \$5 for LDVs and LDTs.

EPA assessed the net costs of LDV and LDT ORVR controls for three scenarios. The first (baseline) scenario neglected the presence of Stage II controls, the second accounted for Stage II controls with phaseout in 2010, and the third included Stage II with no phaseout. In each case, the ORVR hardware and R,D,& T costs are the same, but the recovery credit varies. In the first case the average annual cost is about -\$6 million over the period 1998-2020. With Stage II present and phasing out in 2010, the average annual costs is \$2 million. With no phase out average annual costs increase to \$27 million over the period 1998 to 2020. The 1998 NPV costs (discounted at 7 percent to 1998) for the same three scenarios are \$102 million, \$264 million, and \$435 million, respectively. In the cases where costs are negative, it is because the value of the recovery credits exceeds the hardware and R, D, & T costs.

C. Cost Effectiveness

Using the net present value of the costs and emission reduction benefits, EPA has calculated the cost effectiveness of LDV/LDT ORVR controls for the three scenarios mentioned above. For the first case where Stage II controls are neglected, the cost effectiveness is about \$35 per ton. In the second case where Stage II control is considered, but phased out in 2010, the cost effectiveness is about \$100 per ton. In the final case where Stage II is not phased out, the cost effectiveness is about \$210 per ton.

When all costs are included in the calculations but only NAA emission reductions are credited, the cost effectiveness values change. For the first case discussed above, cost effectiveness value is \$70 per ton. In the second and third scenarios, the cost effectiveness

would increase to about \$250 and \$775 per ton, respectively.

D. Other Benefits

In addition to the VOC emission reduction benefits cited above, LDV/LDT ORVR controls have other benefits. ORVR controls would result in an average energy savings equivalent to 78 million gallons of gasoline per year between the period 1998 and 2020 assuming no Stage II phaseout and about 108 million gallons per year if Stage II is phased out. In addition, there will be health benefits as a result of reductions in air toxic emissions. Best estimates are the avoidance of about 5-6 cancer incidences per year as a result of lower refueling benzene emissions. Additional cancer avoidances are possible depending on the assumption regarding the toxicological impact of the remainder of the constituents of the gasoline vapor. Reductions in potential non-cancer health effects and welfare benefits such as reduced crop and material damage due to ozone would occur as well.

E. Benefit-Cost Ratio

Comparing the average annual cost and emission reduction benefits shown in the tables presented in the RIA, if even a minimal dollar value of \$500 per ton is ascribed to the health and environmental benefits, the dollar benefits of LDV/LDT ORVR controls exceed the costs. The benefit to cost ratio for NA areas ranges from 1.3 for the scenario where Stage II is retained to 32 if Stage II is phased out. If Stage II operating costs which are no longer incurred after Stage II phaseout are considered, there is an annual average monetary savings of about \$40 million since the costs of operating the Stage II control technology are eliminated.

V. Consultation With DOT

As required by section 202(a)(6) of the Clean Air Act, EPA has consulted at length with the Department of Transportation before promulgating this rule. Interagency review documents are contained in section IV-H of this rulemaking's docket. In addition, the docket contains a November 1993 DOT/NHTSA report entitled "An Assessment of Onboard Refueling Vapor Recovery System Safety" provided to EPA by DOT/NHTSA as part of the consultation process.

VI. Judicial Review

Under section 307(b)(1) of the Clean Air Act, EPA hereby finds that these regulations are of national applicability. Accordingly, judicial review of this action is available only by filing a

petition for review in the United States Court of Appeals for the District of Columbia Circuit within 60 days of publication. Under section 307(b)(2) of the Act, the requirements which are the subject of today's notice may not be challenged later in judicial proceedings brought by EPA to enforce these requirements.

VII. Statutory Authority

The statutory authority for this proposal is provided by sections 202(a)(1) and (2), 202(a)(6), 206, and 301(a) of the CAA, 42 U.S.C. 7521(a)(1) and (2), 7521(a)(6), 7525, and 7601(a).

VIII. 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.

These final regulations have been reviewed in accordance with Executive Order 12866. Under the terms of the Order the Administrator has assessed the potential costs and benefits of this regulatory action.

Pursuant to the terms of Executive Order 12866, it has been determined that this rule is a "significant regulatory action" because this rule has an effect on the long-term implications of stationary and mobile source controls and requires interagency consultations. The average annual cost is about \$27 million over the period 1998 to 2020, assuming no Stage II phaseout. If Stage II is phased out, recovery credits for ORVR systems increase to the point that average annual costs are only about \$2 million (ignoring the savings in Stage II maintenance). As such, this action was submitted to OMB for review. Changes made in response to OMB suggestions or recommendations will be documented in the public record.

IX. Compliance With the Regulatory Flexibility Act

The Regulatory Flexibility Act, 5 U.S.C. 601-602, requires that Federal agencies examine the impacts of their regulations on small entities. Under 5 U.S.C. 604(a), whenever an agency is required to publish a rulemaking, it must prepare and make available for public comment a regulatory flexibility analysis (RFA). Such an analysis is not required if the head of an agency certifies that a rule will not have a significant economic impact on a substantial number of small entities, pursuant to 5 U.S.C. 605(b).

The requirements for ORVR systems in this regulation apply to motor vehicle manufacturers. Small LDV manufacturers have been granted a delayed phase-in of the ORVR requirement and LDT manufacturers have a longer leadtime than originally proposed. Therefore, I certify that this rule will not have a significant adverse impact on a substantial number of small entities.

X. Information Collection Requirements

Paperwork Reduction Act

The information collection requirements in this rule will be submitted for approval to the Office of Management and Budget (OMB) under the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq.* An Information Collection Request document has been prepared by EPA (ICR #783.32) and a copy may be obtained from Sandy Farmer, Information Policy Branch; EPA, 401 M Street, SW., Washington, DC 20460 or by calling 202-260-2740. These requirements are not effective until OMB approves them and a technical amendment to that effect is published in the Federal Register.

This collection of information has an estimated annual reporting and recordkeeping burden averaging 334 hours per response. These estimates include time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Chief, Information Policy Branch; EPA; 401 M Street, SW (Mail Code 2136); Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503, marked "Attention: Desk Officer for EPA."

List of Subjects

40 CFR Part 86

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

40 CFR Part 88

Motor vehicle pollution, Reporting and recordkeeping requirements.

40 CFR Part 600

Administrative practice and procedure, Electric power, Fuel economy, Labeling, Reporting and recordkeeping requirements.

Dated: January 24, 1994.

Carol M. Browner,
Administrator.

For the reasons set forth in the preamble, parts 86, 88, and 600 of title 40 of the Code of Federal Regulations are amended as follows:

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

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

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

Subpart A—[Amended]

2. A new § 86.001-2 is added to subpart A to read as follows:

§ 86.001-2 Definitions.

The definitions of § 86.098-2 continue to apply to 1998 and later model year vehicles. The definitions listed in this section apply beginning with the 2001 model year.

Useful life means:

(1) For light-duty vehicles, and for light light-duty trucks not subject to the Tier 0 standards of § 86.094-9(a), intermediate useful life and/or full useful life. Intermediate useful life is a period of use of 5 years or 50,000 miles, whichever occurs first. Full useful life is a period of use of 10 years or 100,000 miles, whichever occurs first, except as otherwise noted in § 86.094-9. The useful life of evaporative and/or refueling emission control systems on the portion of these vehicles subject to the evaporative emission test requirements of § 86.130-96, and/or the refueling emission test requirements of § 86.151-2001, is defined as a period of

use of 10 years or 100,000 miles, whichever occurs first.

(2) For light light-duty trucks subject to the Tier 0 standards of § 86.094-9(a), and for heavy light-duty truck engine families, intermediate and/or full useful life. Intermediate useful life is a period of use of 5 years or 50,000 miles, whichever occurs first. Full useful life is a period of use of 11 years or 120,000 miles, whichever occurs first. The useful life of evaporative emission and/or refueling control systems on the portion of these vehicles subject to the evaporative emission test requirements of § 86.130-96, and/or the refueling emission test requirements of § 86.151-2001, is also defined as a period of 11 years or 120,000 miles, whichever occurs first.

(3) For an Otto-cycle heavy-duty engine family:

(i) For hydrocarbon and carbon monoxide standards, a period of use of 8 years or 110,000 miles, whichever first occurs.

(ii) For the oxides of nitrogen standard, a period of use of 10 years or 110,000 miles, whichever first occurs.

(iii) For the portion of evaporative emission control systems subject to the evaporative emission test requirements of § 86.1230-96, a period of use of 10 years or 110,000 miles, whichever occurs first.

(4) For a diesel heavy-duty engine family:

(i) For light heavy-duty diesel engines, for hydrocarbon, carbon monoxide, and particulate standards, a period of use of 8 years or 110,000 miles, whichever first occurs.

(ii) For light heavy-duty diesel engines, for the oxides of nitrogen standard, a period of use of 10 years or 110,000 miles, whichever first occurs.

(iii) For medium heavy-duty diesel engines, for hydrocarbon, carbon monoxide, and particulate standards, a period of use of 8 years or 185,000 miles, whichever first occurs.

(iv) For medium heavy-duty diesel engines, for the oxides of nitrogen standard, a period of use of 10 years or 185,000 miles, whichever first occurs.

(v) For heavy heavy-duty diesel engines, for hydrocarbon, carbon monoxide, and particulate standards, a period of use of 8 years or 290,000 miles, whichever first occurs, except as provided in paragraph (4)(vii) of this definition.

(vi) For heavy heavy-duty diesel engines, for the oxides of nitrogen standard, a period of use of 10 years or 290,000 miles, whichever first occurs.

(vii) For heavy heavy-duty diesel engines used in urban buses, for the particulate standard, a period of use of

10 years or 290,000 miles, whichever first occurs.

3. A new § 86.001-9 is added to subpart A to read as follows:

§ 86.001-9 Emission standards for 2001 and later model year light-duty trucks.

Section 86.001-9 includes text that specifies requirements that differ from § 86.096-9 or § 86.097-9. Where a paragraph in § 86.096-9 or § 86.097-9 is identical and applicable to § 86.001-9, this may be indicated by specifying the corresponding paragraph and the statement "[Reserved]. For guidance see § 86.096-9." or "[Reserved]. For guidance see § 86.097-9."

(a) [Reserved]. For guidance see § 86.097-9.

(b) introductory text through (b)(5) [Reserved]. For guidance see § 86.096-9.

(b)(6) Vehicles certified to the refueling standards set forth in paragraph (d) of this section are not required to demonstrate compliance with the Fuel Dispensing Spillback standards contained in § 86.096-9 (b)(1)(iii) and (b)(2)(iii): *Provided*, that they meet the requirements of § 86.001-28(f).

(c) [Reserved]. For guidance see § 86.097-9.

(d) Refueling emissions from 2001 and later model year gasoline-fueled and methanol-fueled Otto-cycle- and petroleum-fueled and methanol-fueled diesel-cycle-light duty trucks of 6,000 pounds or less GVW shall not exceed the following standards. The standards apply equally to certification and in-use vehicles.

(1) *Standards—(i) Hydrocarbons (for gasoline-fueled Otto-cycle and petroleum-fueled diesel-cycle vehicles).* 0.20 gram per gallon (0.053 gram per liter) of fuel dispensed.

(ii) *Organic Material Hydrocarbon Equivalent (for methanol-fueled vehicles).* 0.20 gram per gallon (0.053 gram per liter) of fuel dispensed.

(2)(i) The standards set forth in paragraphs (d)(1)(i) and (ii) of this section refer to a sample of refueling emissions collected under the conditions as set forth in subpart B of this part and measured in accordance with those procedures.

(ii) For vehicles powered by petroleum-fueled diesel-cycle engines, the provisions set forth in paragraph (d)(1)(i) of this section may be waived: *Provided*, that the manufacturer complies with the provisions of § 86.001-28(f) of this subpart.

(3) A minimum of the percentage shown in Table A01-09 of a manufacturer's sales of the applicable model year's gasoline- and methanol-fueled Otto-cycle and petroleum-fueled

and methanol-fueled diesel-cycle light-duty trucks of 6,000 pounds or less GVW shall be tested under the procedures in subpart B of this part indicated for 2001 and later model years, and shall not exceed the standards described in paragraph (d)(1) of this section. Vehicles certified in accordance with paragraph (d)(2)(ii) of this section, as determined by the provisions of § 86.001-28(g), shall not be counted in the calculation of the percentage of compliance.

TABLE A01-09.—IMPLEMENTATION SCHEDULE FOR LIGHT-DUTY TRUCK REFUELING EMISSION TESTING

Model year	Sales percentage
2001	40
2002	80
2003 and subsequent	100

(e) through (f) [Reserved]
(g) through (k) [Reserved]. For guidance see § 86.097-9.

4. A new § 86.001-21 is added to subpart A to read as follows:

§ 86.001-21 Application for certification.

Section 86.001-21 includes text that specifies requirements that differ from § 86.094-21 or § 86.096-21. Where a paragraph in § 86.094-21 or § 86.096-21 is identical and applicable to § 86.001-21, this may be indicated by specifying the corresponding paragraph and the statement "[Reserved]. For guidance see § 86.094-21." or "[Reserved]. For guidance see § 86.096-21."

(a) through (b)(3) [Reserved]. For guidance see § 86.094-21.

(b)(4)(i) For light-duty vehicles and light-duty trucks, a description of the test procedures to be used to establish the evaporative emission and/or refueling emission deterioration factors, as appropriate, required to be determined and supplied in § 86.001-23(b)(2).

(b)(4)(ii) through (b)(5)(iv) [Reserved]. For guidance see § 86.094-21.

(b)(5)(v) For light-duty vehicles and applicable light-duty trucks with non-integrated refueling emission control systems, the number of continuous UDDS cycles, determined from the fuel economy on the UDDS applicable to the test vehicle of that evaporative/refueling emission family-emission control system combination, required to use a volume of fuel equal to 85% of fuel tank volume.

(b)(6) through (8) [Reserved]. For guidance see § 86.094-21.

(b)(9) For each light-duty vehicle, light-duty truck, evaporative/refueling emission family or heavy-duty vehicle

evaporative emission family, a description of any unique procedures required to perform evaporative and/or refueling emission tests, as applicable, (including canister working capacity, canister bed volume, and fuel temperature profile for the running loss test) for all vehicles in that evaporative and/or evaporative/refueling emission family, and a description of the method used to develop those unique procedures.

(10) For each light-duty vehicle or applicable light-duty truck evaporative/refueling emission family, or each heavy-duty vehicle evaporative emission family:

(i) Canister working capacity, according to the procedures specified in § 86.132-96(h)(1)(iv);

(ii) Canister bed volume; and

(iii) Fuel temperature profile for the running loss test, according to the procedures specified in § 86.129-94(d).

(c) through (i) [Reserved]. For guidance see § 86.094-21.

(j) and (k) [Reserved]. For guidance see § 86.096-21.

5. A new § 86.001-22 is added to subpart A to read as follows:

§ 86.001-22 Approval of application for certification; test fleet selections; determinations of parameters subject to adjustment for certification and Selective Enforcement Audit, adequacy of limits, and physically adjustable ranges.

Section 86.001-22 includes text that specifies requirements that differ from § 86.094-22. Where a paragraph in § 86.094-22 is identical and applicable to § 86.001-22, this may be indicated by specifying the corresponding paragraph and the statement "[Reserved]. For guidance see § 86.094-22."

(a) through (c) [Reserved]. For guidance see § 86.094-22.

(d) *Approval of test procedures.* (1) The Administrator does not approve the test procedures for establishing the evaporative or refueling emission deterioration factors for light-duty vehicles and light-duty trucks. The manufacturer shall submit the procedures as required in § 86.098-21(b)(4)(i) prior to the Administrator's selection of the test fleet under § 86.098-24(b)(1), and if such procedures will involve testing of durability data vehicles selected by the Administrator or elected by the manufacturer under § 86.098-24(c)(1), prior to initiation of such testing.

(d)(2) through (g) [Reserved]. For guidance see § 86.094-22.

6. A new § 86.001-23 is added to subpart A to read as follows:

§ 86.001-23 Required data.

Section 86.001-23 includes text that specifies requirements that differ from § 86.095-23 or § 86.098-23. Where a paragraph in § 86.095-23 or § 86.098-23 is identical and applicable to § 86.001-23, this may be indicated by specifying the corresponding paragraph and the statement "[Reserved]. For guidance see § 86.095-23." or "[Reserved]. For guidance see § 86.098-23."

(a) through (b)(1) [Reserved]. For guidance see § 86.095-23.

(b)(2) For light-duty vehicles and light-duty trucks, the manufacturer shall submit evaporative emission and/or refueling emission deterioration factors for each evaporative/refueling emission family-emission control system combination and all test data that are derived from testing described under § 86.001-21(b)(4)(i) designed and conducted in accordance with good engineering practice to assure that the vehicles covered by a certificate issued under § 86.001-30 will meet the evaporative and/or refueling emission standards in § 86.099-8 or § 86.001-9, as appropriate, for the useful life of the vehicle.

(b)(3) through (b)(4)(ii) [Reserved]. For guidance see § 86.095-23.

(b)(4)(iii) [Reserved]. For guidance see § 86.098-23.

(c) through (e)(1) [Reserved]. For guidance see § 86.095-23.

(e)(2) For evaporative and refueling emission durability, or light-duty truck or heavy-duty engine exhaust emission durability, a statement of compliance with paragraph (b)(2) of this section or § 86.095-23 (b)(1)(ii), (b)(3) or (b)(4) (i) and (ii) or § 86.098-23 (b)(4)(iii), as applicable.

(3) For certification of vehicles with non-integrated refueling systems, a statement that the driven used to purge the refueling canister was the same as described in the manufacturers' application for certification. Furthermore, a description of the procedures used to determine the number of equivalent UDDS miles required to purge the refueling canisters, as determined by the provisions of § 86.098-21(b)(5)(v) and subpart B. Furthermore, a written statement to the Administrator that all data, analyses, test procedures, evaluations and other documents, on which the above statement is based, are available to the Administrator upon request.

(f) through (l) [Reserved]. For guidance see § 86.095-23.

(m) [Reserved]. For guidance see § 86.098-23.

7. A new § 86.001-24 is added to subpart A to read as follows:

§ 86.001-24 Test vehicles and engines.

Section 86.001-24 includes text that specifies requirements that differ from § 86.096-24 or § 86.098-24. Where a paragraph in § 86.096-24 or § 86.098-24 is identical and applicable to § 86.001-24, this may be indicated by specifying the corresponding paragraph and the statement "[Reserved]. For guidance see § 86.096-24." or "[Reserved]. For guidance see § 86.098-24."

(a) introductory text through (a)(4) [Reserved]. For guidance see § 86.096-24.

(a)(5) through (a)(7) [Reserved]. For guidance see § 86.098-24.

(a)(8) through (b)(1)(vi) [Reserved]. For guidance see § 86.096-24.

(b)(1)(vii)(A) through (b)(1)(viii)(A) [Reserved]. For guidance see § 86.098-24.

(b)(viii)(B) through (e) [Reserved]. For guidance see § 86.096-24.

(f) *Carryover and carryacross of durability and emission data.* In lieu of testing an emission-data or durability vehicle (or engine) selected under § 86.096-24 (b) or (c), and submitting data therefor, a manufacturer may, with the prior written approval of the Administrator, submit exhaust emission data, evaporative emission data and/or refueling emission data, as applicable, on a similar vehicle (or engine) for which certification has been obtained or for which all applicable data required under § 86.098-23 has previously been submitted.

(g) through (h) [Reserved]. For guidance see § 86.096-24.

8. A new § 86.001-25 is added to subpart A to read as follows:

§ 86.001-25 Maintenance.

Section 86.001-25 includes text that specifies requirements that differ from § 86.094-25 or § 86.098-25. Where a paragraph in § 86.094-25 or § 86.098-25 is identical and applicable to § 86.001-25, this may be indicated by specifying the corresponding paragraph and the statement "[Reserved]. For guidance see § 86.094-25." or "[Reserved]. For guidance see § 86.098-25."

(a)(1) [Reserved]. For guidance see § 86.094-25.

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

(b) Introductory text through (b)(3)(vi)(D) [Reserved]. For guidance see § 86.094-25.

(b)(3)(vi)(E) through (b)(3)(vi)(J) [Reserved]. For guidance see § 86.098-25.

(b)(3)(vii) through (b)(6)(i)(E) [Reserved]. For guidance see § 86.094-25.

(b)(6)(i)(F) Evaporative and refueling emission control system components (excluding canister air filter).

(b)(6)(i)(G) through (H) [Reserved]. For guidance see § 86.094-25.

9. A new § 86.001-26 is added to subpart A to read as follows:

§ 86.001-26 Mileage and service accumulation; emission measurements.

Section 86.001-26 includes text that specifies requirements that differ from § 86.094-26, § 86.095-26, § 86.096-26 or § 86.098-26. Where a paragraph in § 86.094-26, § 86.095-26, § 86.096-26 or § 86.098-26 is identical and applicable to § 86.001-26, this may be indicated by specifying the corresponding paragraph and the statement "[Reserved]. For guidance see § 86.094-26." or "[Reserved]. For guidance see § 86.095-26." or "[Reserved]. For guidance see § 86.096-26." or "[Reserved]. For guidance see § 86.098-26."

(a)(1) and (2) [Reserved]. For guidance see § 86.094-26.

(a)(3) introductory text through (a)(3)(i)(A) [Reserved]. For guidance see § 86.098-26.

(a)(3)(i)(B) through (a)(3)(ii)(B) [Reserved]. For guidance see § 86.094-26.

(a)(3)(ii)(C) [Reserved]. For guidance see § 86.098-26.

(a)(3)(ii)(D) through (b)(2)(iii) [Reserved]. For guidance see § 86.094-26.

(b)(2)(iv) Service or mileage accumulation which may be part of the test procedures used by the manufacturer to establish evaporative and/or refueling emission deterioration factors.

(b)(3) through (b)(4)(i)(B) [Reserved]. For guidance see § 86.094-26.

(b)(4)(i)(C) Exhaust, evaporative and/or refueling emission tests for emission-data vehicle(s) selected for testing under § 86.096-24(b)(1) (ii), (iii) or (iv)(A) or § 86.098-24 (b)(1)(vii) shall be conducted at the mileage (2,000 mile minimum) at which the engine-system combination is stabilized for emission testing or at 6,436 kilometer (4,000 mile) test point under low-altitude conditions.

(b)(4)(i)(D) through (b)(4)(ii)(B) [Reserved]. For guidance see § 86.095-26.

(b)(4)(ii)(C) Exhaust, evaporative and/or refueling emission tests for emission

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

(b)(4)(ii)(D) [Reserved]. For guidance see § 86.095-26.

(b)(4)(iii) [Reserved]

(b)(iv) through (c)(3) [Reserved]. For guidance see § 86.094-26.

(c)(4) [Reserved]. For guidance see § 86.096-26.

(d) [Reserved]. For guidance see § 86.094-26.

10. A new § 86.001-28 is added to subpart A to read as follows:

§ 86.001-28 Compliance with emission standards.

Section 86.001-28 includes text that specifies requirements that differ from §§ 86.094-28 and 86.098-28. Where a paragraph in § 86.094-28 or § 86.098-28 is identical and applicable to § 86.001-28, this may be indicated by specifying the corresponding paragraph and the statement "[Reserved]. For guidance see § 86.094-28." or "[Reserved]. For guidance see § 86.098-28."

(a)(1) [Reserved]. For guidance see § 86.094-28.

(a)(2) [Reserved]. For guidance see § 86.098-28.

(a)(3) [Reserved]. For guidance see § 86.094-28.

(a)(4) introductory text through (a)(4)(i) introductory text [Reserved]. For guidance see § 86.098-28.

(a)(4)(i)(A) and (a)(4)(i)(B) [Reserved]. For guidance see § 86.094-28.

(a)(4)(i) (C) through (D) [Reserved]. For guidance see § 86.098-28.

(a)(4)(ii)(A) [Reserved]. For guidance see § 86.094-28.

(a)(4)(ii) (B) through (C) [Reserved]. For guidance see § 86.098-28.

(a)(4)(iii) [Reserved]. For guidance see § 86.098-28.

(a)(4)(iv) [Reserved]. For guidance see § 86.094-28.

(a)(4)(v) [Reserved]. For guidance see § 86.098-28.

(a) (5) and (6) [Reserved]. For guidance see § 86.094-28.

(a)(7) introductory text through (a)(7)(i) [Reserved]. For guidance see § 86.098-28.

(a)(7)(ii) [Reserved]. For guidance see § 86.094-28.

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

(2) Each exhaust, evaporative and refueling emission standard (and family emission limits, as appropriate) of § 86.001-9 applies to the emissions of vehicles for the appropriate useful life as defined in §§ 86.098-2 and 86.001-9.

(b)(3) through (b)(6) [Reserved]. For guidance see § 86.094-28.

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

(ii) The manufacturer shall determine, based on testing described in § 86.001-21(b)(4)(i)(A), and supply an evaporative emission deterioration factor for each evaporative/refueling emission family-emission control system combination. The factor shall be calculated by subtracting the emission level at the selected test point from the emission level at the useful life point.

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

(iv) The emission value to compare with the standards shall be the adjusted emission value of paragraph (b)(7)(iii) of this section rounded to two significant figures in accordance with ASTM E 29-67 (reapproved 1980) (as referenced in § 86.094-28(a)(4)(i)(B)(2)(ii)) for each evaporative emission-data vehicle.

(8)(i) Paragraph (b)(8) of this section describes the procedure for determining compliance of a new vehicle with refueling emission standards. The procedure described here shall be used for all applicable vehicles in the applicable model years.

(ii) The manufacturer shall determine, based on testing described in § 86.098-21(b)(4)(i)(B), and supply a refueling emission deterioration factor for each evaporative/refueling emission family-emission control system combination. The factor shall be calculated by subtracting the emission level at the selected test point from the emission level at the useful life point.

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

(iv) The emission value to compare with the standards shall be the adjusted emission value of paragraph (b)(8)(iii) of this section rounded to two significant figures in accordance with ASTM E 29-

67 (reapproved 1980) (as referenced in § 86.094-28(a)(4)(i)(B)(2)(ii)) for each evaporative emission-data vehicle.

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

(c) through (d) [Reserved]. For guidance see § 86.094-28.

(e) [Reserved]

(f) *Fuel dispensing spitback testing waiver.* (1) Vehicles certified to the refueling emission standards set forth in §§ 86.098-8, 86.099-8 and 86.001-9 are not required to demonstrate compliance with the fuel dispensing spitback standards contained in these sections: *Provided, that—*

(i) The manufacturer certifies that the vehicle inherently meets the Dispensing Spitback Standard as part of compliance with the refueling emission standard.

(ii) This certification is provided in writing and applies to the full useful life of the vehicle.

(2) EPA retains the authority to require testing to enforce compliance and to prevent non-compliance with the Fuel Dispensing Spitback Standard.

(g) *Inherently low refueling emission testing waiver.* (1) Vehicles using fuels/fuel systems inherently low in refueling emissions are not required to conduct testing to demonstrate compliance with the refueling emission standards set forth in §§ 86.098-8, 86.099-8 or 86.001-9: *Provided, that—*

(i) This provision is only available for petroleum diesel fuel. It is only available if the Reid Vapor Pressure of in-use diesel fuel is equal to or less than 1 psi (7 Kpa) and for diesel vehicles whose fuel tank temperatures do not exceed 130 °F (54 °C); and

(ii) To certify using this provision the manufacturer must attest to the following evaluation: "Due to the low vapor pressure of diesel fuel and the vehicle tank temperatures, hydrocarbon vapor concentrations are low and the vehicle meets the 0.20 grams/gallon refueling emission standard without a control system."

(2) The certification required in paragraph (g)(1)(ii) of this section must be provided in writing and must apply for the full useful life of the vehicle.

(3) EPA reserves the authority to require testing to enforce compliance and to prevent noncompliance with the refueling emission standard.

(4) Vehicles certified to the refueling emission standard under this provision shall not be counted in the sales percentage compliance determinations

for the 2001, 2002 and subsequent model years.

11. A new § 86.001-30 is added to subpart A to read as follows:

§ 86.001-30 Certification.

Section 86.001-30 includes text that specifies requirements that differ from § 86.094-30, § 86.095-30 or § 86.098-30. Where a paragraph in § 86.094-30, § 86.095-30 or § 86.098-30 is identical and applicable to § 86.001-30, this may be indicated by specifying the corresponding paragraph and the statement "[Reserved]. For guidance see § 86.094-30." or "[Reserved]. For guidance see § 86.095-30." or "[Reserved]. For guidance see § 86.098-30."

(a)(1) and (a)(2) [Reserved]. For guidance see § 86.094-30.

(a)(3)(i) [Reserved]. For guidance see § 86.098-30.

(a)(3)(ii) through (a)(4)(ii) [Reserved]. For guidance see § 86.095-30.

(a)(4)(iii) introductory text through (a)(4)(iii)(C) [Reserved]. For guidance see § 86.094-30.

(a)(4)(iv) introductory text [Reserved]. For guidance see § 86.095-30.

(a)(4)(iv)(A) through (a)(12) [Reserved]. For guidance see § 86.094-30.

(a)(13) [Reserved]. For guidance see § 86.095-30.

(a)(14) [Reserved]. For guidance see § 86.094-30.

(a)(15) through (18) [Reserved]. For guidance see § 86.096-30.

(a)(19) [Reserved]. For guidance see § 86.098-30.

(a)(20) For all light-duty trucks certified to refueling emission standards under § 86.001-9, the provisions of paragraphs (a)(20) (i) through (iii) this section apply.

(i) All certificates issued are conditional upon the manufacturer complying with all provisions of § 86.001-9 both during and after model year production.

(ii) Failure to meet the required implementation schedule sales percentages as specified in § 86.001-9 will be considered to be a failure to satisfy the conditions upon which the certificate(s) was issued and the individual vehicles sold in violation of the implementation schedule shall not be covered by the certificate.

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

(b)(1) introductory text through (b)(1)(i) [Reserved]. For guidance see § 86.094-30.

(b)(1)(ii)(A) [Reserved]. For guidance see § 86.094-30.

(b)(1)(ii)(B) The emission data vehicle(s) selected under § 86.001-24(b)(vii) (A) and (B) shall represent all vehicles of the same evaporative/refueling control system within the evaporative/refueling family.

(b)(1)(ii)(C) [Reserved]. For guidance see § 86.094-30.

(b)(1)(ii)(D) The emission-data vehicle(s) selected under § 86.098-24(b)(1)(viii) shall represent all vehicles of the same evaporative/refueling control system within the evaporative/refueling emission family, as applicable.

(b)(1) (iii) and (iv) [Reserved]. For guidance see § 86.094-30.

(b)(2) [Reserved]. For guidance see § 86.098-30.

(b)(3) through (b)(4)(i) [Reserved]. For guidance see § 86.094-30.

(b)(4)(ii) introductory text [Reserved]. For guidance see § 86.098-30.

(b)(4)(ii)(A) [Reserved]. For guidance see § 86.094-30.

(b)(4)(ii)(B) through (iv) [Reserved]. For guidance see § 86.098-30.

(b)(5) through (e) [Reserved]. For guidance see § 86.094-30.

(f) introductory text through (f)(3) [Reserved]. For guidance see § 86.095-30.

(f)(4) [Reserved]. For guidance see § 86.098-30.

12. A new § 86.001-35 is added to subpart A to read as follows:

§ 86.001-35 Labeling.

Section 86.001-35 includes text that specifies requirements that differ from § 86.095-35, § 86.096-35 and § 86.098-35. Where a paragraph in § 86.095-35, § 86.096-35 or § 86.098-35 is identical and applicable to § 86.001-35, this may be indicated by specifying the corresponding paragraph and the statement "[Reserved]. For guidance see § 86.095-35." or "[Reserved]. For guidance see § 86.096-35." or "[Reserved]. For guidance see § 86.098-35."

(a) introductory text through (a)(1)(iii)(B) [Reserved]. For guidance see § 86.095-35.

(a)(1)(iii)(C) [Reserved]. For guidance see § 86.098-35.

(a)(1)(iii)(D) through (L) [Reserved]. For guidance see § 86.095-35.

(a)(1)(iii)(M) [Reserved]. For guidance see § 86.098-35.

(a)(1)(iii)(N) [Reserved]. For guidance see § 86.096-35.

(a)(2) heading through (a)(2)(iii)(B) [Reserved]. For guidance see § 86.095-35.

(a)(2)(iii)(C) Engine displacement (in cubic inches or liters), engine family identification and evaporative/refueling family identification.

(a)(2)(iii)(D) through (a)(2)(iii)(E) [Reserved]. For guidance see § 86.095-35.

(a)(2)(iii)(F) [Reserved]
(a)(2)(iii)(G) through (a)(2)(iii)(K) [Reserved]. For guidance see § 86.095-35.

(a)(2)(iii)(L) [Reserved].
(a)(2)(iii)(M) through (a)(2)(iii)(N) [Reserved]. For guidance see § 86.095-35.

(a)(2)(iii) (O) through (P) [Reserved]. For guidance see § 86.096-35.

(a)(3) heading through (a)(4)(iii)(F) [Reserved]. For guidance see § 86.095-35.

(a)(4)(ii)(G) [Reserved]. For guidance see § 86.096-35.

(b) through (i) [Reserved]. For guidance see § 86.095-35.

13. A new § 86.004-9 is added to subpart A to read as follows:

§ 86.004-9 Emission standards for 2004 and later model year light-duty trucks.

Section 86.004-9 includes text that specifies requirements that differ from § 86.096-9 or § 86.097-9. Where a paragraph in § 86.096-9 or § 86.097-9 is identical and applicable to § 86.004-9, this may be indicated by specifying the corresponding paragraph and the statement "[Reserved]. For guidance see § 86.096-9." or "[Reserved]. For guidance see § 86.097-9."

(a) [Reserved]. For guidance see § 86.097-9.

(b) introductory text through (b)(5) [Reserved]. For guidance see § 86.096-9.

(b)(6) Vehicles certified to the refueling standards set forth in paragraph (d) of this section are not required to demonstrate compliance with the Fuel Dispensing Spillback standards contained in § 86.096-9 (b)(1)(iii) and (b)(2)(iii): *Provided*, that they meet the requirements of § 86.001-28(f).

(c) [Reserved]. For guidance see § 86.097-9.

(d) Refueling emissions from 2004 and later model year gasoline-fueled and methanol-fueled Otto-cycle and petroleum-fueled and methanol-fueled diesel-cycle light duty trucks shall not exceed the following standards. The standards apply equally to certification and in-use vehicles.

(1) *Standards—(i) Hydrocarbons (for gasoline-fueled Otto-cycle and petroleum-fueled diesel-cycle vehicles).* 0.20 gram per gallon (0.053 gram per liter) of fuel dispensed.

(ii) *Organic Material Hydrocarbon Equivalent (for methanol-fueled vehicles).* 0.20 gram per gallon (0.053 gram per liter) of fuel dispensed.

(2)(i) The standards set forth in paragraphs (d)(1) (i) and (ii) of this

section refer to a sample of refueling emissions collected under the conditions as set forth in subpart B of this part and measured in accordance with those procedures.

(ii) For vehicles powered by petroleum-fueled diesel-cycle engines, the provisions set forth in paragraph (d)(1)(i) of this section may be waived: *Provided*, that the manufacturer complies with the provisions of § 86.001-28(f) of this subpart.

(iii) Heavy-duty vehicles certified as light-duty trucks under the provisions of § 86.085-1 shall comply with the provisions of paragraphs (d)(1) (i) and (ii) of this section.

(3)(i) All light-duty trucks of a GVWR equal to 6,000 pounds or less (100%) must meet the refueling emission standard.

(ii) A minimum of the percentage shown in Table A04-09 of a manufacturer's sales of the applicable model year's gasoline- and methanol-fueled Otto-cycle and petroleum-fueled and methanol-fueled diesel-cycle light-duty trucks of 6,001 to 8,500 pounds GVW shall be tested under the procedures in subpart B of this part indicated for 2004 and later model years, and shall not exceed the standards described in paragraph (d)(1) of this section. Vehicles certified in accordance with paragraph (d)(2)(ii) of this section, as determined by the provisions of § 86.001-28(g), shall not be counted in the calculation of the percentage of compliance.

TABLE A04-09.—IMPLEMENTATION SCHEDULE FOR LIGHT-DUTY TRUCK REFUELING EMISSION TESTING

Model year	Sales percentage
2004	40
2005	80
2006 and subsequent	100

(e) through (f) [Reserved]

(g) through (k) [Reserved]. For guidance see § 86.097-9.

14. A new § 86.004-28 is added to subpart A to read as follows:

§ 86.004-28 Compliance with emission standards.

Section 86.004-28 includes text that specifies requirements that differ from §§ 86.094-28 and 86.098-28. Where a paragraph in § 86.094-28 or § 86.098-28 is identical and applicable to § 86.001-28, this may be indicated by specifying the corresponding paragraph and the statement "[Reserved]. For guidance see § 86.094-28." or "[Reserved]. For guidance see § 86.098-28."

(a)(1) [Reserved]. For guidance see § 86.094-28.

(a)(2) [Reserved]. For guidance see § 86.098-28.

(a)(3) [Reserved]. For guidance see § 86.094-28.

(a)(4) introductory text through (a)(4)(i) introductory text [Reserved]. For guidance see § 86.098-28.

(a)(4)(i)(A) and (a)(4)(i)(B) [Reserved]. For guidance see § 86.094-28.

(a)(5) and (6) [Reserved]. For guidance see § 86.094-28.

(a)(7) introductory text through (a)(7)(i) [Reserved]. For guidance see § 86.098-28.

(a)(7)(ii) [Reserved]. For guidance see § 86.094-28.

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

(2) Each exhaust, evaporative and refueling emission standard (and family emission limits, as appropriate) of § 86.004-9 applies to the emissions of vehicles for the appropriate useful life as defined in §§ 86.098-2 and 86.001-9.

(b)(3) through (b)(6) [Reserved]. For guidance see § 86.094-28.

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

(ii) The manufacturer shall determine, based on testing described in § 86.001-21(b)(4)(i)(A), and supply an evaporative emission deterioration factor for each evaporative/refueling emission family-emission control system combination. The factor shall be calculated by subtracting the emission level at the selected test point from the emission level at the useful life point.

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

(iv) The emission value to compare with the standards shall be the adjusted emission value of paragraph (b)(7)(iii) of this section rounded to two significant figures in accordance with ASTM E 29-67 (reapproved 1980) (as referenced in § 86.094-28(a)(4)(i)(B)(2)(ii)) for each evaporative emission-data vehicle.

(8)(i) Paragraph (b)(8) of this section describes the procedure for determining compliance of a new vehicle with refueling emission standards. The procedure described here shall be used

for all appl.cable vehicles in the applicable model years.

(ii) The manufacturer shall determine, based on testing described in § 86.098-21(b)(4)(i)(B), and supply a refueling emission deterioration factor for each evaporative/refueling emission family-emission control system combination. The factor shall be calculated by subtracting the emission level at the selected test point from the emission level at the useful life point.

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

(iv) The emission value to compare with the standards shall be the adjusted emission value of paragraph (b)(8)(iii) of this section rounded to two significant figures in accordance with ASTM E 29-67 (reapproved 1980) (as referenced in § 86.094-28 (a)(4)(i)(B)(2)(ii)) for each evaporative emission-data vehicle.

(9) Every test vehicle of an engine family must comply with all applicable standards (and family emission limits, as appropriate), as determined in § 86.094-28(b)(4)(iv) and paragraphs (b)(7)(iv) and (b)(8)(iv) of this section, before any vehicle in that family will be certified.

(c) through (d) [Reserved]. For guidance see § 86.094-28.

(e) [Reserved]

(f) *Fuel dispensing spitback testing waiver.* (1) Vehicles certified to the refueling emission standards set forth in §§ 86.099-8, 86.001-9 and 86.004-9 are not required to demonstrate compliance with the fuel dispensing spitback standards contained in these sections: *Provided*, that—

(i) The manufacturer certifies that the vehicle inherently meets the Dispensing Spitback Standard as part of compliance with the refueling emission standard; and

(ii) This certification is provided in writing and applies to the full useful life of the vehicle.

(2) EPA retains the authority to require testing to enforce compliance and to prevent non-compliance with the Fuel Dispensing Spitback Standard.

(g) *Inherently low refueling emission testing waiver.* (1) Vehicles using fuels/fuel systems inherently low in refueling emissions are not required to conduct testing to demonstrate compliance with the refueling emission standards set forth in §§ 86.099-8, 86.001-9 or 86.004-9: *Provided*, that—

(i) This provision is only available for petroleum diesel fuel. It is only available if the Reid Vapor Pressure of in-use diesel fuel is equal to or less than 1 psi (7 kPa) and for diesel vehicles whose fuel tank temperatures do not exceed 13 °F (54 °C), and

(ii) To certify using this provision the manufacturer must attest to the following evaluation: "Due to the low vapor pressure of diesel fuel and the vehicle tank temperatures, hydrocarbon vapor concentrations are low and the vehicle meets the 0.20 grams/gallon refueling emission standard without a control system."

(2) The certification required in paragraph (g)(1)(ii) of this section must be provided in writing and must apply for the full useful life of the vehicle.

(3) EPA reserves the authority to require testing to enforce compliance and to prevent noncompliance with the refueling emission standard.

(4) Vehicles certified to the refueling emission standard under this provision shall not be counted in the sales percentage compliance determinations for the 2004, 2005 and subsequent model years.

15. A new § 86.004-30 is added to subpart A to read as follows:

§ 86.004-30 Certification.

Section 86.004-30 includes text that specifies requirements that differ from §§ 86.094-30, 86.095-30, 86.096-30, 86.098-30 or 86.001-30. Where a paragraph in § 86.094-30, § 86.095-30, § 86.096-30, § 86.098-30 or § 86.001-30 is identical and applicable to § 86.004-30, this may be indicated by specifying the corresponding paragraph and the statement "[Reserved]. For guidance see § 86.094-30." or "[Reserved]. For guidance see § 86.095-30." or "[Reserved]. For guidance see § 86.096-30." or "[Reserved]. For guidance see § 86.098-30." or "[Reserved]. For guidance see § 86.001-30."

(a)(1) and (a)(2) [Reserved]. For guidance see § 86.094-30.

(a)(3)(i) [Reserved]. For guidance see § 86.098-30.

(a)(3)(ii) through (a)(4)(ii) [Reserved]. For guidance see § 86.095-30.

(a)(4)(iii) introductory text through (a)(4)(iii)(C) [Reserved]. For guidance see § 86.094-30.

(a)(4)(iv) introductory text [Reserved]. For guidance see § 86.095-30.

(a)(4)(iv)(A) through (a)(12) [Reserved]. For guidance see § 86.094-30.

(a)(13) [Reserved]. For guidance see § 86.095-30.

(a)(14) [Reserved]. For guidance see § 86.094-30.

(a)(15) through (18) [Reserved]. For guidance see § 86.096-30.

(a)(19) [Reserved]. For guidance see § 86.098-30.

(a)(20) [Reserved]. For guidance see § 86.001-30.

(a)(21) For all light-duty trucks certified to refueling emission standards under § 86.004-9, the provisions of paragraphs (a)(21) (i) through (iii) of this section apply.

(i) All certificates issued are conditional upon the manufacturer complying with all provisions of § 86.004-9 both during and after model year production.

(ii) Failure to meet the required implementation schedule sales percentages as specified in § 86.004-9 will be considered to be a failure to satisfy the conditions upon which the certificate(s) was issued and the individual vehicles sold in violation of the implementation schedule shall not be covered by the certificate.

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

(b)(1) introductory text through (b)(1)(ii)(A) [Reserved]. For guidance see § 86.094-30.

(b)(1)(ii)(B) The emission data vehicle(s) selected under § 86.001-24(b)(vii) (A) and (B) shall represent all vehicles of the same evaporative/refueling control system within the evaporative/refueling family.

(b)(1)(ii)(C) [Reserved]. For guidance see § 86.094-30.

(b)(1)(ii)(D) The emission-data vehicle(s) selected under § 86.098-24(b)(1)(viii) shall represent all vehicles of the same evaporative/refueling control system within the evaporative/refueling emission family, as applicable.

(b)(1)(iii) and (b)(1)(iv) [Reserved]. For guidance see § 86.094-30.

(b)(2) [Reserved]. For guidance see § 86.098-30.

(b)(3) through (b)(4)(i) [Reserved]. For guidance see § 86.094-30.

(b)(4)(ii) introductory text [Reserved]. For guidance see § 86.098-30.

(b)(4)(ii)(A) [Reserved]. For guidance see § 86.094-30.

(b)(4)(ii)(B) through (b)(4)(iv) [Reserved]. For guidance see § 86.098-30.

(b)(5) through (e) [Reserved]. For guidance see § 86.094-30.

(f) introductory text through (f)(3) [Reserved]. For guidance see § 86.095-30.

(f)(4) [Reserved]. For guidance see § 86.098-30.

16. Section 86.098-2 of subpart A is revised to read as follows:

§ 86.098-2 Definitions.

The definitions of § 86.096-2 continue to apply to 1996 and later model year vehicles. The definitions listed in this section apply beginning with the 1998 model year.

Dispensed fuel temperature means the temperature (deg.F or deg.C may be used) of the fuel being dispensed into the tank of the test vehicle during a refueling test.

Evaporative/refueling emission control system means a unique combination within an evaporative/refueling family of canister adsorptive material, purge system configuration, purge strategy, and other parameters determined by the Administrator to affect evaporative and refueling emission control system durability or deterioration factors.

Evaporative/refueling emission family means the basic classification unit of a manufacturers' product line used for the purpose of evaporative and refueling emissions test fleet selection and determined in accordance with § 86.098-24.

Integrated refueling emission control system means a system where vapors resulting from refueling are stored in a common vapor storage unit(s) with other evaporative emissions of the vehicle and are purged through a common purge system.

Non-integrated refueling emission control system means a system where fuel vapors from refueling are stored in a vapor storage unit assigned solely to the function of storing refueling vapors.

Refueling emissions means evaporative emissions that emanate from a motor vehicle fuel tank(s) during a refueling operation.

Refueling emissions canister(s) means any vapor storage unit(s) that is exposed to the vapors generated during refueling.

Resting losses means evaporative emissions that may occur continuously, that are not diurnal emissions, hot soak emissions, refueling emissions, running losses, or spitback emissions.

Useful life means:

(1) For light-duty vehicles, and for light light-duty trucks not subject to the Tier 0 standards of § 86.094-9(a), intermediate useful life and/or full useful life. Intermediate useful life is a period of use of 5 years or 50,000 miles, whichever occurs first. Full useful life is a period of use of 10 years or 100,000 miles, whichever occurs first, except as otherwise noted in § 86.094-9. The useful life of evaporative and/or refueling emission control systems on the portion of these vehicles subject to the evaporative emission test requirements of § 86.130-96, and/or the refueling emission test requirements of

§ 86.151-98, is defined as a period of use of 10 years or 100,000 miles, whichever occurs first.

(2) For light light-duty trucks subject to the Tier 0 standards of § 86.094-9(a), and for heavy light-duty truck engine families, intermediate and/or full useful life. Intermediate useful life is a period of use of 5 years or 50,000 miles, whichever occurs first. Full useful life is a period of use of 11 years or 120,000 miles, whichever occurs first. The useful life of evaporative emission control systems on the portion of these vehicles subject to the evaporative emission test requirements of § 86.130-96 is also defined as a period of 11 years or 120,000 miles, whichever occurs first.

(3) For an Otto-cycle heavy-duty engine family:

(i) For hydrocarbon and carbon monoxide standards, a period of use of 8 years or 110,000 miles, whichever first occurs.

(ii) For the oxides of nitrogen standard, a period of use of 10 years or 110,000 miles, whichever first occurs.

(iii) For the portion of evaporative emission control systems subject to the evaporative emission test requirements of § 86.1230-96, a period of use of 10 years or 110,000 miles, whichever occurs first.

(4) For a diesel heavy-duty engine family:

(i) For light heavy-duty diesel engines, for hydrocarbon, carbon monoxide, and particulate standards, a period of use of 8 years or 110,000 miles, whichever first occurs.

(ii) For light heavy-duty diesel engines, for the oxides of nitrogen standard, a period of use of 10 years or 110,000 miles, whichever first occurs.

(iii) For medium heavy-duty diesel engines, for hydrocarbon, carbon monoxide, and particulate standards, a period of use of 8 years or 185,000 miles, whichever first occurs.

(iv) For medium heavy-duty diesel engines, for the oxides of nitrogen standard, a period of use of 10 years or 185,000 miles, whichever first occurs.

(v) For heavy heavy-duty diesel engines, for hydrocarbon, carbon monoxide, and particulate standards, a period of use of 8 years or 290,000 miles, whichever first occurs, except as provided in paragraph (3)(vii) of this definition.

(vi) For heavy heavy-duty diesel engines, for the oxides of nitrogen standard, a period of use of 10 years or 290,000 miles, whichever first occurs.

(vii) For heavy heavy-duty diesel engines used in urban buses, for the particulate standard, a period of use of 10 years or 290,000 miles, whichever first occurs.

17. A new § 86.098-3 is added to subpart A to read as follows:

§ 86.098-3 Abbreviations.

(a) The abbreviations in § 86.094-3 continue to apply to 1996 and later model year vehicles. The abbreviations in this section apply beginning with the 1998 model year.

(b) The abbreviations in this section apply to this subpart, and also to subparts B, E, F, G, K, M, N, and P of this part, and have the following meanings:

T_D—dispensed fuel temperature

18. A new § 86.098-7 is added to subpart A to read as follows:

§ 86.098-7 Maintenance of records; submittal of information; right of entry.

Section 86.098-7 includes text that specifies requirements that differ from those specified in §§ 86.091-7, 86.094-7 and 86.096-7. Where a paragraph in § 86.091-7, § 86.094-7 or § 86.096-7 is identical and applicable to § 86.098-7, this may be indicated by specifying the corresponding paragraph and the statement "[Reserved]. For guidance see § 86.091-7." or "[Reserved]. For guidance see § 86.094-7." or "[Reserved]. For guidance see § 86.096-7."

(a) Introductory text through (a)(2) [Reserved]. For guidance see § 86.091-7.

(a)(3) [Reserved]. For guidance see § 86.094-7.

(b) through (c)(2) [Reserved]. For guidance see § 86.091-7.

(c)(3) [Reserved]. For guidance see § 86.094-7.

(c)(4) through (d)(1)(v) [Reserved]. For guidance see § 86.091-7.

(d)(1)(vi) through (d)(2)(iv) [Reserved]. For guidance see § 86.094-7.

(d)(3) through (g) [Reserved]. For guidance see § 86.091-7.

(h)(6) *Voiding a certificate.* (i) EPA may void ab initio a certificate for a vehicle certified to Tier 0 certification standards or to the respective evaporative and/or refueling test procedure and accompanying evaporative and/or refueling standards as set forth or otherwise referenced in §§ 86.098-8, 86.098-9, or 86.098-10 for which the manufacturer fails to retain the records required in this section or to provide such information to the Administrator upon request.

(h)(6)(ii) to (h)(7)(vi) [Reserved]. For guidance see § 86.096-7.

(h)(6)(vii) EPA evaporative/refueling family.

19. A new § 86.098-8 is added to subpart A, to read as follows:

§ 86.098-8 Emission standards for 1998 and later model year light-duty vehicles.

Section 86.098-8 includes text that specifies requirements that differ from § 86.096-8. Where a paragraph in § 86.096-8 is identical and applicable to § 86.098-8, this may be indicated by specifying the corresponding paragraph and the statement "[Reserved]. For guidance see § 86.096-8."

(a) through (b)(5) [Reserved]. For guidance see § 86.096-8.

(b)(6) Vehicles certified to the refueling standards set forth in paragraph (d) of this section are not required to demonstrate compliance with the fuel dispensing spitback standards contained in § 86.096-8 (b)(1)(iii) and (b)(2)(iii): *Provided*, that they meet the requirements of § 86.098-28(f).

(c) [Reserved]. For guidance see § 86.096-8.

(d) Refueling emissions from 1998 and later model year gasoline-fueled and methanol-fueled Otto-cycle and petroleum-fueled and methanol-fueled diesel-cycle light-duty vehicles shall not exceed the following standards. The standards apply equally to certification and in-use vehicles.

(1) *Standards*—(i) *Hydrocarbons (for gasoline-fueled Otto-cycle and petroleum-fueled diesel-cycle vehicles)*. 0.20 gram per gallon (0.053 gram per liter) of fuel dispensed.

(ii) *Organic material hydrocarbon equivalent (for methanol-fueled vehicles)*. 0.20 gram per gallon (0.053 gram per liter) of fuel dispensed.

(2)(i) The standards set forth in paragraphs (d)(1) (i) and (ii) of this section refer to a sample of refueling emissions collected under the conditions set forth in subpart B of this part and measured in accordance with those procedures.

(ii) For vehicles powered by petroleum-fueled diesel-cycle engines, the provisions set forth in paragraph (d)(1) of this section may be waived: *Provided*, that the manufacturer complies with the provisions of § 86.098-28(g).

(3)(i) A minimum of the percentage shown in Table A98-08 of a manufacturer's sales of the applicable model year's gasoline- and methanol-fueled Otto-cycle and petroleum-fueled and methanol-fueled diesel-cycle light-duty vehicles shall be tested under the procedures in subpart B of this part indicated for 1998 and later model years, and shall not exceed the standards described in paragraph (d)(1) of this section. Vehicles certified in accordance with paragraph (d)(2)(ii) of this section, as determined by the provisions of § 86.098-28(g), shall not

be counted in the calculation of the percentage of compliance.

TABLE A98-08.—IMPLEMENTATION SCHEDULE FOR LIGHT-DUTY VEHICLE REFUELING EMISSION TESTING

Model year	Sales percentage
1998	40
1999	80
2000 and subsequent	100

(ii) Small volume manufacturers, as defined in § 86.094-14(b) (1) and (2), are exempt from the implementation schedule of Table A98-08 of this section for model years 1998 and 1999. For small volume manufacturers, the standards of paragraph (d) of this section, and the associated test procedures, shall not apply until model year 2000, when 100 percent compliance with the standards of this section is required. This exemption does not apply to small volume engine families as defined in § 86.094-14(b)(5).

(e) through (f) [Reserved]
(g) through (k) [Reserved]. For guidance see § 86.096-8.

20. A new § 86.098-14 is added to subpart A to read as follows:

§ 86.098-14 Small-volume manufacturers certification procedures.

Section 86.098-14 includes text that specifies requirements that differ from §§ 86.094-14 or 86.095-14. Where a paragraph in § 86.094-14 or § 86.095-14 is identical and applicable to § 86.098-14, this may be indicated by specifying the corresponding paragraph and the statement "[Reserved]. For guidance see § 86.094-14." or "[Reserved]. For guidance see § 86.095-14."

(a) through (c)(7)(i)(C)(3) [Reserved]. For guidance see § 86.094-14.

(c)(7)(i)(C)(4) For light-duty vehicle, light-duty truck, and heavy-duty vehicle evaporative and/or refueling emissions (as applicable) and for light-duty truck, and heavy-duty engine exhaust emissions, deterioration factors shall be determined in accordance with § 86.098-24.

(c)(7)(ii) through (c)(11)(ii)(B) introductory text [Reserved]. For guidance see § 86.094-14.

(c)(11)(ii)(B)(1) Engine evaporative/refueling family names and vehicle (or engine) configurations.

(c)(11)(ii)(B)(2) through (c)(11)(ii)(B)(15) [Reserved]. For guidance see § 86.094-14.

(c)(11)(ii)(B)(16) through (c)(11)(ii)(B)(18) [Reserved]. For guidance see § 86.095-14.

(c)(11)(ii)(B)(19) For each light-duty vehicle, light-duty truck, or heavy-duty

vehicle evaporative/refueling emission family, a description of any unique procedures required to perform evaporative and/or refueling emission tests (as applicable) (including canister working capacity, canister bed volume, and fuel temperature profile for the running loss test) for all vehicles in that evaporative/refueling emission family, and a description of the method used to develop those unique procedures.

(20) For each light-duty vehicle, light-duty truck, or heavy-duty vehicle evaporative/refueling emission family:

(i) Canister working capacity, according to the procedures specified in § 86.132-96(h)(1)(iv);

(ii) Canister bed volume; and

(iii) Fuel temperature profile for the running loss test, according to the procedures specified in § 86.129-94(d).

(c)(11)(ii)(C) through (c)(11)(ii)(D)(5) [Reserved]. For guidance see § 86.095-14.

(c)(11)(ii)(D)(6) [Reserved].

(c)(11)(ii)(D)(7) through (c)(15) [Reserved]. For guidance see § 86.094-14.

21. A new § 86.098-17 is added to subpart A to read as follows:

§ 86.098-17 Emission control diagnostic system for 1998 and later light-duty vehicles and light-duty trucks.

Section 86.098-17 includes text that specifies requirements that differ from § 86.094-17. Where a paragraph in § 86.094-17 is identical and applicable to § 86.098-17, this may be indicated by specifying the corresponding paragraph and the statement "[Reserved]. For guidance see § 86.094-17."

(a) introductory text through (a)(3) [Reserved]. For guidance see § 86.094-17.

(a)(4) Any other deterioration or malfunction within the powertrain which occurs in actual use and which results in an exhaust emission increase of greater than 0.2 g/mi HC, 1.7 g/mi CO, or 0.5 g/mi NO_x, or any vapor leak in the evaporative and/or refueling system which results in an evaporative emissions increase of greater than 30.0 g/test measured over the first 24 hours of the diurnal portion of the revised evaporative emissions test procedure, in accordance with test procedures set forth in subpart B of this part, for vehicles certified to that test procedure.

(b)(1) The electronic evaporative and/or refueling emission purge control, if equipped, and all emission-related powertrain components connected to a computer shall, at a minimum, be monitored for circuit continuity. All components required by these regulations to be monitored shall be evaluated periodically, but no less

frequently than once per Urban Dynamometer Driving Schedule as defined in 40 CFR part 86, appendix I, paragraph (a), or similar trip.

(b)(2) through (j) [Reserved]. For guidance see § 86.094-17.

22. A new § 86.098-21 is added to subpart A to read as follows:

§ 86.098-21 Application for certification.

Section 86.098-21 includes text that specifies requirements that differ from § 86.094-21 or § 86.096-21. Where a paragraph in § 86.094-21 or § 86.096-21 is identical and applicable to § 86.098-21, this may be indicated by specifying the corresponding paragraph and the statement "[Reserved]. For guidance see § 86.094-21." or "[Reserved]. For guidance see § 86.096-21."

(a) through (b)(3) [Reserved]. For guidance see § 86.094-21.

(b)(4)(i) For light-duty vehicles and light-duty trucks, a description of the test procedures to be used to establish the evaporative emission and/or refueling emission deterioration factors (as applicable) required to be determined and supplied in § 86.098-23(b)(2).

(b)(4)(ii) through (iv) [Reserved]. For guidance see § 86.094-21.

(b)(5)(v) For light-duty vehicles with non-integrated refueling emission control systems, the number of continuous UDDS cycles, determined from the fuel economy on the UDDS applicable to the test vehicle of that evaporative/refueling emission family-emission control system combination, required to use a volume of fuel equal to 85% of fuel tank volume.

(b)(6) through (8) [Reserved]. For guidance see § 86.094-21.

(b)(9) For each light-duty vehicle, light-duty truck, or heavy-duty vehicle evaporative/refueling emission family, a description of any unique procedures required to perform evaporative and/or refueling emission tests (as applicable) (including canister working capacity, canister bed volume, and fuel temperature profile for the running loss test) for all vehicles in that evaporative/refueling emission family, and a description of the method used to develop those unique procedures.

(10) For each light-duty vehicle, light-duty truck, or heavy-duty vehicle evaporative/refueling emission family:

(i) Canister working capacity, according to the procedures specified in § 86.132-96(h)(1)(iv);

(ii) Canister bed volume; and

(iii) Fuel temperature profile for the running loss test, according to the procedures specified in § 86.129-94(d).

(c) and (d) [Reserved]. For guidance see § 86.094-21.

(e) For vehicles equipped with gasoline-fueled or methanol-fueled heavy-duty engines, the manufacturer shall specify a maximum nominal fuel tank capacity for each evaporative/refueling emission family-emission control system combination.

(f) through (i) [Reserved]. For guidance see § 86.094-21.

(j) and (k) [Reserved]. For guidance see § 86.096-21.

23. A new § 86.098-22 is added to subpart A to read as follows:

§ 86.098-22 Approval of application for certification; test fleet selections; determinations of parameters subject to adjustment for certification and Selective Enforcement Audit, adequacy of limits, and physically adjustable ranges.

Section 86.098-22 includes text that specifies requirements that differ from § 86.094-22. Where a paragraph in § 86.094-22 is identical and applicable to § 86.098-22, this may be indicated by specifying the corresponding paragraph and the statement "[Reserved]. For guidance see § 86.094-22."

(a) through (c) [Reserved]. For guidance see § 86.094-22.

(d) Approval of test procedures. (1) The Administrator does not approve the test procedures for establishing the evaporative and/or refueling emission deterioration factors for light-duty vehicles and light-duty trucks. The manufacturer shall submit the procedures as required in § 86.098-21(b)(4)(i) prior to the Administrator's selection of the test fleet under § 86.098-24(b)(1), and if such procedures will involve testing of durability data vehicles selected by the Administrator or elected by the manufacturer under § 86.098-24(c)(1), prior to initiation of such testing.

(d)(2) through (g) [Reserved]. For guidance see § 86.094-22.

24. Section 86.098-23 of subpart A is amended by revising the introductory text and paragraphs (a) through (l) to read as follows:

§ 86.098-23 Required data.

Section 86.098-23 includes text that specifies requirements that differ from § 86.095-23. Where a paragraph in § 86.095-23 is identical and applicable to § 86.098-23, this may be indicated by specifying the corresponding paragraph and the statement "[Reserved]. For guidance see § 86.095-23."

(a) through (b)(1)(ii) [Reserved]. For guidance see § 86.095-23.

(b)(2) For light-duty vehicles and light-duty trucks, the manufacturer shall submit evaporative emission and/or refueling emission deterioration factors for each evaporative/refueling emission family-emission control system

combination and all test data that are derived from testing described under § 86.098-21(b)(4)(i) designed and conducted in accordance with good engineering practice to assure that the vehicles covered by a certificate issued under § 86.098-30 will meet the evaporative and/or refueling emission standards in § 86.098-8 or § 86.098-9, as appropriate, for the useful life of the vehicle.

(b)(3) through (b)(4)(ii) [Reserved]. For guidance see § 86.095-23.

(b)(4)(iii) For petroleum-fueled diesel-cycle vehicles certifying under the waiver provisions of § 86.098-28, the certifications and representations specified in § 86.098-28.

(c) through (e)(1) [Reserved]. For guidance see § 86.095-23.

(e)(2) For evaporative and refueling emission durability, or light-duty truck or heavy-duty engine exhaust emission durability, a statement of compliance with paragraph (b)(2) or (b)(4)(iii) of this section or § 86.095-23 (b)(1)(ii), (b)(3) (b)(4)(i) or (b)(4)(ii), as applicable.

(3) For certification of vehicles with non-integrated refueling systems, a statement that the drivetrain used to purge the refueling canister was the same as described in the manufacturers' application for certification. Furthermore, a description of the procedures used to determine the number of equivalent UDDS miles required to purge the refueling canisters, as determined by the provisions of § 86.098-21(b)(5)(v) and subpart B of this part. Furthermore, a written statement to the Administrator that all data, analyses, test procedures, evaluations and other documents, on which the above statement is based, are available to the Administrator upon request.

(f) through (l) [Reserved]. For guidance see § 86.095-23.

* * * * *

25. A new § 86.098-24 is added to subpart A to read as follows:

§ 86.098-24 Test vehicles and engines.

Section 86.098-24 includes text that specifies requirements that differ from § 86.096-24. Where a paragraph in § 86.096-24 is identical and applicable to § 86.098-24, this may be indicated by specifying the corresponding paragraph and the statement "[Reserved]. For guidance see § 86.096-24."

(a) introductory text through (a)(4) [Reserved]. For guidance see § 86.096-24.

(a)(5) The gasoline-fueled and methanol-fueled light-duty vehicles and light-duty trucks covered by an application for certification will be divided into groupings which are

expected to have similar evaporative and/or refueling emission characteristics (as applicable) throughout their useful life. Each group of vehicles with similar evaporative and/or refueling emission characteristics shall be defined as a separate evaporative/refueling emission family.

(a)(6) For gasoline-fueled or methanol-fueled light-duty vehicles and light-duty trucks to be classed in the same evaporative/refueling emission family, vehicles must be similar with respect to the items listed in paragraphs (a)(6) (i) through (xii) of this section.

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

(ii) Basic canister design.

(A) Working capacity—grams adsorption within a 10g. range.

(B) System configuration—number of canisters and method of connection (i.e., series, parallel).

(C) Canister geometry, construction and materials.

(iii) Fuel system.

(iv) Type of refueling emission control system—non-integrated or integrated with the evaporative control system. Further, if the system is non-integrated, whether or not any other evaporative emissions, e.g. diurnal or hot soak emissions, are captured in the same storage device as the refueling emissions.

(v) Fillpipe seal mechanism—mechanical, liquid trap, other.

(vi) Fill limiter system.

(vii) Vapor control system or method of controlling vapor flow through the vapor line to the canister.

(viii) Vapor/liquid separator usage.

(ix) Purge system (valve, purge strategy and calibrations).

(x) Vapor hose diameter and material.

(xi) Canister location (front, rear, mid-vehicle).

(xii) Onboard diagnostic hardware and calibrations.

(a)(7) Where vehicles are of a type which cannot be divided into evaporative/refueling emission families based on the criteria listed above (such as non-canister control system approaches), the Administrator will establish families for those vehicles based upon the features most related to their evaporative and/or refueling emission characteristics.

(a)(8) through (b)(1)(vi) [Reserved]. For guidance see § 86.096–24.

(b)(1)(vii)(A) Vehicles of each evaporative/refueling emission family will be divided into evaporative/refueling emission control systems.

(B) The Administrator will select the vehicle expected to exhibit the highest evaporative and/or refueling emissions,

from within each evaporative/refueling family to be certified, from among the vehicles represented by the exhaust emission-data selections for the engine family, unless evaporative and/or refueling testing has already been completed on the vehicle expected to exhibit the highest evaporative and/or refueling emissions for the evaporative/refueling family as part of another engine family's testing.

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

(viii) For high-altitude evaporative and/or refueling emission compliance for each evaporative/refueling emission family, the manufacturer shall follow one of the following procedures:

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

(B) [Reserved]. For guidance see § 86.096–24.

(b)(ix) through (e)(2) [Reserved]. For guidance see § 86.096–24.

(f) *Carryover and carryacross of durability and emission data.* In lieu of testing an emission-data or durability vehicle (or engine) selected under paragraph (b)(1) (vii) through (viii) of this section and § 86.096–24 (b)(1) (i) through (vii) and (b)(2) through (c), and submitting data therefor, a manufacturer may, with the prior written approval of the Administrator, submit exhaust emission data, evaporative emission data and/or refueling emission data, as applicable on a similar vehicle (or engine) for which certification has been obtained or for which all applicable data required under § 86.098–23 has previously been submitted.

(g) through (h) [Reserved]. For guidance see § 86.096–24.

26. A new § 86.098–25 is added to subpart A to read as follows:

§ 86.098–25 Maintenance.

Section 86.098–25 includes text that specifies requirements that differ from § 86.094–25. Where a paragraph in § 86.094–25 is identical and applicable to § 86.098–25, this may be indicated by specifying the corresponding paragraph and the statement "[Reserved]. For guidance see § 86.094–25."

(a)(1) [Reserved]. For guidance see § 86.094–25.

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

(b) Introductory text through (b)(3)(vi)(D) [Reserved]. For guidance see § 86.094–25.

(b)(3)(vi)(E) Evaporative and/or refueling emission canister(s).

(F) Turbochargers.

(G) Carburetors.

(H) Superchargers.

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

(J) Mechanical fillpipe seals.

(b)(3)(vii) through (b)(6)(i)(E) [Reserved]. For guidance see § 86.094–25.

(b)(6)(i)(F) Evaporative and refueling emission control system components (excluding canister air filter).

(b)(6)(i)(G) through (h) [Reserved]. For guidance see § 86.094–25.

27. A new § 86.098–26 is added to subpart A to read as follows:

§ 86.098–26 Mileage and service accumulation; emission measurements.

Section 86.098–26 includes text that specifies requirements that differ from § 86.094–26, § 86.095–26 or § 86.096–26. Where a paragraph in § 86.094–26, § 86.095–26 or § 86.096–26 is identical and applicable to § 86.098–26, this may be indicated by specifying the corresponding paragraph and the statement "[Reserved]. For guidance see § 86.094–26." or "[Reserved]. For guidance see § 86.095–26." or "[Reserved]. For guidance see § 86.096–26."

(a)(1) and (2) [Reserved]. For guidance see § 86.094–26.

(a)(3) *Emission data vehicles.* Unless otherwise provided for in § 86.098–23(a), emission-data vehicles shall be operated and tested as described in paragraphs (a)(3)(i) and (ii)(C) of this section and § 86.094–26 (a)(3)(ii)(A), (B) and (D).

(i) *Otto-cycle.* (A) The manufacturer shall determine, for each engine family, the mileage at which the engine-system combination is stabilized for emission-data testing. The manufacturer shall maintain, and provide to the Administrator if requested, a record of the rationale used in making this determination. The manufacturer may elect to accumulate 4,000 miles on each

test vehicle within an engine family without making a determination. The manufacturer must accumulate a minimum of 2,000 miles (3,219 kilometers) on each test vehicle within an engine family. All test vehicle mileage must be accurately determined, recorded, and reported to the Administrator. Any vehicle used to represent emission-data vehicle selections under § 86.098-24(b)(1) shall be equipped with an engine and emission control system that has accumulated the mileage the manufacturer chose to accumulate on the test vehicle. Fuel economy data generated from certification vehicles selected in accordance with § 86.098-24(b)(1) with engine-system combinations that have accumulated more than 10,000 kilometers (6,200 miles) shall be factored in accordance with 40 CFR 600.006-87(c). Complete exhaust, evaporative and refueling (if required) emission tests shall be conducted for each emission-data vehicle selection under § 86.098-24(b)(1). The Administrator may determine under § 86.094-24(f) that no testing is required.

(B) [Reserved]. For guidance see § 86.094-26.

(C) Exhaust, evaporative and refueling emissions tests for emission-data vehicle(s) selected for testing under § 86.096-24(b)(1) (i), (ii), (iii) or (iv) or § 86.098-24(b)(1)(vii)(B) shall be conducted at the mileage (2,000 mile minimum) at which the engine-system combination is stabilized for emission testing under low-altitude conditions.

(a)(3)(i)(B) through (a)(3)(ii)(B) [Reserved]. For guidance see § 86.094-26.

(a)(3)(ii)(C) Exhaust, evaporative and refueling emissions tests (as required) for emission-data vehicle(s) selected for testing under § 86.096-24(b)(1) (i), (ii), (iii), or (iv), or § 86.098-24 (b)(1)(vii)(B) shall be conducted at the mileage (2,000 mile minimum) at which the engine-system combination is stabilized for emission testing under low-altitude conditions.

(a)(3)(ii)(D) through (b)(4)(i)(C) [Reserved]. For guidance see § 86.094-26.

(b)(4)(i)(D) through (b)(4)(ii)(D) [Reserved]. For guidance see § 86.095-26.

(b)(4)(iii) [Reserved].

(b)(4)(iv) through (c)(3) [Reserved]. For guidance see § 86.094-26.

(c)(4) [Reserved]. For guidance see § 86.096-26.

(d) [Reserved]. For guidance see § 86.094-26.

28. A new § 86.098-28 is added to subpart A to read as follows:

§ 86.098-28 Compliance with emission standards.

Section 86.098-28 includes text that specifies requirements that differ from § 86.094-28. Where a paragraph in § 86.094-28 is identical and applicable to § 86.098-28, this may be indicated by specifying the corresponding paragraph and the statement "[Reserved]. For guidance see § 86.094-28."

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

(2) Each exhaust, evaporative and refueling emission standard (and family particulate emission limits, as appropriate) of § 86.098-8 applies to the emissions of vehicles for the appropriate useful life as defined in §§ 86.098-2 and 86.098-8.

(3) [Reserved]. For guidance see § 86.094-28.

(4) The procedure for determining compliance of a new motor vehicle with exhaust, evaporative and/or refueling emission standards (or family particulate emission limit, as appropriate) is as described in paragraphs (a)(4)(i) introductory text, (a)(4)(i)(C), (a)(4)(ii)(B) and (C), (a)(4)(iii), (a)(4)(v), (f) and (g) of this section and § 86.094-28 (a)(4)(i)(A) and (B), (a)(4)(ii)(A), (a)(4)(iv)) except where specified by paragraph (a)(7) of this section for the Production AMA Durability Program.

(i) Separate emission deterioration factors shall be determined from the exhaust emission results of the durability-data vehicle(s) for each engine-system combination. Separate evaporative and/or refueling emission deterioration factors shall be determined for each evaporative/refueling emission family-emission control system combination from the testing conducted by the manufacturer (gasoline-fueled and methanol-fueled vehicles only). Separate refueling emission deterioration factors shall be determined for each evaporative/refueling emission combination from the testing conducted by the manufacturer (petroleum-fueled diesel cycle vehicles not certified under the provisions of paragraph (g) of this section only).

(a)(4)(i)(A) and (a)(4)(i)(B) [Reserved]. For guidance see § 86.094-28.

(a)(4)(i)(C) *Evaporative deterioration factor determination.* An evaporative emissions deterioration factor (gasoline-fueled and methanol-fueled vehicles only) shall be determined from the testing conducted as described in Section 86.094-21(b)(4) (i) (A), and in accordance with paragraphs (a)(4)(i)(C) (1) and (2) of this section, for each evaporative/refueling emission family-emission control system combination to

indicate the evaporative emission level at the applicable useful life relative to the evaporative emission level at 4,000 miles as follows:

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

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

(D) A refueling emissions deterioration factor (gasoline-fueled, methanol-fueled and petroleum-fueled diesel-cycle vehicles not certified under the provisions of paragraph (g) of this section) shall be determined from testing conducted and described in § 86.098-21(b)(4)(i)(B) for each evaporative/refueling emission family-emission control system combination to indicate the refueling emission level at the applicable useful life relative to the refueling emission level at 4,000 miles as follows:

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

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

(a)(4)(ii)(A) [Reserved]. For guidance see § 86.094-28.

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

(C) The official refueling emission test results (gasoline-fueled, methanol-fueled, and petroleum-fueled diesel cycle vehicles not certified under the provisions of paragraph (g) of this section) for each refueling emission-data vehicle at the selected test point shall be adjusted by addition of the appropriate deterioration factor: *Provided*, that if a deterioration factor as computed in paragraph (a)(4)(i)(D) of this section is less than zero, that deterioration factor shall be zero for purposes of this paragraph.

(iii) The emissions to compare with the standard (or the family particulate emission limit, as appropriate) shall be the adjusted emissions of paragraphs (a)(4)(ii) (B) and (C) of this section and § 86.094-28 (a)(4)(ii)(A) for each emission-data vehicle. Before any emission value is compared with the standard (or the family particulate

emission limit, as appropriate), it shall be rounded, in accordance with ASTM E 29-67, (reapproved 1980) (as referenced in § 86.094-28(a)(4)(i)(B)(2)(ii)), to two significant figures. The rounded emission values may not exceed the standard (or the family particulate emission limit, as appropriate).

(iv) [Reserved]. For guidance see § 86.094-28.

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

(a)(5) through (a)(6) [Reserved]. For guidance see § 86.094-28.

(a)(7) The procedure to determine the compliance of new motor vehicles in the Production AMA Durability Program described in § 86.094-13 is the same as described in paragraphs (a)(4)(iii) and (v) of this section and § 86.094-28 (a)(4)(iv). For the engine families that are included in the Production AMA Durability Program, the exhaust emission deterioration factors used to determine compliance shall be those that the Administrator has approved under § 86.094-13. The evaporative emission deterioration factor for each evaporative/refueling emission family shall be determined and applied according to paragraph (a)(4)(ii)(B) of this section. The refueling emission deterioration factor for each evaporative/refueling emission family shall be determined and applied according to paragraph (a)(4)(ii)(C) of this section. The procedures to determine the minimum exhaust emission deterioration factors required under § 86.094-13(d) are as described in paragraph (a)(7)(i) of this section and § 86.094-28 (a)(7)(ii).

(i) Separate deterioration factors shall be determined from the exhaust emission results of the durability data vehicles for each emission standard applicable under § 86.098-8, for each engine family group. The evaporative and/or refueling emission deterioration factors for each evaporative/refueling emission family will be determined and applied in accordance with paragraph (a)(4) of this section.

(a)(7)(ii) through (d) [Reserved]. For guidance see § 86.094-28.

(e) [Reserved]

(f) *Fuel dispensing spitback testing waiver.* (1) Vehicles certified to the refueling emission standards set forth in § 86.098-8 are not required to demonstrate compliance with the fuel dispensing spitback standard contained in that section: *Provided, that—*

(i) The manufacturer certifies that the vehicle inherently meets the Dispensing Spitback Standard as part of compliance with the refueling emission standard; and

(ii) This certification is provided in writing and applies to the full useful life of the vehicle.

(2) EPA retains the authority to require testing to enforce compliance and to prevent non-compliance with the Fuel Dispensing Spitback Standard.

(g) *Inherently low refueling emission testing waiver.* (1) Vehicles using fuels/fuel systems inherently low in refueling emissions are not required to conduct testing to demonstrate compliance with the refueling emission standards set forth in § 86.098-8: *Provided, that—*

(i) This provision is only available for petroleum diesel fuel. It is only available if the Reid Vapor Pressure of in-use diesel fuel is equal to or less than 1 psi (7 kPa) and for diesel vehicles whose fuel tank temperatures do not exceed 130 °F (54 °C); and

(ii) To certify using this provision the manufacturer must attest to the following evaluation: "Due to the low vapor pressure of diesel fuel and the vehicle tank temperatures, hydrocarbon vapor concentrations are low and the vehicle meets the 0.20 grams/gallon refueling emission standard without a control system."

(2) The certification required in paragraph (g)(1)(ii) of this section must be provided in writing and must apply for the full useful life of the vehicle.

(3) EPA reserves the authority to require testing to enforce compliance and to prevent noncompliance with the refueling emission standard.

(4) Vehicles certified to the refueling emission standard under this provision shall not be counted in the sales percentage compliance determinations for the 1988, 1989 and subsequent model years.

29. A new § 86.098-30 is added to subpart A to read as follows:

§ 86.098-30 Certification.

Section 86.098-30 includes text that specifies requirements that differ from § 86.094-30, § 86.095-30 or § 86.096-30. Where a paragraph in § 86.094-30, § 86.095-30 or § 86.096-30 is identical and applicable to § 86.098-30. This may be indicated by specifying the corresponding paragraph and the statement "[Reserved]. For guidance see § 86.094-30." or "[Reserved]. For guidance see § 86.095-30." or "[Reserved]. For guidance see § 86.096-30."

(a)(1) and (a)(2) [Reserved]. For guidance see § 86.094-30.

(a)(3)(i) One such certificate will be issued for each engine family. For gasoline-fueled and methanol-fueled light-duty vehicles and light duty-trucks and petroleum-fueled diesel-cycle light-duty vehicles and light duty-trucks not certified under § 86.098-28(g), one such certificate will be issued for each engine family-evaporative/refueling emission family combination. Each certificate will certify compliance with no more than one set of in-use and certification standards (or family emission limits, as appropriate).

(a)(3)(ii) through (a)(4)(ii) [Reserved]. For guidance see § 86.095-30.

(a)(4)(iii) introductory text through (a)(4)(iii)(C) [Reserved]. For guidance see § 86.094-30.

(a)(4)(iv) introductory text [Reserved]. For guidance see § 86.095-30.

(a)(4)(iv)(A) through (a)(12) [Reserved]. For guidance see § 86.094-30.

(a)(13) [Reserved]. For guidance see § 86.095-30.

(a)(14) [Reserved]. For guidance see § 86.094-30.

(a)(15) through (18) [Reserved]. For guidance see § 86.096-30.

(a)(19) For all light-duty vehicles certified to refueling emission standards under § 86.098-8, the provisions of paragraphs (a)(19) (i) through (iii) of this section apply.

(i) All certificates issued are conditional upon the manufacturer complying with all provisions of § 86.098-8, both during and after model year production.

(ii) Failure to meet the required implementation schedule sales percentages as specified in § 86.094-8 be considered to be a failure to satisfy the conditions upon which the certificate(s) was issued and the vehicles sold in violation of the implementation schedule shall not be covered by the certificate.

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

(b)(1) introductory text through (b)(1)(i)(B) [Reserved]. For guidance see § 86.094-30.

(b)(1)(i)(C) The emission-data vehicle(s) selected under § 86.098-24(b)(1)(vii) (A) and (B) shall represent all vehicles of the same evaporative/refueling control system within the evaporative/refueling family.

(b)(1)(ii) through (b)(1)(iv) [Reserved]. For guidance see § 86.094-30.

(b)(2) The Administrator will proceed as in paragraph (a) of this section with respect to the vehicles (or engines) belonging to an engine family or engine

family-evaporative/refueling emission family combination (as applicable), all of which comply with all applicable standards (or family emission limits, as appropriate).

(b)(3) through (b)(4)(i) [Reserved]. For guidance see § 86.094–30.

(b)(4)(ii) Remove the vehicle configuration (or evaporative/refueling vehicle configuration, as applicable) which failed, from his application:

(b)(4)(ii)(A) [Reserved]. For guidance see § 86.094–30.

(b)(4)(ii)(B) If the failed vehicle was tested for compliance with one or more of the exhaust, evaporative and refueling emission standards: The Administrator may select, in place of the failed vehicle, in accordance with the selection criteria employed in selecting the failed vehicle, a new emission data vehicle which will be tested for compliance with all of the applicable emission standards. If one vehicle cannot be selected in accordance with the selection criteria employed in selecting the failed vehicle, then two or more vehicles may be selected (e.g., one vehicle to satisfy the exhaust emission vehicle selection criteria and one vehicle to satisfy the evaporative and refueling emission vehicle selection criteria). The vehicle selected to satisfy the exhaust emission vehicle selection criteria will be tested for compliance with exhaust emission standards (or family emission limits, as appropriate) only. The vehicle selected to satisfy the evaporative and/or refueling emission vehicle selection criteria will be tested for compliance with exhaust, evaporative and/or refueling emission standards; or

(iii) Remove the vehicle configuration (or evaporative/refueling vehicle configuration, as applicable) which failed from the application and add a vehicle configuration(s) (or evaporative/refueling vehicle configuration(s), as applicable) not previously listed. The Administrator may require, if applicable, that the failed vehicle be modified to the new engine code (or evaporative/refueling emission code, as applicable) and demonstrate by testing that it meets applicable standards (or family emission limits, as appropriate) for which it was originally tested. In addition, the Administrator may select, in accordance with the vehicle selection criteria given in § 86.001–24(b), a new emission data vehicle or vehicles. The vehicles selected to satisfy the exhaust emission vehicle selection criteria will be tested for compliance with exhaust emission standards (or family emission limits, as appropriate) only. The vehicles selected to satisfy the evaporative emission vehicle selection

criteria will be tested for compliance with all of the applicable emission standards (or family emission limits, as appropriate); or

(iv) Correct a component or system malfunction and show that with a correctly functioning system or component the failed vehicle meets applicable standards (or family emission limits, as appropriate) for which it was originally tested. The Administrator may require a new emission data vehicle, of identical vehicle configuration (or evaporative/refueling vehicle configuration, as applicable) to the failed vehicle, to be operated and tested for compliance with the applicable standards (or family emission limits, as appropriate) for which the failed vehicle was originally tested.

(b)(5) through (e) [Reserved]. For guidance see § 86.094–30.

(f) Introductory text through (f)(3) [Reserved]. For guidance see § 86.095–30.

(f)(4) The electronic evaporative and/or refueling purge control device (if equipped) or any emission-related powertrain component connected to a computer is electrically disconnected.

30. A new § 86.098–35 is added to subpart A to read as follows:

§ 86.098–35 Labeling.

Section 86.098–35 includes text that specifies requirements that differ from §§ 86.095–35 and 86.096–35. Where a paragraph in § 86.095–35 or § 86.096–35 is identical and applicable to § 86.098–35, this may be indicated by specifying the corresponding paragraph and the statement "[Reserved]. For guidance see § 86.095–35." or "[Reserved]. For guidance see § 86.096–35."

(a) Introductory text through (a)(1)(iii)(B) [Reserved]. For guidance see § 86.095–35.

(a)(1)(iii)(C) Engine displacement (in cubic inches or liters), engine family identification and evaporative/refueling family identification.

(a)(1)(iii)(D) through (L) [Reserved]. For guidance see § 86.095–35.

(a)(1)(iii)(M) For model year 1998 light-duty vehicles, a clear indication of which test procedure was used to certify the evaporative/refueling family, e.g., "Evaporative /refueling Family xx (§ 86.130–96 procedures)" or "Evaporative /refueling Family xx (§ 86.130–78 procedures)."

(a)(1)(iii)(N) [Reserved]. For guidance see § 86.096–35.

(a)(2) heading through (a)(2)(iii)(K) [Reserved]. For guidance see § 86.095–35.

(a)(2)(iii)(L) [Reserved].

(a)(2)(iii)(M) through (a)(2)(iii)(N) [Reserved]. For guidance see § 86.095–35.

(a)(2)(iii)(O) through (a)(2)(iii)(P) [Reserved]. For guidance see § 86.096–35.

(a)(3) heading through (a)(4)(iii)(F) [Reserved]. For guidance see § 86.095–35.

(a)(4)(iii)(G) [Reserved]. For guidance see § 86.096–35.

(b) through (i) [Reserved]. For guidance see § 86.095–35.

31. Section 86.099–8 of subpart A is amended by adding paragraphs (b)(5) and (6), revising paragraph (c), adding paragraph (d), and revising paragraphs (e) through (k) to read as follows:

§ 86.099–8 Emission standards for 1999 and later model year light-duty vehicles.

* * * * *

(b) * * *

(5) [Reserved]. For guidance see § 86.096–8.

(b)(6) Vehicles certified to the refueling standards set forth in paragraph (d) of this section are not required to demonstrate compliance with the Fuel Dispensing Spillback standards contained in paragraphs (b)(1)(iii) and (b)(2)(iii) of this section: *Provided*, that they meet the requirements of § 86.098–28(f).

(c) [Reserved]. For guidance see § 86.096–8.

(d) Refueling emissions from 1999 and later model year gasoline-fueled and methanol-fueled Otto-cycle and petroleum-fueled and methanol-fueled diesel-cycle light duty vehicles shall not exceed the following standards. The standards apply equally to certification and in-use vehicles.

(1) *Standards*—(i) *Hydrocarbons (for gasoline-fueled Otto gallon (0.053 gram per liter) of fuel dispensed.*

(ii) *Organic Material Hydrocarbon Equivalent (for methanol-fueled vehicles).* 0.20 gram per gallon (0.053 gram per liter) of fuel dispensed.

(2)(i) The standards set forth in paragraphs (d)(1)(i) and (ii) of this section refer to a sample of refueling emissions collected under the conditions set forth in subpart B of this part and measured in accordance with those procedures.

(ii) For vehicles powered by petroleum-fueled diesel-cycle engines, the provisions set forth in paragraph (d)(1)(i) of this section may be waived: *Provided*, that the manufacturer complies with the provisions of § 86.098–28(f) of this subpart.

(3)(i) A minimum of the percentage shown in Table A99–08 of a manufacturer's sales of the applicable model year's gasoline- and methanol-fueled Otto-cycle and petroleum- and methanol-fueled diesel cycle light-duty vehicles shall be tested under the

procedures in subpart B of this part indicated for 1998 and later model years, and shall not exceed the standards described in paragraph (d)(1) of this section. Vehicles certified in accordance with paragraph (d)(2)(ii) of this section, as determined by the provisions of § 86.098-28(g), shall not be counted in the calculation of the percentage of compliance.

TABLE A99-08. IMPLEMENTATION SCHEDULE FOR LIGHT-DUTY VEHICLE REFUELING EMISSION TESTING

Model year	Sales percentage
1999	80
2000 and subsequent	100

(ii) Small volume manufacturers, as defined in § 86.094-14(b) (1) and (2), are exempt from the implementation schedule of Table A99-08 of this section for model year 1999. For small volume manufacturers, the standards of paragraph (d) of this section, and the associated test procedures, shall not apply until model year 2000, when 100 percent compliance with the standards of this section is required. This exemption does not apply to small volume engine families as defined in § 86.094-14(b)(5).

(e) through (f) [Reserved]
(g) through (k) [Reserved]. For guidance see § 86.096-8.

Subpart B—[Amended]

1. Section 86.101 of subpart B is amended by adding a new paragraph (a)(3) to read as follows:

§ 86.101 General applicability.

(a) * * *
(3) Sections 86.150-98 through 86.156-98 describe the refueling test procedures for light-duty vehicles and light-duty trucks and apply for 1998 and later model years.

* * * * *

2. Section 86.105 of subpart B is amended by revising paragraph (b) to read as follows:

§ 86.105 Introduction; structure of subpart.

* * * * *

(b) Three topics are addressed in this subpart. Sections 86.106-82 through 86.115-78 set forth specifications and equipment requirements; §§ 86.116-82 through 86.126-90 discuss calibration methods and frequency; test procedures and data requirements are listed (in approximate order of performance) in §§ 86.127-82 through 86.156-98.

3. A new § 86.107-98 is added to subpart B to read as follows:

§ 86.107-98 Sampling and analytical system.

Section 86.107-98 includes text that specifies requirements that differ from § 86.107-96. Where a paragraph in § 86.107-96 is identical and applicable to § 86.107-98, this may be indicated by specifying the corresponding paragraph and the statement "[Reserved]. For guidance see § 86.107-96." Where a corresponding paragraph of § 86.107-96 is not applicable, this is indicated by the statement "[Reserved]."

(a)(1) through (a)(3) [Reserved]. For guidance see § 86.107-96.

(a)(4) *Refueling emissions test.* The requirements detailed in § 86.107-90 (a)(1) shall apply. Alternatively, an enclosure meeting the specifications detailed in § 86.107-96 (a)(1), (2), or (3) may be used if approved in advance by the Administrator. In addition, the enclosure shall have one or more access ports leading to flexible, automatic sealing boots, in the wall(s) of the enclosure. The function of the access port(s) and boots shall be to allow fueling of the test vehicle from a fuel nozzle and hose located outside of the enclosure, with only the spout of the nozzle passing through the automatic sealing opening of the boot during fueling. There shall be no loss in the gas tightness of the enclosure at the opening of the boot either when the nozzle is inserted or when the nozzle is not inserted.

(b) through (d) [Reserved]. For guidance see § 86.107-96.

(e) *Temperature recording system.* (1) *For all emission testing.* A strip chart potentiometric recorder, an on-line computer system, or other suitable means shall be used to record enclosure ambient temperature during all evaporative emission test segments, as well as vehicle fuel tank temperature during the running loss test. The recording system shall record each temperature at least once every minute. The recording system shall be capable of resolving time to ± 15 s and capable of resolving temperature to ± 0.75 °F (± 0.42 °C). The recorder (data processor) shall have a time accuracy of ± 15 s and a precision of ± 15 s. Two ambient temperature sensors, connected to provide one average output, shall be located 3 feet above the floor at the approximate mid-length of each side wall of the enclosure and within 3 to 12 inches of each side wall. Manufacturers shall arrange that vehicles furnished for testing at Federal certification facilities be equipped with iron-constantan Type J thermocouples for measurement of fuel tank temperature. Vehicles shall be equipped with 2 temperature sensors installed to provide an average liquid

fuel temperature. The temperature sensors shall be placed to measure the temperature at the mid-volume of the liquid fuel at a fill level of 40 percent of nominal tank capacity. In-tank temperature sensors are not required for the supplemental two-diurnal test sequence specified in § 86.130-96 or for the refueling test specified in § 86.151-98.

(2) *Refueling emission testing only.* In addition to the enclosure ambient temperature recording system described in paragraph (e)(1) of this section, strip chart recorder(s) or automatic data processor shall be used to record vehicle soak area ambient temperature and dispensed fuel temperature at the nozzle during the test. The temperature recorder(s) or data processor shall record each temperature at least once every 20 seconds (the soak area ambient temperature recorder may be a continuous recording system). The recording system shall be capable of resolving time to ± 15 s and be capable of resolving temperature to ± 0.75 °F (0.42 °C).

(f) through (h)(3) [Reserved]. For guidance see § 86.107-96.

(h)(4) *Refueling emission test.* Blowers or fans must have a capacity of 0.8 ± 0.2 cfm per cubic foot of the nominal enclosure volume. Circulated air shall not be aimed directly at the vehicle.

(5) *Spilled fuel mixing blower; refueling emission test.* An explosion-proof blower of 100-200 ft³/min (2.8-5.7 m³/min) capacity is required to enhance mixing of vapors from spilled fuel through the enclosure atmosphere during tests. The discharge from this blower shall be directed toward the region of the enclosure floor where fuel spillage during fueling may occur.

(i) [Reserved]. For guidance see § 86.107-96.

(j) *Refueling equipment.* The refueling equipment shall consist of a fuel delivery system with temperature control equipment, fuel flow safety switch, dispensing pump, hose, nozzle and a meter to measure the dispensed fuel volume. The dispensing nozzle shall be a commercial model, not equipped with vapor recovery hardware. A fuel recirculation system may be utilized to avoid trapping of unheated fuel in the hose. The fuel delivery system must be capable of delivering fuel at 67 ± 1.5 °F (19.4 ± 0.8 °C) and a constant flow rate between 4.2 and 9.8 gal/min (15.9 and 37.1 liter/min) with a tolerance of ± 0.3 gal/min (± 1.1 liter/min) during the refueling emissions measurement phase of the test. The accuracy of the meter for measuring the dispensed fuel volume shall be ± 2 percent at the test flow rate.

4. Section 86.115-78 of subpart B is amended by revising paragraphs (b)(3)(ii) and (b)(5) to read as follows:

§ 86.115-78 EPA urban dynamometer driving schedules.

* * * * *

(b) * * *

(3) * * *

(ii) When conducted to meet the requirements of § 86.129-94 or § 86.153-98(d), up to three additional occurrences of speed variations greater than the tolerance are acceptable, provided they occur for less than 15 seconds on any occasion, and are clearly documented as to the time and speed at that point of the driving schedule.

* * * * *

(5) When conducted to meet the requirements of § 86.129-94, 86.132-96, 86.146-96, or 86.153-98(d), the speed tolerance shall be as specified above, except that the upper and lower limits shall be 4 mph (6.4 km/h).

* * * * *

5. Section 86.132-96 of subpart B is amended by revising paragraphs (h) introductory text, (j) introductory text, (j)(1)(i) and (j)(1)(viii) to read as follows:

§ 86.132-96 Vehicle preconditioning.

* * * * *

(h) During the soak period for the three-diurnal test sequence described in § 86.130-96, evaporative canisters, if the vehicle is so equipped, shall be preconditioned according to the following procedure. For vehicles with multiple canisters, each canister shall be preconditioned separately. In addition, for model year 1998 and later vehicles equipped with refueling canisters, these canisters shall be preconditioned for the three-diurnal test sequence according to the procedure in § 86.132-96 (j)(1). If a vehicle is designed to actively control evaporative or refueling emission without a canister, the manufacturer shall devise an appropriate

preconditioning procedure subject to the approval of the Administrator.

* * * * *

(j) For the supplemental two-diurnal test sequence described in § 86.130-96, one of the following methods shall be used to precondition evaporative canisters during the soak period specified in paragraph (g) of this section. For vehicles with multiple canisters, each canister shall be preconditioned separately. In addition, for model year 1998 and later vehicles equipped with refueling canisters, these canisters shall be preconditioned for the supplemental two-diurnal test sequence according to the procedure in paragraph (j)(1) of this section. Canister emissions are measured to determine breakthrough. Breakthrough is here defined as the point at which the cumulative quantity of hydrocarbons emitted is equal to 2 grams.

(1) * * *

(i) Prepare the evaporative/refueling emission canister for the canister loading operation. The canister shall not be removed from the vehicle, unless access to the canister in its normal location is so restricted that purging and loading can only reasonably be accomplished by removing the canister from the vehicle. Special care shall be taken during this step to avoid damage to the components and the integrity of the fuel system.

* * * * *

(viii) Reconnect the evaporative/refueling emission canister and restore the vehicle to its normal operating condition.

* * * * *

6. A new § 86.150-98 is added to subpart B to read as follows:

§ 86.150-98 Overview; refueling test.

(a) The refueling emissions test procedure described in this and subsequent sections is used to determine the conformity of vehicles with the refueling emissions standards set forth in subpart A of this part for

light-duty vehicles and light-duty trucks. The refueling emissions test procedure may be performed as an individual test or in combination with the evaporative and exhaust emissions test sequences of § 86.130-96.

(b) The refueling emissions test is designed to measure hydrocarbon emissions resulting from the generation or displacement of fuel tank vapor during vehicle refueling. The refueling emissions shall be measured by the enclosure technique.

(c) All emission control systems installed on or incorporated in a new motor vehicle shall be functioning during all procedures in this subpart except:

(1) In cases of component malfunction or failure; and

(2) during certain specified fuel drain and fill operations, at which times the refueling emission control canister is disconnected. Maintenance to correct component malfunction or failure shall be authorized in accordance with § 86.098-25.

7. A new section 86.151-98 is added to subpart B to read as follows:

§ 86.151-98 General requirements; refueling test.

(a) The refueling emissions procedure, shown in Figure B98-12, starts with the stabilizing of the vehicle and the loading of the refueling emissions canister(s) to breakthrough, and continues with the vehicle drive for purging of the canister, followed by the refueling emissions measurement. The test is conducted following §§ 86.152-98 through 86.154-98 in order.

(b) Ambient temperature levels encountered by the test vehicle throughout the test sequence shall not be less than 68 °F (20 °C) nor more than 86 °F (30 °C).

(c) The vehicle shall be approximately level during all phases of the test sequence to prevent abnormal fuel distribution.

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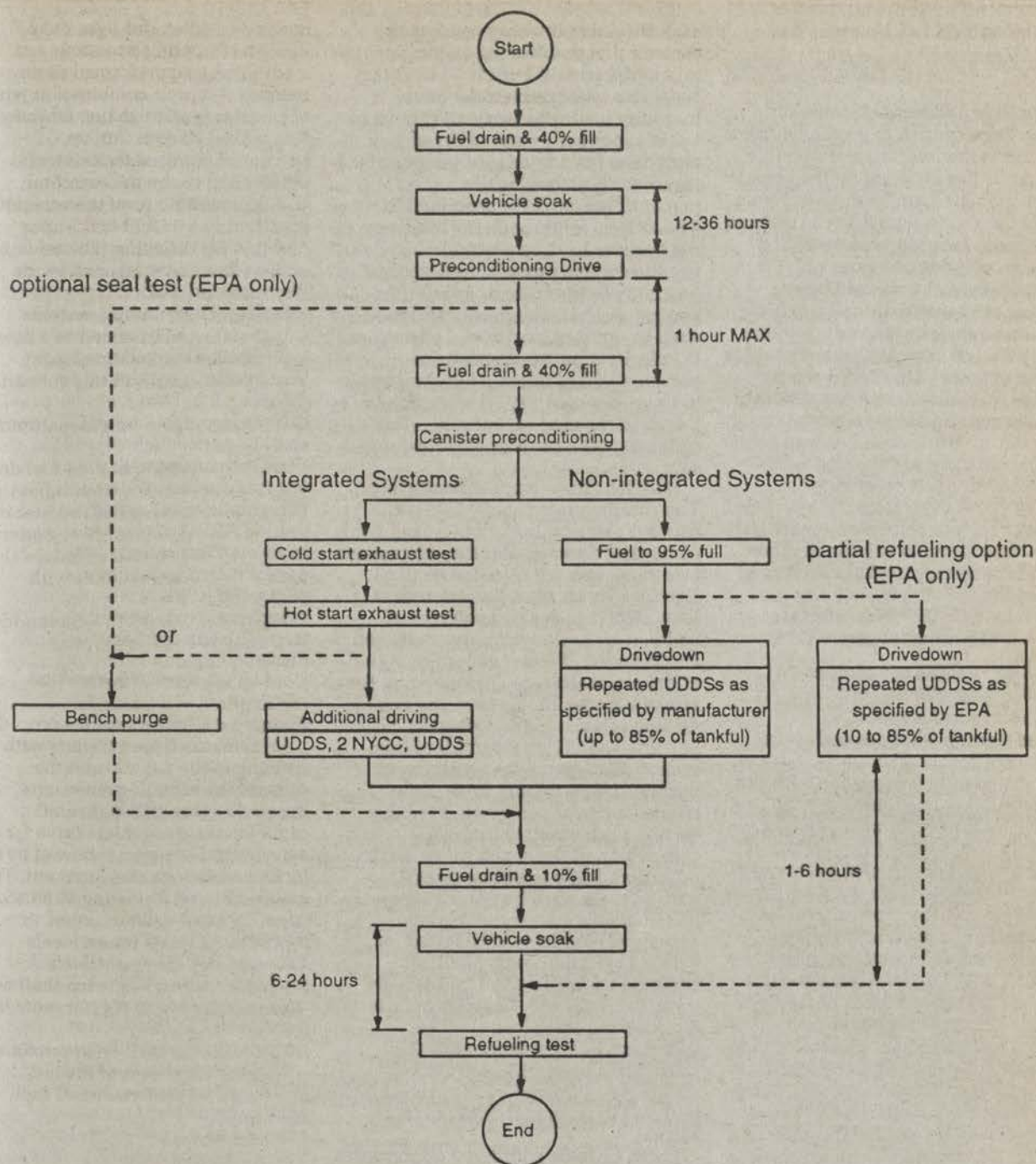


Figure B98-12: Refueling Test Sequence

8. A new § 86.152-98 is added to subpart B to read as follows:

§ 86.152-98 Vehicle preparation; refueling test.

(a) Provide additional fittings and adapters, as required, to accommodate a fuel drain at the lowest point possible in the tank(s) as installed on the vehicle. The canister shall not be removed from the vehicle, unless access to the canister in its normal location is so restricted that purging and loading can only reasonably be accomplished by removing the canister from the vehicle. Special care shall be taken during this step to avoid damage to the components and the integrity of the fuel system.

(b) Provide valving or other means to allow the venting of the refueling vapor line to the atmosphere rather than to the refueling emissions canister(s) when required by this test procedure.

(c) For preconditioning that involves loading the vapor collection canister(s) with butane, provide valving or other means as necessary to allow loading of the canister(s).

9. A new § 86.153-98 is added to subpart B to read as follows:

§ 86.153-98 Vehicle and canister preconditioning; refueling test.

(a) *Vehicle and canister preconditioning.* Vehicles and vapor storage canisters shall be preconditioned in accordance with the preconditioning procedures for the supplemental two-diurnal evaporative emissions test specified in § 86.132-96 (a) through (j). For vehicles equipped with non-integrated refueling emission control systems, the canister must be loaded using the method involving butane loading to breakthrough (see § 86.132-96 (j)(1)). If the refueling test procedure is started within 24 hours of the completion of an evaporative emission test on the same vehicle at the same ambient conditions, the fuel tank drain and fill and minimum soak period requirement described in § 86.132-96 (b) and (c) may be omitted from the refueling test procedure.

(b) *Seal test.* The Administrator may choose to omit certain canister load and purge steps, and replace them with a bench purge of the refueling canister(s), in order to verify the adequacy of refueling emission control system seals. Failure of this seal test shall constitute a failure of the refueling emission control test. For integrated systems, this bench purge may be performed after the exhaust testing in order to obtain exhaust emission test results. Non-integrated system seal testing shall be performed using paragraph (b)(1) of this section.

(1) *Without the exhaust emission test.* The Administrator may conduct the canister preconditioning by purging the canister(s) with at least 1200 canister bed volumes of ambient air (with humidity controlled to 50±25 grains of water vapor per pound of dry air) maintained at a nominal flow rate of 0.8 cfm directly following the preconditioning drive described in § 86.132-96 (c) through (e). In this case, the canister loading procedures and the vehicle driving procedures described in § 86.132-96 (f) through (j) and in paragraphs (c) through (d) of this section shall be omitted, and the 10 minute and 60 minute time requirements of paragraph (e) of this section shall apply to time after completion of the bench purge. In the case of multiple refueling canisters, each canister shall be purged separately.

(2) *With the exhaust emission test.* The Administrator may conduct the canister preconditioning by purging the canister(s) directly after the exhaust test (see paragraph (c)(1) of this section). The canister shall be purged with at least 1200 canister bed volumes of ambient air (with humidity controlled to 50±25 grains of water vapor per pound of dry air) maintained at a nominal flow rate of 0.8 cfm. In this case, the vehicle driving procedures described in paragraphs (c)(2) through (d) of this section shall be omitted, and the 10 minute and 60 minute time requirements of paragraph (e) of this section shall apply to time after completion of the bench purge. In the case of multiple refueling canisters, each canister shall be purged separately.

(c) *Canister purging; integrated systems.* (1) Vehicles to be tested for exhaust emissions only shall be processed according to §§ 86.135-94 through 86.137-96. Vehicles to be tested for refueling emissions shall be processed in accordance with the procedures in §§ 86.135-94 through 86.137-96, followed by the procedures outlined in paragraph (c)(2) of this section.

(2) To provide additional opportunity for canister purge, conduct additional driving on a dynamometer, within one hour of completion of the hot start exhaust test, by operating the test vehicle through one UDDS, a 2 minute idle, two NYCCs, another 2 minute idle, another UDDS, then another 2 minute idle (see § 86.115-78 and Appendix I of this part). Fifteen seconds after the engine starts, place the transmission in gear. Twenty seconds after the engine starts, begin the initial vehicle acceleration of the driving schedule. The transmission shall be operated according to the specifications of

§ 86.128-79 during the driving cycles. A cooling fan(s) shall be positioned as described in § 86.135-94(b).

(d) *Canister purging; non-integrated systems.* Within one hour of completion of canister loading to breakthrough, the fuel tank(s) shall be further filled to 95 percent of nominal tank capacity determined to the nearest one-tenth of a U.S. gallon (0.38 liter) with the fuel specified in § 86.113-94. During this fueling operation, the refueling emissions canister(s) shall be disconnected. Following completion of refueling, the refueling emissions canister(s) shall be reconnected. Special care shall be taken during this step to avoid damage to the components and the integrity of the fuel system. Vehicle driving to purge the refueling canister(s) shall be performed using either the chassis dynamometer procedure or the test track procedure, as described in paragraphs (d)(1) and (d)(2) of this section. The Administrator may choose to shorten the vehicle driving for a partial refueling test as described in paragraph (d)(3) of this section. For vehicles equipped with dual fuel tanks, the required volume of fuel shall be driven out of one tank, the second tank shall be selected as the fuel source, and the required volume of fuel shall be driven out of the second tank.

(1) *Chassis dynamometer procedure.* (i) Vehicle driving on a chassis dynamometer shall consist of repeated drives with the UDDS until 85 percent of fuel tank capacity has been consumed. Driving in testing performed by manufacturers may be terminated before 85 percent of the fuel tank capacity has been consumed, provided that driving is not terminated partway through a UDDS cycle. Driving in testing performed by the Administrator may be terminated after the same number of UDDS cycles as driven in the manufacturer's certification testing.

(ii) Except with the advance approval of the Administrator, the number of UDDSs required to consume 85 percent of tank fuel capacity (total capacity of both tanks when the vehicle is equipped with dual fuel tanks) shall be determined from the fuel economy on the UDDS applicable to the test vehicle and from the number of gallons to the nearest 0.1 gallon (0.38 liter) that constitutes 85 percent of tank volume. If this "fuel consumed point" occurs partway through a UDDS cycle, the cycle shall be completed in its entirety.

(iii) For vehicles equipped with dual fuel tanks, fuel switching from the first tank to the second tank shall occur at the 10 percent volume of the first tank regardless of the point in the UDDS cycle at which this occurs.

(iv) If necessary to accommodate work schedules, the engine may be turned off and the vehicle parked on the dynamometer. The vehicle may be parked off of the dynamometer to facilitate maintenance or repairs if required.

(v) During the driving on the dynamometer, a cooling fan(s) shall be positioned as described in § 86.135-94(b).

(2) *Test track procedure.* (i) Vehicle driving on a test track shall consist of repeated drives with the UDSS until 85 percent of fuel tank capacity has been consumed. Driving performed by manufacturers may be terminated before 85 percent of the fuel tank capacity has been consumed, provided that driving is not terminated partway through a UDSS cycle. Driving performed by the Administrator may be terminated after the same number of UDSS cycles as driven in the manufacturer's certification testing.

(ii) If the distance from the emission laboratory to the test track is less than 5 miles (8.05 km) the vehicle may be driven to the test track at a speed not to exceed 25 mph. If the distance is greater than 5 miles (8.05 km) the vehicle shall be moved to the test track with the engine off.

(iii) Except with the advance approval of the Administrator, the number of UDSSs required to consume 85 percent of tank fuel capacity (total capacity of both tanks when the vehicle is equipped with dual fuel tanks) shall be determined from the fuel economy on the UDSS applicable to the test vehicle and from the number of gallons to the nearest 0.1 gallon (0.38 liter) that constitutes 85 percent of tank volume. If this "fuel consumed point" occurs partway through a UDSS cycle, the cycle shall be completed in its entirety.

(iv) The vehicle shall be driven at a speed not to exceed 25 mph from the test track to the laboratory provided the distance from the test track to the laboratory does not exceed 5 miles (8.05 km). If the distance from the test track to the emission laboratory is greater than 5 miles (8.05 km) the vehicle shall be moved from the test track with the engine off.

(v) For vehicles equipped with dual fuel tanks, fuel switching from the first tank to the second tank shall occur at the 10 percent volume of the first tank regardless of the point in the UDSS cycle at which this occurs.

(vi) If necessary to accommodate work schedules, the engine may be turned off and the vehicle parked on the test track. The vehicle may be parked off of the test track to facilitate maintenance or repairs if required. If the vehicle is moved from

the test track, it shall be returned to the track with the engine off when mileage accumulation is to be resumed.

(3) *Drive schedule for partial refueling test.* The Administrator may conduct a partial refueling test involving a shortening of the drive procedures described in paragraphs (d) (1) and (2) of this section and a modified soak and refueling procedure as described in paragraph (e) of this section and § 86.154-98(e)(7)(i). The drive shall be performed as described in paragraph (d) (1) or (2) of this section except that the drive shall be terminated when at least 10 percent but no more than 85 percent of the fuel tank nominal capacity has been consumed and not partway through a UDSS cycle. The amount of fuel consumed in the drive shall be determined by multiplying the number of UDSSs driven by the mileage accumulated per UDSS and dividing by the fuel economy for the UDSS applicable to the test vehicle.

(e) *Vehicle cool down—(1) Partial refueling test.* If the Administrator is conducting the non-integrated system partial refueling test, after the driving procedure specified in paragraph (d)(3) of this section, the vehicle shall be parked (without starting the engine) and soaked at 80 ± 3 °F (27 ± 1.7 °C) for a minimum of 1 hour and a maximum of 6 hours.

(2) *For all other refueling emission tests.* Within 10 minutes of completion of refueling emissions canister stabilization (see paragraph (c) or (d) of this section), the refueling emissions canister(s) shall be disconnected. Within 60 minutes of completion of refueling emissions canister stabilization (see paragraph (c) or (d) of this section), the vehicle fuel tank(s) shall be drained, the fuel tank(s) fueled to 10 percent of nominal tank capacity determined to the nearest one-tenth of a U.S. gallon (0.38 liter) with the specified fuel, and the vehicle parked (without starting the engine) and soaked at 80 ± 3 °F (27 ± 1.7 °C) for a minimum of 6 hours and a maximum of 24 hours.

10. A new § 86.154-98 is added to subpart B to read as follows:

§ 86.154-98 Measurement procedure; refueling test.

(a) The refueling test measurement procedure described in this section immediately follows the vehicle and canister preconditioning described in § 86.153-98.

(b) The refueling emission enclosure shall be purged for several minutes immediately prior to the test. Warning: If at any time the concentration of hydrocarbons, of methanol, or of methanol and hydrocarbons exceeds

15,000 ppm C, the enclosure should be immediately purged. This concentration provides a 4:1 safety factor against the lean flammability limit.

(c)(1) The FID (or HFID) hydrocarbon analyzer, and additional analyzer, if needed, shall be zeroed and spanned immediately prior to the test.

(2) For methanol-fueled vehicles only, impingers charged with known volumes of pure deionized water shall be placed in the methanol sampling system.

(d) If not already on, the enclosure mixing fan and the spilled fuel mixing blower shall be turned on at this time.

(e) The refueling emission measurement portion of the refueling test shall be performed as follows:

(1) The line from the fuel tank(s) to the refueling emissions canister(s) shall be connected.

(2) The test vehicle, with the engine shut off, shall be moved into the enclosure. The test vehicle windows and luggage compartment shall be opened if not already open.

(3) An electrical ground shall be attached to the vehicle. The enclosure door shall be closed and sealed. The FID (or HFID) trace shall be allowed to stabilize.

(4) The dispensed fuel temperature recording system shall be started.

(5)(i) Within 10 minutes of closing and sealing the doors, analyze enclosure atmosphere for hydrocarbons and record. This is the initial (time=0 minutes) hydrocarbon concentration, CHC_i , required in § 86.143-96.

(ii) For methanol-fueled vehicles only, measure the initial concentration of methanol as described in § 86.133-96(i)(6).

(6) Within one minute of obtaining the initial FID (or HFID) reading, and methanol reading if applicable, the fuel nozzle shall be inserted into the filler neck of the test vehicle, to its maximum penetration, and the refueling operation shall be started. The plane of the nozzle's handle shall be approximately perpendicular to the floor of the laboratory. The fuel shall be dispensed at a temperature of 67 ± 1.5 °F (19.4 ± 0.8 °C) and at a dispensing rate of 9.8 ± 0.3 gal/min (37.1 ± 1.1 liter/min). In testing conducted by the Administrator, a lower dispensing rate (no lower than 4.0 gal/min (15.1 liter/min)) may be used.

(7)(i) *Partial refueling test.* If the Administrator conducts the non-integrated system partial refueling test, the fuel flow shall continue until the amount of fuel pumped is equal to the fuel consumed during the driving, as determined in accordance with § 86.153-98(d)(3). The final volume of fuel dispensed must be within one-tenth of a U.S. gallon (0.38 liter) of the

targeted amount. If automatic nozzle shut-off occurs prior to this point, the nozzle shall be reactivated within 15 seconds and fuel dispensing continued as needed. A minimum of 3 seconds shall elapse between any automatic shutoff and subsequent resumption of dispensing.

(ii) *For all other refueling tests.* The fuel flow shall continue until the refueling nozzle automatic shut-off is activated. The amount of fuel dispensed must be at least 85 percent of nominal fuel tank volume, determined to the nearest one-tenth of a U.S. gallon (0.38 liter). If automatic nozzle shut-off occurs prior to this point, the nozzle shall be reactivated within 15 seconds and fuel dispensing continued as needed. A minimum of 3 seconds shall elapse between any automatic shutoff and subsequent resumption of dispensing. Dispensing may not be manually terminated, unless the test vehicle has already clearly failed the test.

(8)(i) The final reading of the evaporative enclosure FID analyzer shall be taken 60±5 seconds following the final shut-off of fuel flow. This is the final hydrocarbon concentration, C_{HCF} , required in § 86.143-96. The elapsed time, in minutes, between the initial and final FID (or HFID) readings shall be recorded.

(ii) *For methanol-fueled vehicles only.* Measure the final concentration of methanol as described in § 86.133-96(m)(2).

(9) For vehicles equipped with more than one fuel tank, the procedures described in this section shall be performed for each fuel tank.

11. A new § 86.155-98 is added to subpart B to read as follows:

§ 86.155-98 Records required; refueling test.

The following information shall be recorded with respect to each test:

- (a) Test number.
- (b) System or device tested (brief description).
- (c) Date and time of day.
- (d) Instrument operated.
- (e) Operator.
- (f) Vehicle: ID number, manufacturer, model year, engine family, evaporative/refueling emission family, refueling emission control system, refueling emissions canister continuous drive purge miles and number of UDDSs driven for non-integrated systems, fuel system (including fuel tank(s) capacity and location), basic engine description (including displacement, number of cylinders, turbocharger (if used), and catalyst usage), engine code, and odometer reading.
- (g) All pertinent instrument information including nozzle and fuel

delivery system description. As an alternative, a reference to a vehicle test cell number may be used, with advance approval of the Administrator, provided test cell calibration records show the pertinent instrument information.

(h) Recorder charts: Identify zero, span, and enclosure gas sample traces.

(i) Enclosure barometric pressure and ambient temperature: a central laboratory barometer may be used, *provided* that individual test cell barometric pressures are shown to be within ±0.1 percent of the barometric pressure at the central barometer location.

(j) Temperatures: Soak area; dispensed fuel, initial and final.

(k) Fuel dispensing rate(s).

(l) Dispensed fuel volume.

(m) For methanol-fueled vehicles:

(1) Volume of sample passed through the methanol sampling system and the volume of deionized water in each impinger.

(2) The methanol concentration in the reference sample and the peak area from the GC analysis of the reference sample.

(3) The peak area of the GC analyses of the test samples (methanol).

(n) All additional information necessary for the calculations specified in § 86.156-98.

12. A new § 86.156-98 is added to subpart B to read as follows:

§ 86.156-98 Calculations; refueling test.

(a) The calculation of the net hydrocarbon mass change and methanol mass change (if applicable) in the enclosure is used to determine refueling mass emissions. The mass is calculated from initial and final hydrocarbon and methanol (if applicable) concentrations in ppm carbon, initial and final enclosure ambient temperatures, initial and final barometric pressures, and net enclosure volume using the equations of § 86.143-96. For vehicles with multiple tanks, the results for each tank shall be calculated and then summed to determine overall refueling emissions.

(b) The final results for comparison with the refueling control emission standard shall be computed by dividing the total refueling mass emissions by the total gallons of fuel dispensed in the refueling test (see § 86.154-98(e)(7)(ii)).

(c) The results of all emission tests shall be rounded, in accordance with ASTM E 29-67 (reapproved 1980) (as referenced in § 86.094-28(a)(4)(i)(B)(2)(ii)) to the number of decimal places contained in the applicable emission standard expressed to one additional significant figure.

Subpart G—[Amended]

1. A new § 86.602-98 is added to subpart G to read as follows:

§ 86.602-98 Definitions.

Section 86.602-98 includes text that specifies requirements that differ from § 86.602-84. Where a paragraph in § 86.602-84 is identical and applicable to § 86.602-98, this may be indicated by specifying the corresponding paragraph and the statement "[Reserved]. For guidance see § 86.602-84." Where a corresponding paragraph of § 86.602-84 is not applicable, this is indicated by the statement "[Reserved].".

(a) through (b)(2) [Reserved]. For guidance see § 86.602-84.

(b)(3)(i) *Configuration*, when used for LDV exhaust emissions testing, means a subclassification of an engine-system combination on the basis of engine code, inertia weight class, transmission type and gear ratios, axle ratio, and other parameters which may be designated by the Administrator.

(ii) *Configuration*, when used for LDV refueling emissions testing, means a subclassification of an evaporative/refueling emission family on the basis of evaporative and refueling control system and other parameters which may be designated by the Administrator.

(4) *Test sample* means the collection of vehicles of the same configuration which have been drawn from the population of vehicles of that configuration and which will receive emission testing.

(b)(5) through (b)(8) [Reserved]. For guidance see § 86.602-84.

2. A new § 86.603-98 is added to subpart G to read as follows:

§ 86.603-98 Test orders.

Section 86.603-98 includes text that specifies requirements that differ from § 86.603-88. Where a paragraph in § 86.603-88 is identical and applicable to § 86.603-98, this may be indicated by specifying the corresponding paragraph and the statement "[Reserved]. For guidance see § 86.603-88." Where a corresponding paragraph of § 86.603-88 is not applicable, this is indicated by the statement "[Reserved].".

(a) through (c) [Reserved]. For guidance see § 86.603-88.

(d) A manufacturer may indicate preferred assembly plants for the various engine families and evaporative/refueling families produced by the manufacturer for selection of vehicles in response to a test order. This shall be accomplished by submitting a list of engine families with the associated evaporative/refueling families, and the corresponding assembly plants from

which the manufacturer desires to have vehicles selected, to the Administrator. In order that a manufacturer's preferred location for issuance of a test order for a configuration of a particular engine family and/or evaporative/refueling family be considered, the list must be submitted prior to issuance of the test order. Notwithstanding the fact that a manufacturer has submitted the above list, the Administrator may, upon making the determination that evidence exists indicating noncompliance at other than the manufacturer's preferred plant, order selection at such other plant where vehicles of the configuration specified in the test order are assembled.

(e) [Reserved]. For guidance see § 86.603-88.

3. A new § 86.605-98 is added to subpart G read as follows:

§ 86.605-98 Maintenance of records; submittal of information.

Section 86.605-98 includes text that specifies requirements that differ from § 86.605-88. Where a paragraph in § 86.605-88 is identical and applicable to § 86.605-98, this may be indicated by specifying the corresponding paragraph and the statement "[Reserved]. For guidance see § 86.605-88." Where a corresponding paragraph of § 86.605-88 is not applicable, this is indicated by the statement "[Reserved]."

(a) through (a)(1)(i)(D) [Reserved]. For guidance see § 86.605-88.

(E) Refueling Enclosure (Refueling SHED).

- (1) Total internal volume.
- (2) Capacity of mixing blower.
- (3) Location of refueling access ports.
- (4) Enclosure barometric pressure and ambient temperature.

(F) Soak area temperature records.

(F) Fuel Dispenser for Refueling.

(1) Fuel dispensing rate.

(2) Manufacturer and model of fuel nozzle.

(3) Dispensed fuel temperature.

(4) Dispensed fuel volume.

(a)(1)(ii) through (e) [Reserved]. For guidance see § 86.605-88.

4. A new § 86.608-98 is added to subpart G to read as follows:

§ 86.608-98 Test procedures.

(a) The prescribed test procedures are the Federal Test Procedure, including the refueling test procedure or the fuel spitback test, whichever is applicable, as described in subpart B of this part, the cold temperature CO test procedure as described in subpart C of this part, and the Certification Short Test as described in subpart O of this part. For purposes of Selective Enforcement Audit Testing, the manufacturer shall

not be required to perform any of the test procedures in subpart B of this part relating to evaporative emission testing, other than refueling emissions testing, except as specified in paragraph (a)(2) of this section.

(1) The Administrator may omit any of the testing procedures described in paragraph (a) of this section and may select and prescribe the sequence of any CSTs. Further, the Administrator may, on the basis of a written application by a manufacturer, approve optional test procedures other than those in subparts B, C, and O of this part for any motor vehicle which is not susceptible to satisfactory testing using the procedures in subparts B, C, and O of this part.

(2) The following exceptions to the test procedures in subpart B of this part are applicable to Selective Enforcement Audit testing:

(i) For mileage accumulation, the manufacturer may use test fuel meeting the specifications for mileage and service accumulation fuels of § 86.113-94. Otherwise, the manufacturer may use fuels other than those specified in this section only with the advance approval of the Administrator.

(ii) The manufacturer may measure the temperature of the test fuel at other than the approximate mid-volume of the fuel tank, as specified in § 86.131-96(a) with only a single temperature sensor, and may drain the test fuel from other than the lowest point of the tank, as specified in § 86.131-96(b) and § 86.152-98(a), provided an equivalent method is used. Equivalency documentation shall be maintained by the manufacturer and shall be made available upon request.

(iii) The manufacturer may perform additional preconditioning on SEA test vehicles other than the preconditioning specified in § 86.132-98 only if the additional preconditioning had been performed on certification test vehicles of the same configuration.

(iv) If the Administrator elects to use the evaporative/refueling canister preconditioning procedure described in § 86.132-96(k), the manufacturer shall perform the heat build procedure 11 to 34 hours following vehicle preconditioning rather than according to the time period specified in § 86.133-90(a). All references to an evaporative emission enclosure and analyzing for HC during the heat build can be ignored.

(v) The manufacturer may substitute slave tires for the drive wheel tires on the vehicle as specified in paragraph § 86.135-90(e): *Provided*, that the slave tires are the same size.

(vi) If the Administrator elects to use the evaporative/refueling canister

preconditioning procedure described in § 86.132-96(k), the cold start exhaust emission test described in § 86.137-96 shall follow the heat build procedure described in § 86.133-90 by not more than one hour.

(vii) In performing exhaust sample analysis under § 86.140-94.

(A) When testing diesel vehicles, or methanol-fueled Otto-cycle vehicles, the manufacturer shall allow a minimum of 20 minutes warm-up for the HC analyzer, and for diesel vehicles, a minimum of two hours warm-up for the CO, CO₂, and NO_x analyzers. (Power is normally left on infrared and chemiluminescent analyzers. When not in use, the chopper motors of the infrared analyzers are turned off and the phototube high voltage supply to the chemiluminescent analyzers is placed in the standby position.)

(B) The manufacturer shall exercise care to prevent moisture from condensing in the sample collection bags.

(viii) The manufacturer need not comply with § 86.142-90 or § 86.155-98, since the records required therein are provided under other provisions of this subpart G.

(ix) If a manufacturer elects to perform the background determination procedure described in paragraph (a)(2)(xi) of this section in addition to performing the refueling emissions test procedure, the elapsed time between the initial and final FID readings shall be recorded, rounded to the nearest second rather than minute as described in § 86.154-98(e)(8). In addition, the vehicle soak described in § 86.153-98(e) shall be conducted with the windows and luggage compartment of the vehicle open.

(x) The Administrator may elect to perform a seal test, described in § 86.153-98(b), of both integrated and non-integrated systems instead of the full refueling test. When testing non-integrated systems, a manufacturer may conduct the canister purge described in § 86.153-98(b)(1) directly following the preconditioning drive described in § 86.132-96(e) or directly following the exhaust emissions test described in § 86.137-96.

(xi) In addition to the refueling test, a manufacturer may elect to perform the following background emissions determination immediately prior to the refueling measurement procedure described in § 86.154-98, provided EPA is notified of this decision prior to the start of testing in an SEA.

(A) The SHED shall be purged for several minutes immediately prior to the background determination. Warning: If at any time the concentration of

hydrocarbons, of methanol, or of methanol and hydrocarbons exceeds 15,000 ppm C, the enclosure should be immediately purged. This concentration provides a 4:1 safety factor against the lean flammability limit.

(B) The FID (or HFID) hydrocarbon analyzer shall be zeroed and spanned immediately prior to the background determination. If not already on, the enclosure mixing fan and the spilled fuel mixing blower shall be turned on at this time.

(C) Place the vehicle in the SHED. The ambient temperature level encountered by the test vehicle during the entire background emissions determination shall be 80 °F $\pm$ 3 °F. The windows and luggage compartment of the vehicle must be open and the gas cap must be secured.

(D) Seal the SHED. Immediately analyze the ambient concentration of hydrocarbons in the SHED and record. This is the initial background hydrocarbon concentration.

(E) Soak the vehicle for ten minutes $\pm$ 1 minute.

(F) The FID (or HFID) hydrocarbon analyzer shall be zeroed and spanned immediately prior to the end of the background determination.

(G) Analyze the ambient concentration of hydrocarbons in the SHED and record. This is the final background hydrocarbon concentration.

(H) The total hydrocarbon mass emitted during the background determination is calculated according to § 86.156-98. To obtain a per-minute background emission rate, divide the total hydrocarbon mass calculated in this paragraph by the duration of the soak, rounded to the nearest second, described in paragraph (a)(2)(xi)(G) of this section.

(I) The background emission rate is multiplied by the duration of the refueling measurement obtained in paragraph (a)(2)(ix) of this section. This number is then subtracted from the total grams of emissions calculated for the refueling test according to § 86.156-98(a) to obtain the adjusted value for total refueling emissions. The final results for comparison with the refueling emission standard shall be computed by dividing the adjusted value for total refueling mass emissions by the total gallons of fuel dispensed in the refueling test as described in § 86.156-98(b).

(xii) In addition to the requirements of subpart B of this part, the manufacturer shall prepare gasoline-fueled and methanol-fueled vehicles as follows prior to emission testing:

(A) The manufacturer shall inspect the fuel system to ensure the absence of

any leaks of liquid or vapor to the atmosphere by applying a pressure of 14.5 $\pm$ 0.5 inches of water (3.6 $\pm$ 0.1 kPa) to the fuel system allowing the pressure to stabilize and isolating the fuel system from the pressure source. Following isolation of the fuel system, pressure must not drop more than 2.0 inches of water (0.5 Kpa) in five minutes. If required, the manufacturer shall perform corrective action in accordance with paragraph (d) of this section and report this action in accordance with § 86.609-98(d).

(B) When performing this pressure check, the manufacturer shall exercise care to neither purge nor load the evaporative or refueling emission control systems.

(C) The manufacturer may not modify the test vehicle's evaporative or refueling emission control systems by component addition, deletion, or substitution, except to comply with paragraph (a)(2)(ii) of this section if approved in advance by the Administrator.

(3) The following exceptions to the test procedures in subpart C of this part are applicable to Selective Enforcement Audit testing:

(i) The manufacturer may measure the temperature of the test fuel at other than the approximate mid-volume of the fuel tank, as specified in § 86.131-90(a), and may drain the test fuel from other than the lowest point of the fuel tank as specified in § 86.131-90(b), provided an equivalent method is used. Equivalency documentation shall be maintained by the manufacturer and shall be made available to the Administrator upon request.

(ii) In performing exhaust sample analysis under § 86.140-94, the manufacturer shall exercise care to prevent moisture from condensing in the sample collection bags.

(iii) The manufacturer need not comply with § 86.142-90 since the records required therein are provided under other provisions of this subpart G.

(iv) In addition to the requirements of subpart C of this part, the manufacturer shall prepare gasoline-fueled vehicles as follows prior to exhaust emission testing:

(A) The manufacturer shall inspect the fuel system to ensure the absence of any leaks of liquid or vapor to the atmosphere by applying a pressure of 14.5 $\pm$ 0.5 inches of water (3.6 $\pm$ 0.1 Kpa) to the fuel system allowing the pressure to stabilize and isolating the fuel system from the pressure source. Following isolation of the fuel system, pressure must not drop more than 2.0 inches of water (0.5 Kpa) in five minutes. If required, the manufacturer shall

perform corrective action in accordance with paragraph (d) of this section and report this action in accordance with § 86.609-98(d).

(B) When performing this pressure check, the manufacturer shall exercise care to neither purge nor load the evaporative or refueling emission control system.

(C) The manufacturer shall not modify the test vehicle's evaporative or refueling emission control system by component addition, deletion, or substitution, except if approved in advance by the Administrator, to comply with paragraph (a)(3)(i) of this section.

(4) The exceptions to the test procedures in subpart O of this part applicable to Selective Enforcement Audit testing are listed in paragraphs (a)(4) (i) and (ii) of this section.

(i) The manufacturer need not comply with § 86.1442, since the records required therein are provided under provisions of this subpart G.

(ii) In addition to the requirements of subpart O of this part, the manufacturer must prepare vehicles as in paragraphs (a)(4)(ii) (A) through (C) of this section prior to exhaust emission testing.

(A) The manufacturer must inspect the fuel system to insure the absence of any leaks of liquid or vapor to the atmosphere by applying a pressure of 14.5 $\pm$ 0.5 inches of water (3.6 $\pm$ 0.1 Kpa) to the fuel system, allowing the pressure to stabilize, and isolating the fuel system from the pressure source. Pressure must not drop more than 2.0 inches of water (0.5 Kpa) in five minutes. If required, the manufacturer performs corrective action in accordance with paragraph (d) of this section and must report this action in accordance with § 86.609-98(d).

(B) When performing this pressure check, the manufacturer must exercise care to neither purge nor load the evaporative or refueling emission control system.

(C) The manufacturer may not modify the test vehicle's evaporative or refueling emission control system by component addition, deletion, or substitution.

(b)(1) The manufacturer shall not adjust, repair, prepare, or modify the vehicles selected for testing and shall not perform any emission tests on vehicles selected for testing pursuant to the test order unless this adjustment, repair, preparation, modification, and/or tests are documented in the manufacturer's vehicle assembly and inspection procedures and are actually performed or unless these adjustments and/or tests are required or permitted

under this subpart or are approved in advance by the Administrator.

(2) For 1981 and later model years the Administrator may adjust or cause to be adjusted any engine or vehicle parameter which the Administrator has determined to be subject to adjustment for new vehicle compliance testing (e.g., for certification or Selective Enforcement Audit testing) in accordance with § 86.081-22(c)(1), to any setting within the physically adjustable range of that parameter, as determined by the Administrator in accordance with § 86.081-22(e)(3)(ii), prior to the performance of any tests. However, if the idle speed parameter is one which the Administrator has determined to be subject to adjustment, the Administrator shall not adjust it to a setting which causes a lower engine idle speed than will be possible within the physically adjustable range of the idle speed parameter on the vehicle when it has accumulated 4,000 miles, all other parameters being adjusted identically for the purpose of comparison. The Administrator, in making or specifying such adjustments, will consider the effect of the deviation from the manufacturer's recommended setting on emissions performance characteristics as well as the likelihood that similar settings will occur on in-use light-duty vehicles or light-duty trucks. In determining likelihood, the Administrator will consider factors such as, but not limited to, the effect of the adjustment on vehicle performance characteristics and surveillance information from similar in-use vehicles.

(c) Prior to performing emission testing pursuant to paragraph (a) of this section on an SEA test vehicle, the manufacturer may accumulate on each vehicle a number of miles equal to the greater of 4,000 miles, or the number of miles the manufacturer accumulated during certification on the emission-data vehicle corresponding to the configuration specified in the test order.

(1) Mileage accumulation must be performed in any manner using good engineering judgment to obtain emission results representative of normal production vehicles. This mileage accumulation must be consistent with the new vehicle break-in instructions contained in the applicable vehicle owner's manual, if any.

(2) The manufacturer shall accumulate mileage at a minimum rate of 300 miles per vehicle during each 24-hour period, unless otherwise provided by the Administrator.

(i) The first 24-hour period for mileage accumulation shall begin as

soon as authorized vehicle checks, inspections and preparations are completed on each vehicle.

(ii) The minimum mileage accumulation rate does not apply on weekends or holidays.

(iii) If the manufacturer's mileage accumulation target is less than the minimum rate specified (300 miles per day), then the minimum daily accumulation rate shall be equal to the manufacturer's mileage accumulation target.

(3) Mileage accumulation shall be completed on a sufficient number of test vehicles during consecutive 24-hour periods to assure that the number of vehicles tested per day fulfills the requirements of paragraph (g) of this section.

(d) The manufacturer shall not perform any maintenance on test vehicles after selection for testing nor shall the Administrator allow deletion of any test vehicle from the test sequence, unless requested by the manufacturer and approved by the Administrator before any test vehicle maintenance or deletion.

(e) The manufacturer will be allowed 24 hours to ship test vehicles from the assembly plant or storage facility to the test facility if the test facility is not located at the plant or storage facility or in close proximity to the plant or storage facility. Except, that the Administrator may approve more time based upon a request by the manufacturer accompanied by a satisfactory justification.

(f) If a vehicle cannot complete the mileage accumulation or emission tests because of vehicle malfunction, the manufacturer may request the Administrator to authorize the repair of that vehicle or its deletion from the test sequence.

(g) Whenever the manufacturer conducts testing pursuant to a test order issued under this subpart, the manufacturer shall notify the Administrator within one working day of receipt of the test order, which test facility will be used to comply with the test order and the number of available test cells at that facility. If no test cells are available at the desired facility, the manufacturer must provide alternate testing capability satisfactory to the Administrator.

(1) The manufacturer shall perform a combination of tests pursuant to paragraph (a) of this section so that a minimum of four tests are performed per 24 hour period, including voided tests, for each available test cell.

(2) The Administrator may approve a longer period based upon a request by

a manufacturer accompanied by satisfactory justification.

(h) The manufacturer shall perform test vehicle selection, preparation, mileage accumulation, shipping, and testing in such a manner as to assure that the audit is performed in an expeditious manner.

(i) The manufacturer may retest any test vehicle after a fail decision has been reached in accordance with § 86.610-98(d) based on the first test on each vehicle; except that the Administrator may approve retests at other times during the audit based upon a request by the manufacturer accompanied by a satisfactory justification. The manufacturer may test each vehicle a total of three times. The manufacturer shall test each vehicle the same number of times. The manufacturer may accumulate additional mileage on test vehicles before conducting retests, subject to the provisions of paragraph (c) of this section.

5. A new § 86.609-98 is added to subpart G to read as follows:

§ 86.609-98 Calculation and reporting of test results.

(a) Initial test results are calculated following the test procedures specified in § 86.608-98(a). Round the initial test results to the number of decimal places contained in the applicable emission standard expressed to one additional significant figure. Rounding is done in accordance with ASTM E 29-67, (reapproved 1980) (as referenced in § 86.094-28 (a)(4)(i)(B)(2)(ii)).

(b) Final test results for each test vehicle are calculated by summing the initial test results derived in paragraph (a) of this section for each test vehicle, dividing by the number of times that specific test has been conducted on the vehicle, and rounding to the same number of decimal places contained in the applicable standard expressed to one additional significant figure. Rounding is done in accordance with ASTM E 29-67, (reapproved 1980) (as referenced in § 86.094-28 (a)(4)(i)(B)(2)(ii)).

(c) Final deteriorated test results.

(1) For each test vehicle. The final deteriorated test results for each light-duty vehicle tested for exhaust emissions and/or refueling emissions according to subpart B or subpart C of this part are calculated by multiplying or adding the final test results by the appropriate deterioration factor derived from the certification process for the engine or evaporative/refueling family and model year to which the selected configuration belongs and rounding to the same number of decimal places contained in the applicable emission

standard. Rounding is done in accordance with ASTM E 29-67, (reapproved 1980) (as referenced in § 86.094-28(a)(4)(i)(B)(2)(ii)). For the purpose of this paragraph, if a multiplicative deterioration factor as computed during the certification process is less than one, that deterioration factor shall be one. If an additive deterioration factor as computed during the certification process is less than zero, that deterioration factor will be zero.

(2) *Exceptions.* There are no deterioration factors for light-duty vehicle emissions obtained during testing in accordance with subpart O of this part or with § 86.146-96. Accordingly, for the CST and the fuel dispensing spillover test the term "final deteriorated test results" means the final test results derived in paragraph (b) of this section for each test vehicle, rounded to the same number of decimal places contained in the applicable emission standard. Rounding is done in accordance with ASTM E 29-67, (reapproved 1980) (as referenced in § 86.094-28(a)(4)(i)(B)(2)(ii)).

(d) Within five working days after completion of testing of all vehicles pursuant to a test order, the manufacturer shall submit to the Administrator a report which includes the following information:

(1) The location and description of the manufacturer's emission test facilities which were utilized to conduct testing reported pursuant to this section.

(2) The applicable standards against which the vehicles were tested.

(3) Deterioration factors for the selected configuration.

(4) A description of the vehicle selection method used.

(5) For each test conducted:

(i) Test vehicle description including:
(A) Configuration, engine family, and refueling family identification.

(B) Year, make, build date, and model of vehicle.

(C) Vehicle Identification Number.

(D) Miles accumulated on vehicle.

(ii) Location where mileage accumulation was conducted and description of accumulation schedule.

(iii) Test number, date initial test results, final results and final deteriorated test results for all valid and invalid exhaust emission tests, and the reason for invalidation.

(iv) A complete description of any modification, repair, preparation, maintenance and/or testing which was performed on the test vehicle and:

(A) Has not been reported pursuant to any other paragraph of this subpart; and

(B) Will not be performed on all other production vehicles.

(v) Carbon dioxide emission values for all valid and invalid exhaust emission tests.

(vi) Where a vehicle was deleted from the test sequence by authorization of the Administrator, the reason for the deletion.

(vii) Any other information the Administrator may request relevant to the determination as to whether the new motor vehicles being manufactured by the manufacturer do in fact conform with the regulations with respect to which the certificate of conformity was issued.

(6) The following statement and endorsement:

This report is submitted pursuant to sections 206 and 208 of the Clean Air Act. This Selective Enforcement Audit was conducted in complete conformance with all applicable regulations under 40 CFR part 86 and the conditions of the test order. No emission related change(s) to production processes or quality control procedures for the vehicle configuration tested have been made between receipt of this test order and conclusion of the audit. All data and information reported herein is, to the best of

(Company Name)

knowledge, true and accurate. I am aware of the penalties associated with violations of the Clean Air Act and the regulations thereunder.

(Authorized Company Representative)

6. A new § 86.610-98 is added to subpart G to read as follows:

§ 86.610-98 Compliance with acceptable quality level and passing and failing criteria for Selective Enforcement Audits.

(a) The prescribed acceptable quality level is 40 percent.

(b) A failed vehicle is one whose final deteriorated test results pursuant to § 86.609-98(c) exceed at least one of the applicable emission standards associated with the test procedures pursuant to § 86.608-98(a).

(c)(1) *Pass/fail criteria.* The manufacturer shall test vehicles comprising the test sample until a pass decision is reached for all of the pollutants associated with all of the test procedures pursuant to § 86.608-98(a) or a fail decision is reached for one of these pollutants. A pass decision is reached when the cumulative number of failed vehicles, as defined in paragraph (b) of this section, for each pollutant is less than or equal to the fail decision number appropriate to the cumulative number of vehicles tested. A fail decision is reached when the cumulative number of failed vehicles for one pollutant is greater than or equal to the fail decision number appropriate to the cumulative number of vehicles tested. The pass and fail decision

numbers associated with the cumulative number of vehicles tested are determined by use of the tables in appendix XI of this part appropriate for the annual projected sales as made by the manufacturer in its report submitted under § 600.207-80(a)(2) of this chapter (Automobile Fuel Economy Regulations). In the tables in appendix XI of this part, sampling plan "stage" refers to the cumulative number of vehicles tested. Once a pass decision has been made for a particular pollutant associated with a particular test procedure pursuant to § 86.608-98(a), the number of vehicles whose final deteriorated test results exceed the emission standard for that pollutant may not be considered any further for purposes of the audit.

(2) *CST criteria only.* For CST testing pursuant to subpart O, a pass or fail decision is determined according to the pass/fail criteria described in paragraph (c)(1) of this section, except that for each vehicle, the CST in its entirety is considered one pollutant.

(d) Passing or failing of an SEA audit occurs when the decision is made on the last vehicle required to make a decision under paragraph (c) of this section.

(e) The Administrator may terminate testing earlier than required in paragraph (c) of this section.

Subpart K—[Amended]

1. A new § 86.1002-2001 is added to subpart K to read as follows:

§ 86.1002-2001 Definitions.

(a) The definitions in this section apply to this subpart.

(b) As used in this subpart, all terms not defined in this section have the meaning given them in the Act.

(1) *Acceptable quality level (AQL)* means the maximum percentage of failing engines or vehicles, that for purposes of sampling inspection, can be considered satisfactory as a process average.

(2) *Compliance level* means an emission level determined during a Production Compliance Audit pursuant to subpart L of this part.

(3) *Configuration* means a subclassification, if any, of a heavy-duty engine family for which a separate projected sales figure is listed in the manufacturer's Application for Certification and which can be described on the basis of emission control system, governed speed, injector size, engine calibration and other parameters which may be designated by the Administrator, or for light-duty trucks a subclassification of a light-duty

truck engine family/emission control system combination on the basis of engine code, inertia weight class, transmission type and gear ratios, axle ratio, and other parameters which may be designated by the Administrator and/or a subclassification of a light-duty truck evaporative/refueling emission family/emission control system.

(4) *Test sample* means the collection of vehicles or engines of the same configuration which have been drawn from the population of vehicles or engines of that configuration and which will receive emission testing.

(5) *Inspection criteria* means the pass and fail numbers associated with a particular sampling plan.

(6) *Test engine* means an engine in a test sample.

(7) *Test vehicle* means a vehicle in a test sample.

2. A new § 86.1003-2001 is added to subpart K to read as follows:

§ 86.1003-2001 Test orders.

Section 86.1003-2001 includes text that specifies requirements that differ from § 86.1003-88. Where a paragraph in § 86.1003-88 is identical and applicable to § 86.1003-2001, this may be indicated by specifying the corresponding paragraph and the statement "[Reserved]. For guidance see § 86.1003-88." Where a corresponding paragraph of § 86.1003-88 is not applicable, this is indicated by the statement "[Reserved]."

(a) through (c)(1)(ii) [Reserved]. For guidance see § 86.1003-88.

(c)(1)(iii) Heavy-duty vehicle manufacturers will be required to select a minimum of four vehicles per day unless an alternate selection procedure is approved pursuant to § 86.1007-84(a) or unless total production of the specified configuration is less than four vehicles per day. If total production of the specified configuration is less than four vehicles per day, the manufacturer will select the actual number of vehicles produced per day.

(2) The test order may include alternative configurations to be selected for testing in the event that engines or vehicles of the specified configuration are not available for testing because those engines or vehicles are not being manufactured during the specified time, or not being stored at the specified assembly plant or associated storage facilities.

(3) If the specified configuration is not being manufactured at a rate of at least four vehicles per day, in the case of light-duty truck manufacturers, two heavy-duty engines or heavy-duty vehicles, in the case of heavy-duty vehicle and heavy-duty engine

manufacturers specified in § 86.1008-2001(g)(1), or one engine or heavy-duty vehicle per day, in the case of heavy-duty vehicle or engine manufacturers specified in § 86.1008-2001(g)(2), over the expected duration of the audit, the Assistant Administrator or a designated representative may select engines or vehicles of an alternate configuration for testing.

(4) In addition, the test order may include other directions or information essential to the administration of the required testing.

(d) A manufacturer may submit a list of engine families and, if applicable, evaporative/refueling families and the corresponding assembly plants or associated storage facilities from which the manufacturer prefers to have engines or vehicles selected for testing in response to a test order. In order that a manufacturer's preferred location be considered for inclusion in a test order for a configuration of a particular engine family and/or evaporative/refueling family, the list must be submitted prior to issuance of the test order. Notwithstanding the fact that a manufacturer has submitted the above list, the Administrator may, upon making the determination that evidence exists indicating noncompliance at other than the manufacturer's preferred plant, order testing at such other plant where vehicles of the configuration specified in the test order are assembled.

(e) Upon receipt of a test order, a manufacturer shall proceed in accordance with the provisions of this subpart.

(f)(1) During a given model year, the Administrator shall not issue to a manufacturer more Selective Enforcement Auditing (SEA) test orders than the annual limit determined by the following:

(i) For manufacturers of heavy-duty engines or vehicles, either gasoline-fueled or diesel, the number determined by dividing the projected sales bound for the United States market for that year, as made by the manufacturer in its Application for Certification, by 30,000 and rounded to the nearest whole number, unless the projected sales are less than 15,000, in which case the number is one;

(f)(1)(ii) through (f)(3) [Reserved]. For guidance see § 86.1003-88.

3. A new § 86.1008-2001 is added to subpart K to read as follows:

§ 86.1008-2001 Test procedures.

(a)(1)(i) For heavy-duty engines, the prescribed test procedure is the Federal Test Procedure as described in subparts N, I, and P of this part. The

Administrator, may on the basis of a written application by a manufacturer, approve optional test procedures other than those in subparts N, I, and P of this part for any heavy-duty vehicle which is not susceptible to satisfactory testing using the procedures in subparts N, I, and P of this part.

(ii) For heavy-duty vehicles the prescribed test procedures are the Fuel Dispensing Spitback Test as described in § 86.1246-96 (for HDVs with a GVW of less than 14,000 pounds [6,400 kilograms]); this test for fuel spitback is conducted as a stand alone test, thus all references to the test sequence described in figure M96-1 of subpart M of this part can be ignored. Further, the Administrator may, on the basis of a written application by a manufacturer, approve optional test procedures other than those in subpart M of this part for any heavy-duty vehicle which is not susceptible to satisfactory testing using the procedures in subpart M of this part.

(2) For light-duty trucks, the prescribed test procedures are the Federal Test Procedure, including the refueling test procedure or the fuel spitback test, whichever is applicable, as described in subpart B of this part, the idle test procedure as described in subpart P of this part, the cold temperature CO test procedure as described in subpart C of this part, and the Certification Short Test as described in subpart O of this part. For purposes of Selective Enforcement Audit Testing, the manufacturer shall not be required to perform any of the test procedures in subpart B of this part relating to evaporative emission testing, other than refueling emissions testing, except as specified in paragraph (a)(3) of this section. The Administrator may select and prescribe the sequence of any CSTs. Further, the Administrator may, on the basis of a written application by a manufacturer, approve optional test procedures other than those in subparts B, C, P, and O of this part for any motor vehicle which is not susceptible to satisfactory testing using the procedures in subparts B, C, P, and O of this part.

(3) When testing light-duty trucks, the following exceptions to the test procedures in subpart B of this part are applicable to Selective Enforcement Audit testing:

(i) For mileage accumulation, the manufacturer may use test fuel meeting the specifications for mileage and service accumulation fuels of § 86.113-94. Otherwise, the manufacturer may use fuels other than those specified in this section only with the advance approval of the Administrator.

(ii) The manufacturer may measure the temperature of the test fuel at other

than the approximate mid-volume of the fuel tank, as specified in § 86.131-96(a) with only a single temperature sensor, and may drain the test fuel from other than the lowest point of the tank, as specified in § 86.131-96(b) and § 86.152-98(a), provided an equivalent method is used. Equivalency documentation shall be maintained by the manufacturer and shall be made available upon request.

(iii) The manufacturer may perform additional preconditioning on SEA test vehicles other than the preconditioning specified in § 86.132-96 only in the additional preconditioning had been performed on certification test vehicles of the same configuration.

(iv) If the Administrator elects to use the evaporative/refueling canister preconditioning procedure described in § 86.132-96(k), the manufacturer shall perform the heat build procedure 11 to 34 hours following vehicle preconditioning rather than according to the time period specified in § 86.133-90(a). All references to an evaporative emission enclosure and analyzing for HC during the heat build can be ignored.

(v) The manufacturer may substitute slave tires for the drive wheel tires on the vehicle as specified in paragraph § 86.135-90(e): *Provided*, that the slave tires are the same size.

(vi) If the Administrator elects to use the evaporative/refueling canister preconditioning procedure described in § 86.132-96(k), the cold start exhaust emission test described in § 86.137-96 shall follow the heat build procedure described in § 86.133-90 by not more than one hour.

(vii) In performing exhaust sample analysis under § 86.140-94.

(A) When testing diesel vehicles, or methanol-fueled Otto-cycle vehicles, the manufacturer shall allow a minimum of 20 minutes warm-up for the HC analyzer, and for diesel vehicles, a minimum of two hours warm-up for the CO, CO₂, and NO_x analyzers. (Power is normally left on infrared and chemiluminescent analyzers. When not in use, the chopper motors of the infrared analyzers are turned off and the phototube high voltage supply to the chemiluminescent analyzers is placed in the standby position.)

(B) The manufacturer shall exercise care to prevent moisture from condensing in the sample collection bags.

(viii) The manufacturer need not comply with § 86.142-90 or § 86.155-98, since the records required therein are provided under other provisions of this subpart K.

(ix) If a manufacturer elects to perform the background determination procedure described in paragraph (a)(3)(xi) of this section in addition to performing the refueling emissions test procedure, the elapsed time between the initial and final FID readings shall be recorded, rounded to the nearest second rather than minute as described in § 86.154-98(e)(8). In addition, the vehicle soak described in § 86.153-98(e) shall be conducted with the windows and luggage compartment of the vehicle open.

(x) The Administrator may elect to perform a seal test, described in § 86.153-98(b), of both integrated and non-integrated systems instead of the full refueling test. When testing non-integrated systems, a manufacturer may conduct the canister purge described in § 86.153-98(b)(1) directly following the preconditioning drive described in § 86.132-96(e) or directly following the exhaust emissions test described in § 86.137-96.

(xi) In addition to the refueling test, a manufacturer may elect to perform the following background emissions determination immediately prior to the refueling measurement procedure described in § 86.154-98, provided EPA is notified of this decision prior to the start of testing in an SEA.

(A) The SHED shall be purged for several minutes immediately prior to the background determination. Warning: If at any time the concentration of hydrocarbons, of methanol, or of methanol and hydrocarbons exceeds 15,000 ppm C, the enclosure should be immediately purged. This concentration provides a 4:1 safety factor against the lean flammability limit.

(B) The FID (or HFID) hydrocarbon analyzer shall be zeroed and spanned immediately prior to the background determination. If not already on, the enclosure mixing fan and the spilled fuel mixing blower shall be turned on at this time.

(C) Place the vehicle in the SHED. The ambient temperature level encountered by the test vehicle during the entire background emissions determination shall be 80 °F ± 3 °F. The windows and luggage compartment of the vehicle must be open and the gas cap must be secured.

(D) Seal the SHED. Immediately analyze the ambient concentration of hydrocarbons in the SHED and record. This is the initial background hydrocarbon concentration.

(E) Soak the vehicle for ten minutes ± 1 minute.

(F) The FID (or HFID) hydrocarbon analyzer shall be zeroed and spanned

immediately prior to the end of the background determination.

(G) Analyze the ambient concentration of hydrocarbons in the SHED and record. This is the final background hydrocarbon concentration.

(H) The total hydrocarbon mass emitted during the background determination is calculated according to § 86.156-98. To obtain a per-minute background emission rate, divide the total hydrocarbon mass calculated in this paragraph by the duration of the soak, rounded to the nearest second, described in paragraph (a)(3)(xi)(G) of this section.

(I) The background emission rate is multiplied by the duration of the refueling measurement obtained in paragraph (a)(3)(ix) of this section. This number is then subtracted from the total grams of emissions calculated for the refueling test according to § 86.156-98(a) to obtain the adjusted value for total refueling emissions. The final results for comparison with the refueling emission standard shall be computed by dividing the adjusted value for total refueling mass emissions by the total gallons of fuel dispensed in the refueling test as described in § 86.156-98(b).

(xii) In addition to the requirements of subpart B of this part, the manufacturer shall prepare gasoline-fueled and methanol-fueled vehicles as follows prior to emission testing:

(A) The manufacturer shall inspect the fuel system to ensure the absence of any leaks of liquid or vapor to the atmosphere by applying a pressure of 14.5 ± 0.5 inches of water (3.6 ± 0.1 Kpa) to the fuel system allowing the pressure to stabilize and isolating the fuel system from the pressure source. Following isolation of the fuel system, pressure must not drop more than 2.0 inches of water (0.5 Kpa) in five minutes. If required, the manufacturer shall perform corrective action in accordance with paragraph (d) of this section and report this action in accordance with § 86.1009-2001(d).

(B) When performing this pressure check, the manufacturer shall exercise care to neither purge nor load the evaporative or refueling emission control systems.

(C) The manufacturer may not modify the test vehicle's evaporative or refueling emission control systems by component addition, deletion, or substitution, except to comply with paragraph (a)(3)(ii) of this section if approved in advance by the Administrator.

(4) When testing light-duty trucks, the following exceptions to the test procedures in subpart C of this part are

applicable to Selective Enforcement Audit testing:

(i) The manufacturer may measure the temperature of the test fuel at other than the approximate mid-volume of the fuel tank, as specified in § 86.131-90(a), and may drain the test fuel from other than the lowest point of the fuel tank as specified in § 86.131-90(b), provided an equivalent method is used. Equivalency documentation shall be maintained by the manufacturer and shall be made available to the Administrator upon request.

(ii) In performing exhaust sample analysis under § 86.140-94, the manufacturer shall exercise care to prevent moisture from condensing in the sample collection bags.

(iii) The manufacturer need not comply with § 86.142-90 since the records required therein are provided under other provisions of this subpart K.

(iv) In addition to the requirements of subpart C of this part, the manufacturer shall prepare gasoline-fueled vehicles as follows prior to exhaust emission testing:

(A) The manufacturer shall inspect the fuel system to ensure the absence of any leaks of liquid or vapor to the atmosphere by applying a pressure of 14.5 ± 0.5 inches of water (3.6 ± 0.1 Kpa) to the fuel system allowing the pressure to stabilize and isolating the fuel system from the pressure source. Following isolation of the fuel system, pressure must not drop more than 2.0 inches of water (0.5 Kpa) in five minutes. If required, the manufacturer shall perform corrective action in accordance with paragraph (d) of this section and report this action in accordance with § 86.1009-2001(d).

(B) When performing this pressure check, the manufacturer shall exercise care to neither purge nor load the evaporative or refueling emission control system.

(C) The manufacturer shall not modify the test vehicle's evaporative or refueling emission control system by component addition, deletion, or substitution, except if approved in advance by the Administrator, to comply with paragraph (a)(4)(ii) of this section.

(5) When testing light-duty trucks, the exceptions to the test procedures in subpart O of this part applicable to Selective Enforcement Audit testing are listed in paragraphs (a)(5)(i) and (ii) of this section.

(i) The manufacturer need not comply with § 86.1442, since the records required therein are provided under provisions of this subpart K.

(ii) In addition to the requirements of subpart O of this part, the manufacturer

must prepare vehicles as in paragraphs (a)(5)(ii) (A) through (C) of this section prior to exhaust emission testing.

(A) The manufacturer must inspect the fuel system to insure the absence of any leaks of liquid or vapor to the atmosphere by applying a pressure of 14.5 ± 0.5 inches of water (3.6 ± 0.1 Kpa) to the fuel system, allowing the pressure to stabilize, and isolating the fuel system from the pressure source. Pressure must not drop more than 2.0 inches of water (0.5 Kpa) in five minutes. If required, the manufacturer performs corrective action in accordance with this section and must report this action in accordance with § 86.1009-2001.

(B) When performing this pressure check, the manufacturer must exercise care to neither purge nor load the evaporative or refueling emission control system.

(C) The manufacturer may not modify the test vehicle's evaporative or refueling emission control system by component addition, deletion, or substitution.

(b)(1) The manufacturer shall not adjust, repair, prepare, or modify the vehicles selected for testing and shall not perform any emission tests on vehicles selected for testing pursuant to the test order unless this adjustment, repair, preparation, modification, and/or tests are documented in the manufacturer's vehicle assembly and inspection procedures and are actually performed or unless these adjustments and/or tests are required or permitted under this subpart or are approved in advance by the Administrator.

(2) For 1984 and later model years the Administrator may adjust or cause to be adjusted any engine or vehicle parameter which the Administrator has determined to be subject to adjustment for certification, Selective Enforcement Audit testing, and Production Compliance Audit testing in accordance with § 86.090-22(c)(1), to any setting within the physically adjustable range of that parameter, as determined by the Administrator in accordance with § 86.090-22(e)(3)(ii), prior to the performance of any tests. However, if the idle speed parameter is one which the Administrator has determined to be subject to adjustment, the Administrator shall not adjust it to a setting which causes a lower engine idle speed than will be possible within the physically adjustable range of the idle speed parameter if the manufacturer had accumulated 125 hours of service on the engine or 4,000 miles on the vehicle under paragraph (c) of this section, all other parameters being identically adjusted for the purpose of comparison.

The manufacturer may be requested to supply information to establish such an alternative minimum idle speed. The Administrator, in making or specifying such adjustments, will consider the effect of the deviation from the manufacturer's recommended setting on emissions performance characteristics as well as the likelihood that similar settings will occur on in-use heavy-duty engines or light-duty trucks. In determining likelihood, the Administrator will consider factors such as, but not limited to, the effect of the adjustment on engine or vehicle performance characteristics and surveillance information from similar in-use vehicles.

(c) Prior to performing emission testing on an SEA test engine, the manufacturer may accumulate on each engine a number of hours of service equal to the greater of 125 hours or the number of hours the manufacturer accumulated during certification on the emission-data engine corresponding to the configuration specified in the test order. Prior to performing emission testing on an SEA test vehicle, the manufacturer may accumulate on each vehicle a number of miles equal to the greater of 4,000 miles, or the number of miles the manufacturer accumulated during certification on the emission-data vehicle corresponding to the configuration specified in the test order.

(1) Service or mileage accumulation must be performed in a manner using good engineering judgment to obtain emission results representative of normal production vehicles. This service or mileage accumulation must be consistent with the new vehicle break-in instructions contained in the applicable vehicle owner's manual, if any.

(2) The manufacturer shall accumulate service at a minimum rate of 16 hours per engine or mileage at a minimum rate of 300 miles per vehicle during each 24-hour period, unless otherwise provided by the Administrator.

(i) The first 24-hour period for service or mileage accumulation shall begin as soon as authorization checks, inspections and preparations are completed on each engine or vehicle.

(ii) The minimum service or mileage accumulation rate does not apply on weekends or holidays.

(iii) If the manufacturer's service or mileage accumulation target is less than the minimum rate specified (16 hours or 300 miles per day), then the minimum daily accumulation rate shall be equal to the manufacturer's service or mileage accumulation target.

(3) Service or mileage accumulation shall be completed on a sufficient number of test engines or vehicles during consecutive 24-hour periods to assure that the number of engines or vehicles tested per day fulfills the requirements of paragraph (g) of this section.

(d) The manufacturer shall not perform any maintenance on test vehicles or engines after selection for testing, nor shall the Administrator allow deletion of any test vehicle or engine from the test sequence, unless requested by the manufacturer, and approved by the Administrator before any test vehicle or engine maintenance or deletion.

(e) The manufacturer shall expeditiously ship test engines or vehicles from the point of selection to the test facility. If the test facility is not located at or in close proximity to the point of selection, the manufacturer shall assure that the test engines or vehicles arrive at the test facility within 24 hours of selection: *Except*, that the Administrator may approve more time based upon a request by the manufacturer accompanied by a satisfactory justification.

(f) If an engine or vehicle cannot complete the service or mileage accumulation or emission test because of a malfunction, the manufacturer may request that the Administrator authorize the repair of that engine or vehicle or its deletion from the test sequence.

(g) Whenever the manufacturer conducts testing pursuant to a test order issued under this subpart, the manufacturer shall notify the Administrator within one working day of receipt of the test order, which test facility will be used to comply with the test order and the number of available test cells at that facility. If no test cells are available at the desired facility, the manufacturer must provide alternate testing capability satisfactory to the Administrator.

(1) Heavy-duty engine manufacturers with projected sales for the United States market for that year of 30,000 or greater shall complete emission testing at their facility on a minimum of two engines per 24-hour period, including each voided test and each diesel engine smoke test.

(2) Heavy-duty engine manufacturers with projected sales for the United States market for that year of less than 30,000 shall complete emission testing at their facility on a minimum of one engine per 24-hour period, including each voided test and each diesel engine smoke test.

(3) Light-duty truck and heavy-duty vehicle manufacturers shall perform a

combination of tests pursuant to paragraph (a) of this section so that a minimum of four tests are performed per 24 hour period, including voided tests, for each available test cell.

(4) The Administrator may approve a longer period based upon a request by a manufacturer accompanied by a satisfactory justification.

(h) The manufacturer shall perform test engine or vehicle selection, shipping, preparation, service or mileage accumulation, and testing in such a manner as to assure that the audit is performed in an expeditious manner.

(i) The manufacturer may retest any test vehicle or engine after a fail decision has been reached in accordance with § 86.1010-2001(d) based on the first test on each vehicle or engine; except that the Administrator may approve retests at other times during the audit based upon a request by the manufacturer accompanied by a satisfactory justification. The manufacturer may test each vehicle or engine a total of three times. The manufacturer shall test each vehicle or engine the same number of times. The manufacturer may accumulate additional service or mileage before conducting retests, subject to the provisions of paragraph (c) of this section.

4. A new § 86.1009-2001 is added to subpart K to read as follows:

§ 86.1009-2001 Calculation and reporting of test results.

(a) Initial test results are calculated following the Federal Test Procedure specified in § 86.1008-2001(a). Rounding is done in accordance with ASTM E 29-67 (reapproved 1980) (as referenced in § 86.094-28

(a)(4)(i)(B)(2)(ii) to the number of decimal places contained in the applicable emission standard expressed to one additional significant figure.

(b) Final test results are calculated by summing the initial test results derived in paragraph (a) of this section for each test vehicle or engine, dividing by the number of times that specific test has been conducted on the vehicle or engine, and rounding to the same number of decimal places contained in the applicable standard expressed to one additional significant figure. Rounding is done in accordance with ASTM E 29-67 (reapproved 1980) (as referenced in § 86.094-28(a)(4)(i)(B)(2)(ii)).

(c) *Final deteriorated test results.* (1) The final deteriorated test results for each light-duty truck, heavy-duty engine, or heavy-duty vehicle tested according to subpart B, C, D, I, M, N, or

P of this part are calculated by multiplying or adding the final test results by the appropriate deterioration factor derived from the certification process for the engine or evaporative/refueling family and model year to which the selected configuration belongs. For the purpose of this paragraph, if a multiplicative deterioration factor as computed during the certification process is less than one, that deterioration factor shall be one. If an additive deterioration factor as computed during the certification process is less than zero, that deterioration factor will be zero.

(2) *Exceptions.* There are no deterioration factors for light-duty truck emissions obtained during testing in accordance with subpart O of this part or with § 86.146-96. Accordingly, for the CST and the fuel dispensing spitback test the term "final deteriorated test results" means the final test results derived in paragraph (b) of this section for each test vehicle.

(3) The final deteriorated test results obtained in paragraph (c) (1) and (2) of this section are rounded to the same number of decimal places contained in the applicable emission standard. Rounding is done in accordance with ASTM E 29-67 (reapproved 1980) (as referenced in § 86.094-28(a)(4)(i)(B)(2)(ii)).

(d) Within five working days after completion of testing of all engines or vehicles pursuant to a test order, the manufacturer shall submit to the Administrator a report which includes the following information:

(1) The location and description of the manufacturer's emission test facilities which were utilized to conduct testing reported pursuant to this section.

(2) The applicable standards or compliance levels against which the engines or vehicles were tested.

(3) Deterioration factors for the selected configuration.

(4) A description of the engine or vehicle and any emission-related component selection method used.

(5) For each test conducted.

(i) Test engine or vehicle description including:

(A) Configuration, engine family, and evaporative/refueling family identification.

(B) Year, make, build date, and model of vehicle.

(C) Vehicle Identification Number.

(D) Miles accumulated on vehicle.

(ii) Location where mileage accumulation was conducted and description of accumulation schedule.

(iii) Test number, date initial test results, final results and final deteriorated test results for all valid and

invalid exhaust emission tests, and the reason for invalidation, if applicable.

(iv) A complete description of any modification, repair, preparation, maintenance and/or testing which was performed on the test engine or vehicle and has not been reported pursuant to any other paragraph of this subpart and will not be performed on all other production engines or vehicles.

(v) Where an engine or vehicle was deleted from the test sequence by authorization of the Administrator, the reason for the deletion.

(vi) For all valid and invalid exhaust emission tests, carbon dioxide emission values for LDTs and brake-specific fuel consumption values for HDEs.

(vii) Any other information the Administrator may request relevant to the determination as to whether the new motor vehicles being manufactured by the manufacturer do in fact conform with the regulations with respect to which the certificate of conformity was issued.

(6) The following statement and endorsement:

This report is submitted pursuant to sections 206 and 208 of the Clean Air Act. This Selective Enforcement Audit was conducted in complete conformance with all applicable regulations under 40 CFR part 86 and the conditions of the test order. No emission related change(s) to production processes or quality control procedures for the engine or vehicle configuration tested have been made between receipt of this test order and conclusion of the audit. All data and information reported herein is, to the best of

(Company Name)

knowledge, true and accurate. I am aware of the penalties associated with violations of the Clean Air Act and the regulations thereunder.

(Authorized Company Representative)

5. A new § 86.1010-2001 is added to subpart K to read as follows:

§ 86.1010-2001 Compliance with acceptable quality level and passing and failing criteria for Selective Enforcement Audits.

(a) The prescribed acceptable quality level is 40 percent.

(b) A failed vehicle or engine is one whose final deteriorated test results pursuant to § 86.1009-2001(c) exceed at least one of the applicable emission standards associated with the test procedures pursuant to § 86.1008-2001(a).

(c)(1) *Pass/fail criteria.* The manufacturer shall test light-duty

trucks, heavy-duty engines, or heavy-duty vehicles comprising the test sample until a pass decision is reached for all of the pollutants associated with all of the test procedures pursuant to § 86.1008-2001(a) or a fail decision is reached for one of these pollutants. A pass decision is reached when the cumulative number of failed vehicles or engines, as defined in paragraph (b) of this section, for each pollutant is less than or equal to the fail decision number appropriate to the cumulative number of vehicles tested. A fail decision is reached when the cumulative number of failed vehicles or engines for one pollutant is greater than or equal to the fail decision number appropriate to the cumulative number of vehicles tested. The pass and fail decision numbers associated with the cumulative number of vehicles tested are determined by use of the tables in appendix X of this part appropriate to the projected sales as made by the heavy-duty engine or heavy-duty vehicle manufacturer in its Application for Certification, or as made by the light-duty truck manufacturer in its report submitted under § 600.207-80(a)(2) of this chapter (Automobile Fuel Economy Regulations). In the tables in appendix X of this part, sampling plan "stage" refers to the cumulative number of vehicles or engines tested. Once a pass decision has been made for a particular pollutant associated with a particular test procedure pursuant to § 86.1008-2001(a), the number of vehicles or engines whose final deteriorated test results exceed the emission standard for that pollutant may not be considered any further for purposes of the audit.

(2) *CST criteria only.* For CST testing pursuant to subpart O, a pass or fail decision is determined according to the pass/fail criteria described in paragraph (c)(1) of this section, except that for each vehicle, the CST in its entirety is considered one pollutant.

(d) Passing or failing of an SEA audit occurs when the decision is made on the last vehicle or engine required to make a decision under paragraph (c) of this section.

(e) The Administrator may terminate testing earlier than required in paragraph (c) of this section.

PART 88—CLEAN-FUEL VEHICLES

1. The authority citation for part 88 continues to read as follows:

Authority: 42 U.S.C. 7410, 7418, 7581, 7582, 7583, 7584, 7586, 7588, 7589, and 7601(a).

2. A new § 88.311-98 is added to subpart C, to read as follows:

§ 88.311-98 Emissions standards for Inherently Low-Emission Vehicles.

Section 88.311-98 includes text that specifies requirements that differ from § 88.311-93. Where a paragraph in § 88.311-93 is identical and applicable to § 88.311-98, this may be indicated by specifying the corresponding paragraph and the statement "[Reserved]. For guidance see § 88.311-93."

(a) heading through (a)(1)(ii) [Reserved]. For guidance see § 88.311-93.

(iii) The vehicle must meet other special requirements applicable to conventional or clean-fuel vehicles and their fuels as described in any other regulations in 40 CFR chapter I, subchapter C, including 40 CFR parts 86 and 88 (e.g., onboard refueling provisions).

(b) through (e) [Reserved]. For guidance see § 88.311-93.

PART 600—FUEL ECONOMY OF MOTOR VEHICLES

1. The authority citation for part 600 continues to read as follows:

Authority: Title III of the Energy Policy and Conservation Act of 1975, Pub. L. 94-163, 89 Stat. 871, Title IV of the National Energy Conservation Policy Act of 1978, Pub. L. 95-619, 92 Stat. 3206, Section 371 of the North American Free Trade Agreement Implementation Act of 1993, Pub. L. 103-182, 107 Stat. 2057.

2. Section 600.111-80 in subpart B is amended by revising paragraph (a) to read as follows:

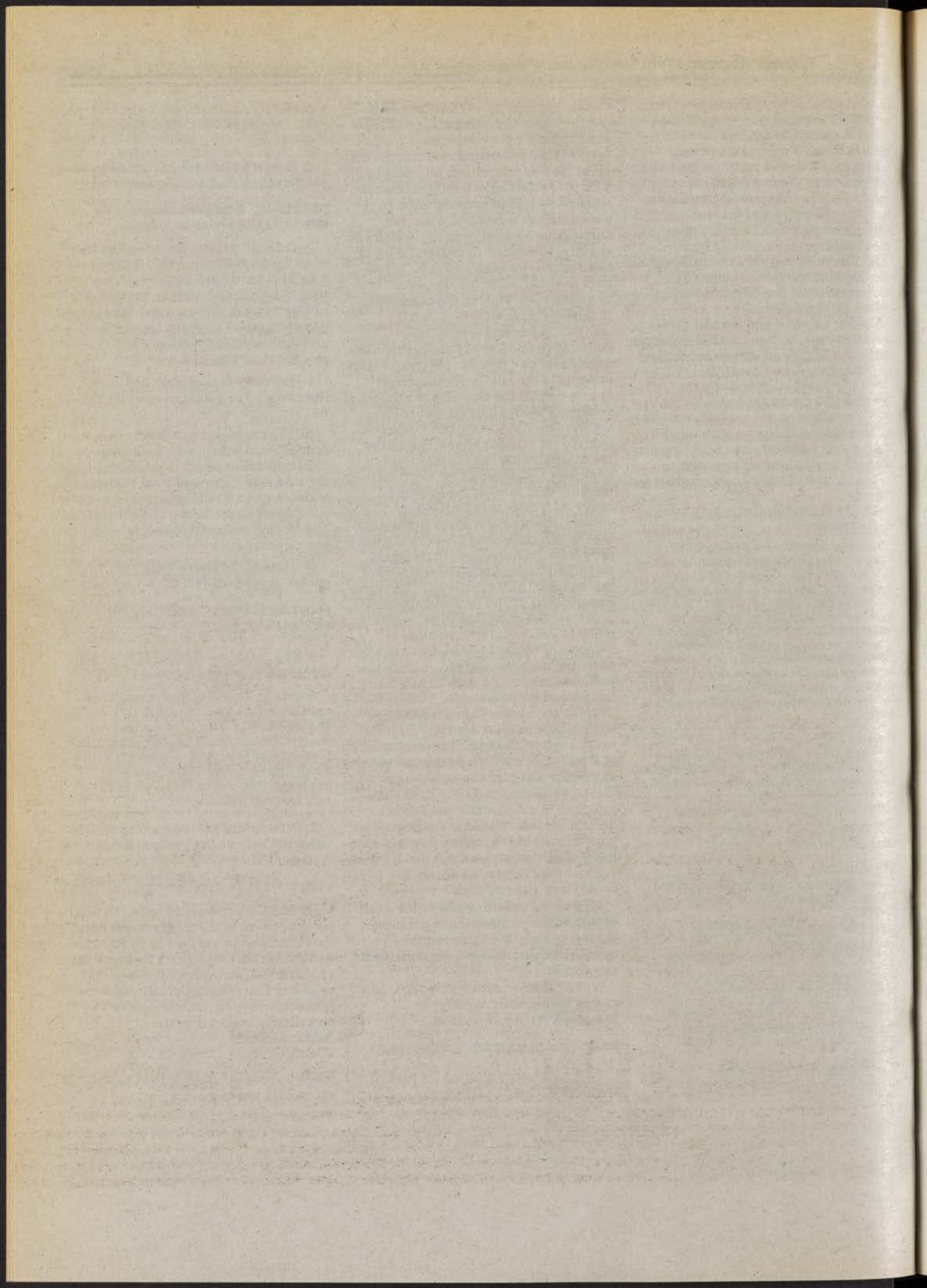
§ 600.111-80 Test procedures.

(a) The test procedures to be followed for generation of the city fuel economy data are those prescribed in §§ 86.127-94 through 86.138-78 of this chapter, as applicable. (The evaporative and refueling loss portions of the test procedure may be omitted unless specifically required by the Administrator.)

* * * * *

[FR Doc. 94-4752 Filed 4-5-94; 8:45 am]

BILLING CODE 6560-50-P



Federal Register

Wednesday
April 6, 1994

Part III

**Department of
Transportation**

**National Highway Traffic Safety
Administration**

49 CFR Part 533

**Light Truck Average Fuel Economy
Standards; Model Years 1996–2006; Final
Rule and Proposed Rule**

DEPARTMENT OF TRANSPORTATION

National Highway Traffic Safety Administration

49 CFR Part 533

[Docket No. 91-50; Notice 4]

RIN 2127 AE42

Light Truck Average Fuel Economy Standards; Model Years 1996-1997

AGENCY: National Highway Traffic Safety Administration (NHTSA).

ACTION: Final rule.

SUMMARY: This final rule establishes the average fuel economy standard for light trucks manufactured in model years (MY) 1996-97. The issuance of the standard is required by Title V of the Motor Vehicle Information and Cost Savings Act. The (combined) standard for all light trucks manufactured by a manufacturer is 20.7 mpg for both MY 1996 and MY 1997. The agency also refers interested parties to an Advance Notice of Proposed Rulemaking (ANPRM), addressing light truck CAFE standards for MYs 1998-2006, published in today's *Federal Register*.

DATES: The amendment is effective May 6, 1994. The standard applies to the 1996 and 1997 model years. Petitions for reconsideration must be submitted within 30 days of publication.

ADDRESSES: Petitions for reconsideration should be submitted to: Administrator, National Highway Traffic Safety Administration, 400 Seventh Street SW., Washington, DC 20590.

FOR FURTHER INFORMATION CONTACT: Mr. Orron Kee, Office of Market Incentives, National Highway Traffic Safety Administration, 400 Seventh Street SW., Washington, DC 20590 (202-366-0846).

SUPPLEMENTARY INFORMATION:

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I. Background

In December 1975, during the aftermath of the energy crisis created by the oil embargo of 1973-74, Congress enacted the Energy Policy and Conservation Act. Congress included a provision in that Act establishing an automotive fuel economy regulatory program. That provision added a new title, title V, "Improving Automotive Efficiency," to the Motor Vehicle Information and Cost Saving Act (the Act). Title V provides for the establishment of average fuel economy standards for cars and light trucks.

Section 502(b) of the Act requires the Secretary of Transportation to issue light truck fuel economy standards for each model year. Standards are required to be set at least 18 months prior to the beginning of the model year. The Act provides that the fuel economy standards are to be set at the maximum feasible average fuel economy level. In determining maximum feasible average fuel economy level, the Secretary is required under section 502(e) of the Act to consider four factors: technological feasibility; economic practicability; the effect of other Federal motor vehicle standards on fuel economy; and the need of the nation to conserve energy. (Responsibility for the automotive fuel economy program was delegated by the Secretary of Transportation to the Administrator of NHTSA (41 FR 25015, June 22, 1976)).

On October 8, 1991, NHTSA published in the *Federal Register* (56 FR 50694) a questionnaire concerning fuel economy standards for MYs 1995-1997. The comments received in response to the questionnaire are available in Docket No. 91-50.

After analyzing the responses to the questionnaire and reviewing other available data, NHTSA published a notice of proposed rulemaking (NPRM) proposing average fuel economy standards for light trucks for MYs 1995-97. 57 FR 61377 (December 24, 1992). The agency proposed to select the standards from within a range of 20.5-21.0 mpg for MY 1995, and 20.5-21.5 mpg for MYs 1996 and 1997. These ranges were based on the agency's tentative evaluation of manufacturer capabilities.

In response to the December 24, 1992 NPRM, the agency received comments from General Motors (GM), Ford, Chrysler, the American Automobile Manufacturers Association (AAMA, formerly the Motor Vehicle Manufacturers Association), Rover Group, the National Automobile Dealers Association, and about 50 organizations concerned about the continuing availability to consumers of a full range of light trucks, including, among others, the Coalition for Vehicle Choice, Consumer Alert, and the Competitive Enterprise Institute (CEI). The issues raised by the commenters are addressed below.

On April 7, 1993, the agency published a final rule establishing a 20.6 mpg combined average fuel economy standard for light trucks manufactured in MY 1995 (58 FR 18019). The limited time then available to promulgate a final rule for MY 1995 precluded a thorough consideration of the issues related to light truck CAFE standards for MYs 1996-97. Therefore, NHTSA announced that it would reach a decision later with respect to the light truck standard for those model years.

Subsequent to publication of the final rule establishing the CAFE standard for MY 1995, NHTSA received another comment from Ford, in which the manufacturer revised some of the risks and opportunities it believed it faced in MYs 1996-97. This resulted in revised CAFE projections for those years. The Department also received a letter from the Energy Conservation Coalition (ECC) recommending that light truck CAFE for those years be sharply increased. ECC's letter was signed by ECC, itself, as well as the Environmental & Energy Study Institute, Public Citizen, Sierra Club, American Council for an Energy-Efficient Economy, Center for Auto Safety, and U.S. Public Interest Research Group.

II. Summary of Decision

Based on its analysis, the agency is establishing a combined average fuel economy standard for MYs 1996 and 1997 at 20.7 mpg. The agency notes that the relatively short leadtime for MYs 1996-97 precludes significant technological changes beyond that which manufacturers have already planned. Given the continuing need to conserve energy, as discussed elsewhere in this notice, and the increasing ratio of light truck to passenger car sales, NHTSA desires to insure that feasible light truck CAFE improvements will continue to be made. To achieve this goal, the agency has published an ANPRM in today's *Federal Register*.

addressing light truck CAFE standards for MYs 1996–2006.

NHTSA is eliminating the requirement that captive imports and other light trucks be required to meet CAFE standards separately. Beginning in MY 1996, there will be a combined standard that will apply to each manufacturer's light truck fleet in its entirety.

III. Manufacturer Capabilities for MYs 1996–97

In evaluating manufacturers' fuel economy capabilities for MYs 1996–97, the agency has analyzed manufacturers' current projections and underlying product plans and has considered what, if any, additional actions the manufacturers could take to improve their fuel economy. A more detailed discussion of these issues is contained in the agency's Regulatory Evaluation, which is being placed in the docket for this notice. Some of the information included in the Regulatory Evaluation, including the details of manufacturers' future product plans, has been determined by the agency to be confidential business information whose release could cause competitive harm. The public version of the Regulatory Evaluation omits the confidential information.

A. Manufacturer Projections

1. General Motors

As discussed in the NPRM, General Motors (GM) projected in December 1991 that it could achieve a light truck CAFE level of 20.7 mpg for MYs 1996–97. In its February 1993 comment on the NPRM, GM revised its projection slightly downward, to 20.5 mpg. By comparison, in a mid-model year report submitted in July 1992, GM projected a MY 1992 CAFE of 20.2 mpg. In its mid-model year report submitted in July 1993, it projected a MY 1993 CAFE of 19.8 mpg.

GM stated in its February 1993 comment that the light truck CAFE standard for MYs 1996–97 "should be set no higher than 20.5 mpg, and even that may be too high."

2. Ford

Ford projected in January 1992 that it could achieve a light truck CAFE level of 21.6 mpg for MY 1996, and 21.5 mpg for MY 1997. These projections were revised by Ford in a May 1993 letter updating its comment to the NPRM, which stated that, after re-evaluating the risks and opportunities it faced in those model years, it could achieve a light truck CAFE level of 21.1 mpg in MY 1996 and 21.6 mpg in MY 1997. Ford

stated that the risk factors could reduce its CAFE level for MY 1996 to as low as 20.8 mpg, and for MY 1997 to 21.0 mpg. By comparison, in its final model year data submitted to the Environmental Protection Agency (EPA), Ford reported a MY 1992 CAFE of 20.3 mpg. In its mid-model year report submitted to NHTSA in July 1993, that company projected a MY 1993 CAFE of 20.7 mpg.

Ford recommended in its comment on the NPRM that the agency establish the MY 1996 standard at the same level as the MY 1994 standard, 20.5 mpg. It commented that the agency could raise the MY 1997 standard to a level no higher than 21.0 mpg.

3. Chrysler

Chrysler projected in December 1991 that it could achieve a light truck CAFE level of 21.0 mpg for MYs 1996–97. In its January 1993 comment on the NPRM, Chrysler revised its projection slightly downward, to 20.8 mpg for MY 1996 and 20.9 mpg for MY 1997. By way of comparison, Chrysler achieved a CAFE level of 21.2 mpg for MY 1992 according to its final model year data as reported to the EPA, and projected a CAFE level of 21.0 mpg for MY 1993 in its July 1993 mid-model year report to NHTSA.

Chrysler commented that it supports a standard of 20.5 mpg for MYs 1996–97 because it does not anticipate any major improvements in light truck fuel economy through new technological applications.

4. Other Manufacturers

Most light truck manufacturers other than GM, Ford and Chrysler only compete in the small vehicle portion of the light truck market and are therefore expected to achieve CAFE levels well above those three companies. By way of example, in their mid-model year reports for 1993, Toyota projected a light truck CAFE of 21.8 mpg, Isuzu 21.8 mpg, Mazda 23.6 mpg, Mitsubishi 21.2 mpg, Subaru 29.1 mpg, Suzuki 28.9 mpg, and Volkswagen 21.0 mpg.

In the NPRM, NHTSA noted that two companies, Range Rover and PAS, projected MY 1992 light truck CAFE levels that are well below those of the large domestic manufacturers. In their mid-model year reports for MY 1992, Range Rover projected a CAFE level of 16.3 mpg and PAS 18.6 mpg. The agency notes that in their mid-model year reports for MY 1993, Range Rover projected a CAFE level of 15.4 mpg and PAS 18.5 mpg. Both of these companies sell a small number of light trucks in the U.S., on the order of about 5,000 vehicles or less. PAS modifies GM light trucks.

One other company which has a CAFE capability below that of the large domestic manufacturers is UMC, a small domestic producer of delivery vans. That company projects selling 950 light trucks in MY 1993, with a CAFE of 18.8 mpg.

B. Possible Additional Actions To Improve MYs 1996–97 CAFE

The agency analyzed the additional actions which manufacturers may be able to take to improve their CAFE levels above those that they currently project for MYs 1996–97. These actions may be divided into two categories: further technological changes and product restrictions.

1. Further Technological Changes

The ability to improve CAFE by further technological changes to product plans is dependent on the availability of fuel efficiency enhancing technologies that manufacturers are able to apply within the available time.

The agency's Regulatory Evaluation discusses the fuel efficiency enhancing technologies which are expected to be available by MYs 1996–97. However, for MYs 1996–97, limited leadtime is a significant constraint on the increased use of these technologies. NHTSA recognizes that the leadtime necessary to implement significant improvements in engines, transmissions, aerodynamics and rolling resistance is typically at least three years. Also, as the agency discussed in establishing its final rule for MYs 1993–94, once a new design is established and tested as feasible for production, the leadtime necessary to design tools and test components is typically 30 to 36 months. Some potential major changes may take even longer. Leadtimes for new vehicles are usually at least three years. Further, light trucks have a long model life, i.e., 8–10 years or more. If a manufacturer must make a major model change ahead of its normal schedule, this change may have a significant, unprogrammed financial impact. NHTSA notes that AAMA stated in its comment that the above leadtimes, which the agency cited in the NPRM, are more typical for passenger cars and that truck leadtimes are even longer.

Given the leadtime constraint, the agency does not believe that manufacturers can achieve significant improvements in their projected MYs 1996–97 CAFE levels by additional technological actions.

2. Product Restrictions

As an alternative to technological improvements, manufacturers could improve their CAFE by restricting their

product offerings, e.g., limiting or deleting production of particular larger light truck models and larger displacement engines. Such product restrictions, if made necessary by selection of a CAFE standard that is above manufacturers' capabilities, could result in adverse economic impacts on the industry and the economy as a whole.

To develop an independent indicator of the potential impacts of a standard that could be met only by product restrictions, the agency estimated the loss of production associated with sufficient production restrictions by GM to raise its CAFE by 0.5 mpg. To estimate this effect, the agency eliminated production of GM's least fuel efficient models until the desired improvement in CAFE was achieved. NHTSA stated in the NPRM that this approach tends to yield the maximum possible negative impacts, because it does not include the possibility of consumers accepting a smaller truck or engine, or switching to vehicles over 8500 pounds GVWR. Also, it ignores the possibility of additional technological improvements to these truck fleets, or compliance through the use of credits earned in other model years.

For MY 1996, the NHTSA analysis indicates that to increase its CAFE by 0.5 mpg by restricting sales, GM could suffer a sales loss of up to 151,000 units of its projected light truck production for that year. The potential job losses under this scenario in manufacturer and supplier industries could total roughly 25,000. For MY 1997, a similar increase in CAFE of 0.5 mpg could cause GM a sales loss of up to 142,000 units, with a concurrent potential loss to the industry of nearly 24,000 jobs.

GM commented that it takes issue with NHTSA's statement that its analysis of job losses is necessarily an upper bound. That company stated that it could be that a manufacturer's product restrictions would not be done by eliminating the least fuel efficient vehicles first from its CAFE fleet, but a manufacturer could instead choose to restrict products based not only on their fuel efficiency but also their profit contributions. GM stated that this strategy could lead to larger lost sales and jobs.

Given the considerations discussed above, NHTSA concludes that significant product restrictions should not be considered as part of manufacturers' capabilities to improve their MYs 1996-97 CAFE levels.

C. Manufacturer-Specific CAFE Capabilities

As discussed later in this notice, NHTSA takes "industrywide considerations" into account in setting fuel economy standards. In carrying this out, the agency has traditionally focused on the least capable manufacturer with a substantial share of light truck sales. For MYs 1996-97, the agency has determined that GM is the least capable manufacturer with a substantial share of sales.

1. GM

As indicated above, GM currently projects its MYs 1996-97 light truck CAFE level at 20.5 mpg. It has also identified certain risks related to technology and mix which it says could reduce its CAFE level by as much as 0.5 mpg in MY 1996 and 0.3 mpg in MY 1997. As discussed in the Regulatory Evaluation, however, the agency has analyzed these potential risks and believes that they are unlikely to have as large an effect as GM believes. In addition, GM has identified an additional product action it is considering which could also reduce its CAFE. However, NHTSA believes the issues of whether GM will actually take the product action, and if so, what the fleet penetration would be for MYs 1996-97, are too speculative to justify an adjustment to GM's CAFE capability. NHTSA notes that it is not identifying the product action because it is confidential business information.

After carefully evaluating GM's product plan, NHTSA believes that company is capable of achieving a light truck CAFE of 20.7 mpg in both MYs 1996 and 1997. The factors explaining the difference between GM's projection and the agency's estimate of its capability are discussed below.

First, as discussed in the NPRM, GM projects that a much larger portion of its MYs 1996-97 fleet will have four-wheel drive (4WD) than it has had in recent years, or than its competitors are projecting. The agency stated in the NPRM that it is not aware of any reason to expect that the 4WD market will continue to increase. NHTSA also stated that it believes there are alternatives to 4WD, including traction control.

GM commented that it believes its forecast of MYs 1996-97 4WD penetration is realistic, stating that competitors' actions in the 4WD segments, the use of all-wheel drive configurations and market data for future years support its projections. GM also argued that traction control is not an alternative to 4WD trucks since it has little benefit for off-road applications.

The agency continues to believe that it is unlikely that the 4WD market share will increase appreciably for the fleet in general, or for GM in particular, over the timeframe between now and MYs 1996-97. Since the mid-1980's, the 4WD share of total light truck sales for each model year has consistently been within the range of 32-35 percent. No data have been presented to the agency which demonstrate that this share will significantly change by MYs 1996-97. The agency notes that, while it agrees that traction control isn't an alternative to 4WD for off-road applications, it would be a reasonable alternative for on-road use for many consumers. No evidence has been presented to the agency which shows that there will be increased need or demand for more 4WD or off-road vehicles.

As discussed in the Regulatory Evaluation, since NHTSA believes that GM's MYs 1996 and 1997 product plans overstate the percentage of 4WD vehicles that it will sell, the agency has adjusted that company's CAFE projections to reflect what it believes is a more realistic share. In making this adjustment, the agency assumed that GM's 4WD percentage for MYs 1996-97 will be the same as for MY 1993, the model year in which GM had its highest 4WD share ever. NHTSA also refined the analysis presented in the Preliminary Regulatory Impact Analysis (PRIA) to more accurately reflect the particular vehicles that GM is likely to sell more of and less of. With this adjustment, and assuming that the 4WD share of GM's light truck fleet for MYs 1996-97 is consistent with both that company's and its competitors' historical levels, its CAFE would be more than 0.1 mpg higher in MY 1996, although it would be less than half that amount higher in MY 1997.

NHTSA stated in the NPRM that the GM fleet leads the other manufacturers in every engine performance calculation carried out by the agency and that GM's performance levels are detrimental to its fuel economy performance. The agency indicated, for example, that if GM's light truck fleet for MY 1995 were closer to the values achieved by other manufacturers for the various performance measurements, GM's CAFE values in that model year might be improved by between 0.3 and 0.4 mpg.

GM commented that it disagrees with the agency's assessment in the NPRM that GM's CAFE could be boosted 0.4 mpg by lowering engine performance. That company stated that it believes that NHTSA's performance adjustment was based on an incorrect sales weighted analysis of GM's performance levels compared to its competitors. GM stated

that a manufacturer's average performance level, like many other vehicle attributes such as average weight or engine displacement, is a function of the mix it sells. That company stated that when its mix is compared to its competitors' mix, GM's performance levels do not appear to be out of line with other manufacturers.

As discussed in the Regulatory Evaluation, the agency has evaluated GM's comment concerning comparative performance levels. NHTSA has also reviewed revised MYs 1996-97 fleet projections submitted by GM and Ford, which resulted in reduced fleet average values for almost all performance measures. In light of these adjustments, NHTSA has concluded that the performance level of the GM fleet is only slightly greater than its competitors and that GM can make a small improvement in its MYs 1996-97 light truck CAFE by bringing its performance levels more in line with its competitors. The value of a CAFE adjustment if GM were to reach comparable levels of performance would be nearly 0.2 mpg in both MYs 1996 and 1997.

NHTSA believes that there are few other opportunities available to GM to make small improvements in its MYs 1996-97 light truck CAFE. There is little time left before the start of the MY 1996 production in, roughly, July 1995. It is unlikely that GM can make any significant technological change to its products to increase its average fuel economy in this period, and the agency is unable to discern any technology plans for MY 1997 that might be pulled ahead for earlier introduction in MY 1996. The additional leadtime before MY 1997 production begins may allow for some minor technological improvements. The agency estimates that these could increase GM's CAFE by up to 0.1 mpg in MY 1997.

GM faces certain technological risks during MYs 1996-97 that could lower its CAFE in those model years. Based on its evaluation of information submitted by GM, NHTSA estimates that these risks could decrease GM's MYs 1996-97 CAFE by more than 0.1 mpg in each year.

By adjusting GM's MYs 1996 and 1997 product plans to reflect all of the factors stated above, NHTSA has concluded that GM is capable of achieving a CAFE of 20.7 mpg in both model years.

2. Ford

As indicated above, Ford currently projects its MY 1996 light truck CAFE level at 21.1 mpg, and its MY 1997 light truck CAFE level at 21.6 mpg. It has also identified certain volume sales and

technological risks which it says could reduce its CAFE level by as much as 0.3 mpg in MY 1996 and 0.6 mpg in MY 1997. Ford has also identified several opportunities which could slightly increase its CAFE.

As discussed in the Regulatory Evaluation, NHTSA has evaluated the risks and opportunities identified by Ford, as well as other means that may be available to Ford to improve its CAFE. The agency believes that Ford overstates the risks that can reasonably be expected to occur in both years. NHTSA expects the risks that negatively affect Ford's CAFE to be offset by sufficient opportunities to result in a capability of 21.2 mpg in MY 1996 and 21.6 mpg in MY 1997.

3. Chrysler

As indicated above, Chrysler currently projects its MY 1996 light truck CAFE level at 20.8 mpg, and its MY 1997 light truck CAFE level at 20.9 mpg. After evaluating Chrysler's product plan, NHTSA has concluded that Chrysler can achieve CAFE levels of at least 20.8 mpg in MY 1996 and 21.0 mpg in MY 1997. The agency believes that the additional leadtime available before MY 1997 vehicles begin production may allow Chrysler to make technological refinements or improvements, or to move certain planned improvements forward to MY 1997. This could increase Chrysler's MY 1997 CAFE by up to 0.1 mpg, thus allowing the company to attain a CAFE level of 21.0 mpg.

While NHTSA has focused its analysis on GM, the least capable manufacturer with a substantial share of sales, the agency does not believe that company's capability is significantly below that of Chrysler, although it is well below that of Ford. As indicated above, the agency believes that Ford has the capability to achieve a MY 1996 CAFE of 21.2 mpg and a MY 1997 CAFE of 21.6 mpg, and that Chrysler can achieve a MY 1996 CAFE of 20.8 mpg and a MY 1997 CAFE of 21.0 mpg. The agency believes that the ability of Ford and Chrysler to improve their CAFE levels above their projections is small.

The agency must, therefore, disagree, with the comment received from ECC that argued that CAFE levels of 23 mpg in MY 1996 and 24 mpg in MY 1997 would be within the capability of manufacturers. The ECC cited a study of fuel economy by the National Academy of Sciences (NAS). The study, which was jointly commissioned by NHTSA and the Federal Highway Administration in 1991, stated that a 22 mpg CAFE standard would be within manufacturers' capabilities. ECC also

cited "best-in-class" analysis performed by the EPA, purportedly showing that light trucks could achieve a 24.3 mpg CAFE level.

ECC failed to address the agency's discussion of the limitations of the NAS study in the NPRM (see 57 FR 61384), which noted that the methodology used by the NAS in its study "has little relevance as a reference value for this rulemaking." The figure used by the NAS in reaching its conclusion that a 22 mpg level was possible in MY 1996 was intended to represent the entire light truck fleet, and not the capability of one or two manufacturers with a significant share of the market. As NHTSA has noted, individual large manufacturers may have light truck fleets with a mix toward larger, less fuel efficient trucks that have the effect of lowering their overall CAFE. In addition, the model mix used in the study was derived from EPA preliminary data for MY 1990, and did not bear a close relationship to the actual mix produced in MY 1991, much less the projected mix for MY 1996. Nor did the study include large vans and utility vehicles, which are a significant segment of the light truck market, and have lower fuel economy levels. The agency stated in the NPRM that it could not use the NAS study as a blueprint for setting CAFE standards, and ECC did not rebut the agency's statement.

The best-in-class analysis does not take into account sales or popularity in the market. Most vehicles that get best-in-class fuel economy ratings have the poorest sales in their class as well. NHTSA cannot force consumers to buy best-in-class light trucks, which often suffer from the disadvantage that they do not possess the power, room, or other attributes that light truck purchasers find desirable. Nor, given the very short leadtime between now and MYs 1996-97, would manufacturers have the chance to redesign their light trucks to more closely be capable of achieving best-in-class fuel economy levels.

Based on its own analysis and in light of the lack of evidence presented by ECC, the agency rejects that commenter's argument that CAFE levels of 23 mpg in MY 1996 and 24 mpg in MY 1997 would be within manufacturers' capabilities.

IV. Other Federal Standards

In determining the maximum feasible fuel economy level, the agency must take into consideration the potential effects of other Federal standards. The following section discusses other government regulations, both in process and recently completed, that may have an impact on fuel economy capability.

A. Safety Standards

As discussed in the Regulatory Evaluation, NHTSA has evaluated several safety rulemakings for their potential impacts on light truck fuel economy in MYs 1996-97. These include revisions to FMVSS Nos. 208, *Occupant Crash Protection*; 214, *Side Impact Protection*; 216, *Roof Crush Resistance*; 108, *Lamps, Reflective Devices and Associated Equipment*; and 201, *Occupant Protection in Interior Impacts*. In addition, the agency is considering whether to propose a safety standard to improve rollover protection.

1. FMVSS 208

On March 26, 1991, NHTSA published (56 FR 12472) a final rule requiring automatic restraints on trucks with a gross vehicle weight rating of 8500 pounds or less and an unloaded vehicle weight of 5500 pounds or less. These requirements phase in at the following rate for each manufacturer: 20 percent of light trucks manufactured from September 1, 1994 to August 31, 1995; 50 percent of light trucks manufactured from September 1, 1995 to August 31, 1996; 90 percent of light trucks manufactured from September 1, 1996 to August 31, 1997; and all light trucks manufactured on or after September 1, 1997. Thus, the requirement will affect 50 percent of MY 1996 light trucks and 90 percent of MY 1997 light trucks. Although light truck manufacturers may comply, as passenger car manufacturers have in the past, with the automatic restraint requirements by using automatic belts or air bags, NHTSA expects that essentially all light truck manufacturers will comply by using air bags.

To encourage the use of more innovative automatic restraint systems (primarily air bags) in light trucks, during the first four years of the phase-in (i.e., through MY 1998) manufacturers may count each light truck equipped with such a restraint system for the driver's position, and a dynamically tested manual safety belt for the right-front passenger's position, as a vehicle complying with the automatic restraint requirements. Beginning with MY 1999, however, all light trucks are required to provide automatic restraints for both the driver and right-front passenger positions.

Title II of the Intermodal Surface Transportation Efficiency Act of 1991 required NHTSA to amend its automatic restraint requirements to mandate that 80 percent of MY 1998, and all MY 1999 light trucks be equipped with driver and passenger-side air bags. On September 2, 1993, NHTSA published a final rule

in the Federal Register (58 FR 46551) to implement this requirement. Since NHTSA expects that essentially all manufacturers will rely on air bags for compliance with the light truck automatic restraints requirements, this provision should have a negligible substantive impact, and will not affect MYs 1996-97 fuel economy capabilities.

In the Final Regulatory Impact Analysis for the 1991 light truck automatic restraint rulemaking, which is available in the public docket at NHTSA, the agency estimated weight increases per vehicle ranging from 15.3 pounds for a driver's-side air bag to 35.7 pounds for both driver and right-front passenger air bags (including "secondary weight," i.e., weight added for supporting structure, etc.). Using these figures, NHTSA estimated that fuel economy could be reduced by about 0.05 to 0.11 mpg.

The automatic restraint weight estimates provided by the manufacturers in their responses to the Request for Comments, and the NPRM for this rulemaking were generally consistent with those previously developed by the agency. NHTSA calculates that the manufacturers' estimates translate into fuel economy penalties of 0.07-0.12 mpg for MY 1996 and 0.11-0.14 mpg for MY 1997. These weight effects are reflected in the manufacturers' fuel economy projections, so there is no need for NHTSA to add an explicit adjustment to their projections to consider the impact of this standard.

2. FMVSS 214

On June 14, 1991, NHTSA published (56 FR 27427) a final rule extending the "quasi-static" test requirements of FMVSS 214 to trucks, multipurpose vehicles, and buses with a GVWR of 10,000 pounds or less. On July 13, 1992, NHTSA published (57 FR 30917) a final rule establishing a brief phase-in for the requirements of this rule. Manufacturers must meet the requirements for all of their light trucks as of September 1, 1994. The "quasi-static" requirements have the effect of requiring each side door to be designed to mitigate occupant injuries in side impacts. It measures performance in terms of the ability of each door to resist a piston pressing a rigid steel cylinder against it. Manufacturers generally comply with the standard by reinforcing the side doors with metal beams or rods.

In the Regulatory Evaluation accompanying the rule, NHTSA estimated that the requirements of FMVSS 214 would result in an average weight increase of 24.8 to 26.7 pounds (including secondary weight). This

weight increase could result in a fuel economy degradation of 0.1 mpg.

The weight estimates provided by the manufacturers for quasi-static side impact protection translate, according to NHTSA calculations, into fuel economy penalties of approximately 0.04-0.07 mpg for each model year, MYs 1996 and 1997. These weight effects are included in the manufacturers' fuel economy projections, so there is no need for NHTSA to add an explicit adjustment to their projections to consider the impact of this standard.

The agency is also considering other regulatory requirements to protect light truck occupants in side impacts. The agency addressed a number of possible requirements in an ANPRM published on August 19, 1988 (53 FR 31716). In addition, on June 5, 1992, pursuant to the Intermodal Surface Transportation Efficiency Act of 1991, NHTSA published (57 FR 24009) an ANPRM concerning whether passenger car dynamic side impact protection requirements should be extended to light trucks. Since any additional requirements in this area would take effect after MY 1997, there will be no impact on MYs 1996-97 fuel economy capabilities.

3. FMVSS 216

On April 17, 1991, NHTSA published a final rule (56 FR 15510) amending FMVSS 216, *Roof Crush Resistance*, to extend its requirements to light trucks with GVWRs of 6,000 pounds or less. Previously, the standard applied only to passenger cars. The effective date of the rule is September 1, 1994.

FMVSS 216 is intended to reduce deaths and injuries due to the crushing of the roof into the passenger compartment in rollover crashes. This standard established strength requirements for the forward portion of the roof to increase the resistance of the roof to intrusion and crush.

The agency believes that this requirement will have a negligible impact on light truck manufacturers' MYs 1996-97 fuel economy capabilities. Most light trucks already meet the standard. NHTSA calculates that the manufacturers' weight impact estimates translate into fuel economy penalties of about 0.003-0.030 mpg for MYs 1996-97. These weight effects are included in the manufacturers' fuel economy projections.

4. FMVSS 108

On April 19, 1991, NHTSA published (56 FR 16015) a final rule requiring new light trucks to be equipped with center high-mounted stoplamps (CHMSLs). The effective date was September 1,

1993. With an estimated weight effect of about one pound, this rule has a negligible CAFE effect.

5. FMVSS 201

On February 8, 1993, NHTSA published (58 FR 7506) a notice proposing to amend FMVSS 201 to require passenger cars and light trucks to meet a new in-vehicle component test to provide protection when an occupant's head impacts upper interior components (such as A-pillars and side rails) during a crash. The estimated weight effect for light trucks for this proposed requirement averages six to nine pounds per vehicle, for a fuel economy effect of 0.03 mpg. Currently, it is still indeterminate as to whether the proposed requirement will affect light trucks in MYs 1996-97. At this time, therefore, the agency cannot take potential fuel economy effects into consideration when establishing fuel economy standards for MYs 1996-97.

6. Rollover Prevention

The Intermodal Surface Transportation Efficiency Act of 1991 required NHTSA to publish an ANPRM or NPRM by May 31, 1992 to provide "protection against unreasonable risk of rollovers of passenger cars, multipurpose passenger vehicles, and trucks with a gross vehicle weight rating of 8,500 pounds or less and an unloaded vehicle weight of 5,500 pounds or less." On January 3, 1992, NHTSA published (57 FR 242) an ANPRM announcing that the agency is considering whether to propose a safety standard to reduce the casualties associated with rollovers of passenger cars, pickup trucks, vans, and utility vehicles. In addition, on September 29, 1992, NHTSA published a notice (57 FR 44721) announcing the availability of a document describing the agency's planned rulemaking effort, data analyses, and physical research to address the problem of rollover crashes and resulting injuries and fatalities.

Since NHTSA has not yet proposed any requirements in this area, it will not have an impact on MYs 1996-97 CAFE capabilities.

B. Revised Emissions Standards

The Clean Air Act Amendments of 1990 (CAAA) impose more stringent exhaust emissions standards on light trucks. Standards are also becoming tighter in California. Under the CAAA, new standards for light trucks with GVWRs up to 6,000 pounds have begun phasing-in. The phase-in provides for compliance by 40 percent for MY 1994, 80 percent for MY 1995, and 100 percent for MY 1996 and afterwards. For light trucks over 6,000 pounds GVWR,

more stringent standards begin to take effect in MY 1996. Fifty percent of these vehicles must comply with the new standards in MY 1996; all light trucks over 6,000 pounds GVWR must meet the new standards for MY 1997 and later.

Current standards for exhaust emissions will tighten substantially under the CAAA. Over the "full useful life" of a vehicle, emissions standards will be 0.80 grams/mile for total hydrocarbons, and will range (depending on vehicle and test weight) from 0.31 to 0.56 grams/mile for non-methane hydrocarbons, from 4.2 to 7.3 grams/mile for carbon monoxide, from 0.6 to 1.53 grams/mile for oxides of nitrogen, and from 0.10 to 0.12 grams/mile for particulate matter.

The CAAA also require EPA to establish standards for carbon monoxide emissions at 20 degrees Fahrenheit, which came into effect in the current model year. Further, for all gasoline-fueled motor vehicles, the CAAA require EPA to promulgate regulations covering evaporative emissions (1) during operation ("running losses") and (2) over two or more days of non-use.

In their questionnaire responses, none of the auto companies provided substantial detail on the possible impacts of these standards on MY 1996-97 light truck fuel economy capabilities. GM stated, "The total impact of the Clean Air Act Tier I and the California emissions standards on truck fuel economy is unknown at this time. * * * Although not quantified, preliminary indications are that there will be some lost opportunities to improve fuel economy when redesigning our powertrains to comply with these standards."

Ford stated that, "[M]ost troublesome is the effect of compliance with the amended Clean Air Act. We project that compliance has reduced the average truck fuel economy by 0.3 mpg after inclusion of technology which has an offsetting effect * * * and it negates other technology benefits."

NHTSA indicated in the NPRM and PRIA that it believes the net impact on CAFE capabilities due to changes in emissions requirements is likely to be minimal. Some of the new requirements will lead to fuel savings, while others may lead to fuel economy losses. Benefits will be obtained from enhanced evaporative controls and the "low temperature" carbon monoxide standards because manufacturers will sharpen their fuel-control systems, using techniques such as sequential port fuel injection. Slight fuel economy losses may result from tighter hydrocarbon and nitrous oxides

emissions standards, particularly for larger engines.

In their comments on the NPRM, the manufacturers did not provide data indicating that new emissions requirements would have a significant effect on MYs 1996-97 CAFE capabilities. GM stated the following:

The impact of tighter Federal emissions standards enacted by the 1990 Clean Air Act Amendments is not expected to have a direct fuel economy impact related to engine efficiency. However, there will be weight increases on some engines if dual catalytic converters are required.

* * * California TLEV emissions standards will most likely impact fuel economy. However, these impacts * * * have not yet been reflected in GM's CAFE forecasts.

* * * Tighter evaporative emission standards requiring larger canisters and adding purge controls will add weight to the vehicle and impact fuel economy.

In its comment, Ford stated:

Ford believes that NHTSA's list of other Federal standards that might have an impact on light truck fuel economy during MYs 1995-97 is insufficient. A more comprehensive list would include Potential Revisions to the Federal Test Procedure (FTP) such as higher speeds and accelerations and electric dynamometer true road load calibration, IM240 Short Test Requirements, Onboard Diagnostics, Cold CO Testing, Enhanced Evaporative Testing Requirements, Section 177 States, [and] Fuels or Fuel Additives such as reformulated gasoline and MMT.

At this point, Ford has not allocated resources to collectively assess the fuel economy implications, of required emission control system calibration strategies and hardware, that may be associated with the above requirements. However, it is reasonable to believe that several of these potential requirements will have a significant impact on light truck fuel economy.

NHTSA believes that the actual and potential Federal standards identified by Ford will not have any significant impact on MYs 1996-97 light truck fuel economy capabilities. The agency's specific analysis of the impacts of each of these standards is presented in the Regulatory Evaluation. A summary of the agency's analysis follows:

1. Potential Revisions to the Federal Test Procedure

EPA has not to date proposed any revisions to the FTP, so no impact is expected for MYs 1996-97.

2. IM240 Short Test Requirements

EPA has issued new inspection and maintenance test procedures to help ensure that vehicle emission controls function properly in real-world use, and has proposed a new Certification Short Test procedure. It has also issued a rule,

effective for MY 1996, outlining new Certification Short Test procedures to ensure that properly maintained passenger cars and light trucks have no elements of design that would cause "pattern failure" in inspection and maintenance programs. However, EPA's analyses have not indicated that there would be any impact on manufacturers' fuel economy capabilities as a result of these rulemakings.

3. Onboard Diagnostics

EPA has issued a final rule on onboard diagnostics that applies to MY 1994 and later passenger cars and light trucks, but EPA believes that this will not affect fuel economy. There may even be some actual fuel economy benefits due to earlier identification of malfunctioning emissions control equipment.

4. Cold CO Testing

EPA has issued new low temperature carbon monoxide testing requirements which will apply to all MY 1996 and later model year passenger cars and light trucks, but EPA believes that the requirements will not result in any fuel economy loss and may actually result in a slight fuel economy benefit.

5. Enhanced Evaporative Testing Requirements

EPA has recently issued enhanced evaporative emissions standards. Any negative impact on fuel economy (due to increased weights of upgraded evaporative emissions control system) would be very slight. EPA estimates that larger evaporative canisters, vapor lines, and purge valves will add an average of 2.9 pounds to the weight of a light duty truck. Using NHTSA's secondary weight multiplier of 1.7, this would mean a total increase of 4.9 pounds, which would reduce fuel economy by approximately 0.017 mpg. However, this requirement only applies to 20 percent of MY 1996 vehicles and 40 percent of MY 1997 vehicles, so the total respective fuel economy penalties would not be greater than 0.003 mpg and 0.007 mpg. EPA, however, expects offsetting fuel economy benefits, which it has not yet quantified.

6. Section 177 States

The term "Section 177 States" refers to states which voluntarily adopt the more stringent California emissions standards. At this time, Massachusetts, Maine, Maryland, New York, and other Northeastern and Mid-Atlantic states have either passed legislation to adopt the California emissions standards during the mid-1990s, or are considering enacting such legislation.

However, there are ongoing legal challenges to adoption of the California emissions standards. NHTSA has not received any data showing any impact on MYs 1996-97 light truck fuel economy capabilities as a result of states other than California adopting the California emissions standards.

7. Fuels or Fuel Additives Such as Reformulated Gasoline and MMT

EPA has not proposed any changes in the current certification test fuel, so NHTSA does not expect any fuel economy impact for MYs 1996-97 light trucks.

NHTSA has not made any adjustments to the manufacturers' CAFE projections to account for any impacts of changing emissions standards during MYs 1996-97. The agency notes that Ford appears to be the only manufacturer that explicitly included a potential fuel economy loss (an average of 0.3 mpg) in its MYs 1996-97 CAFE projection. Since Ford is not the "least capable" manufacturer and NHTSA is not basing the selection of the MYs 1996-97 light truck CAFE standard primarily on Ford's capability, it is unnecessary to resolve whether Ford's capability should be adjusted upward because of Ford's inclusion of this estimated fuel economy loss in its projection.

C. Test Weight for Light Trucks Over 6,000 Pounds GVWR

The CAAA require that, beginning with MY 1996, many light trucks over 6,000 pounds GVWR be tested, for emissions purposes, at the average of curb weight and GVWR. This requirement applies to one-half the "over 6,000 pound" fleet in MY 1996 and all of this fleet in MY 1997. Previously, test weights were determined based on "loaded vehicle weight," (LVW) which is defined as curb weight plus 300 pounds. Loaded vehicle weight has been the sole basis used to calculate "equivalent test weight," which is the weight used for dynamometer testing. EPA has defined the average of vehicle curb weight and GVWR to be "adjusted loaded vehicle weight" (ALVW) (see 56 FR 25739), which will be used as the basis for determining equivalent test weight for emission testing of the "over 6,000 pound" test fleet described above. ALVW is higher than the LVW, and if light trucks are tested at ALVW, there will be a loss in the estimated fuel economy.

The CAAA do not require fuel economy testing to be performed at ALVW. However, because exhaust emissions testing must be done at

ALVW for light trucks over 6,000 pounds GVWR, use of a different test weight system for fuel economy could require manufacturers and EPA (when conducting confirmatory tests) to test each of these trucks twice: once at its "equivalent test weight" based on LVW for fuel economy purposes and once based on ALVW for exhaust emissions purposes. Another approach would be for EPA to mandate that trucks over 6,000 pounds GVWR be fuel economy tested at ALVW and for NHTSA to consider any resulting deleterious fuel economy effect in establishing CAFE standards for the affected model years. A third approach would be to have a manufacturer-specific test procedure adjustment to account for the proportion of its fleet affected by this requirement.

Domestic auto manufacturers have pointed out that testing at the higher weights would have a negative fuel economy impact. Using MY 1992 data, GM claimed a potential impact in MY 1997 of at least 0.5 mpg. Ford estimated a possible loss in MY 1997 of 0.2-0.3 mpg. Chrysler did not give a specific number but agreed that fuel economy would be lowered. Import manufacturers are unlikely to have any significant penalty from this test procedure change because they produce few, if any, light trucks with a GVWR exceeding 6,000 pounds.

In a letter dated February 18, 1992, EPA stated that NHTSA should set CAFE standards with the heavier test weight in mind and stated that dual testing would entail increased expenses. EPA also noted that EPCA requires integrated fuel economy and emissions testing, although this requirement is limited by the language "to the extent practicable."

After the EPA letter was sent, MVMA (now AAMA) indicated to EPA that requiring the heavier test weight would also increase testing expenses, by forcing separate fuel economy tests for light trucks above and below 6,000 pounds GVWR. In addition, MVMA raised concerns that changing the basis for determining fuel economy on only a portion of the light truck fleet (i.e., those above 6,000 pounds GVWR) would cause consumer confusion and affect the competitiveness of manufacturers with a higher proportion of the sales of the heavier light trucks.

In the NPRM, NHTSA requested comments on the appropriate means of handling this issue in the context of setting the MY 1995-97 light truck fuel economy standards. The agency stated that if EPA mandates fuel economy testing at ALVW, NHTSA would account for the impacts of this testing in

establishing light truck fuel economy standards.

In January 7, 1993 letters to AAMA and AIAM, EPA stated,

Manufacturers should be aware of the NHTSA proposed rule on light truck average fuel economy standards * * * Included in the proposal is a request for comments on the consequences of performing fuel economy testing for heavy light-duty trucks under two different equivalent test weight approaches. The EPA will consider all relevant comments made during the NHTSA proposal comment period when developing an EPA guidance document or rulemaking on this subject.

* * * The EPA plans to defer to NHTSA's policy decisions on issues such as the competitiveness effects of the alternatives. Once NHTSA determines the desirable CAFE solution and puts it into place, the EPA will follow with conforming amendments to either its regulations or policy as required.

In commenting on the NPRM, GM, Ford, Chrysler, AAMA and Rover Group all supported the continuation of fuel economy testing at LVW. AAMA's comment was typical, "Retention of the LVW criteria will avoid needless test and CAFE data base complexities, avoid added customer confusion when comparing fuel economy labels and avoid creation of unrealistic competitive fuel economy rating differences."

After considering the comments on the new emissions test procedure requirements, NHTSA has concluded that the simplest and most equitable procedure for both manufacturers and the Federal government is to continue fuel economy certification using LVW values for all classes of vehicles. NHTSA has informed EPA of its decision and, in a March 4, 1993 letter to NHTSA, EPA agreed to abide by NHTSA's decision and stated that it would undertake "the regulatory and guidance revisions needed to allow dual testing."

D. Phase-Out of Chlorofluorocarbons

Under terms of the international Montreal Protocol, the United States and other industrialized nations have agreed to halt production of chlorofluorocarbons (CFCs) by the year 2000. In February 1992, President Bush announced that the United States would phase out production by the end of 1995.

Both Ford and General Motors identified weight penalties for eliminating the use of CFCs in their vehicles' air conditioning systems of seven pounds or less for each MY 1995-97. NHTSA estimated that these weight additions could result in an average fuel economy penalty of 0.02 mpg. These weight effects are included in the manufacturers' fuel economy projections.

V. Domestic/Import Fleet Distinction

In the NPRM, NHTSA proposed to eliminate the requirement that captive imports and other light trucks be required to meet light truck CAFE standards separately. This requirement has been in effect since MY 1980 (see 42 FR 63184, *Federal Register*, December 15, 1977). At the time the agency introduced these separate categories, it believed that the division would prevent light truck CAFE standards from acting as an incentive for the domestic manufacturers to increase the numbers of captive import vehicles in their fleets.

Over the past decade, however, the captive import sector of the fleet has become insignificant. Whereas in 1980, captive imports accounted for 14.7 percent of the overall light truck market, in 1992 they made up less than 0.5 percent of that market. GM and Ford no longer have any captive import light trucks. Chrysler's captive import fleet consisted, for MY 1993, of only about 6,000 vehicles (compact pickups produced in Japan by Mitsubishi). Given the changes in market conditions, NHTSA tentatively concluded in the NPRM that there is no need or reason to continue to maintain the separate categories. While the Act specifies a similar two-fleet rule for passenger automobiles, it does not require the agency to provide similar treatment to light trucks.

In their comments to the NPRM, the domestic manufacturers and the AAMA supported elimination of the captive import category. The agency did not receive any other comments that addressed the issue.

For the reasons discussed above and in the NPRM, and in light of the comments, beginning in MY 1996, the agency will no longer require light trucks to meet the CAFE standard separately, based on whether they are captive imports. A new Table IV is being added to the regulatory text, which indicates a single CAFE standard for all light trucks without category distinctions.

Since CAFE credits cannot ordinarily be applied across classes of light trucks, the agency proposed a method of accommodating the 3-year carryforward and carryback of credits for light trucks after the elimination of the two-fleet requirement. Only Chrysler commented on the proposal, stating that it agreed with the agency. No other comments addressed the issue.

The manner in which NHTSA will allow CAFE credits to be carried forward or backward once the captive import and other fleets are combined is the same as that used by the agency

during the transition from 2WD and 4WD standards for MYs 1980-81 to optional combined standards for MY 1982 and later (45 FR 83233, December 18, 1990), as well as the subsequent termination of any 2WD/4WD option in favor of a single combined standard for all configurations in MY 1992 (55 FR 12487, April 4, 1990). For MY's 1993-95, a manufacturer's captive import and other light truck credits can be applied to offset shortfalls in the combined fleet incurred up to three model years later (i.e., MYs 1996-98). If, on the other hand, a manufacturer wished to use credits earned in the three years after elimination of the two-fleet requirement to offset a shortfall incurred between MY 1993 and MY 1995, the manufacturer would have to separate its MYs 1996-98 CAFE credits into "captive import" and "other" components based on each fraction of the fleet's share of total production.

NHTSA notes that it does not foresee any manufacturer making use of carryforward or carryback credits for captive imports, however. As mentioned above, in the relevant years, only Chrysler has had even a minimal number of captive imports, and it has not needed to use any credits during that time. Nor does the agency expect any manufacturer to establish a captive import fleet in the MY 1996-98 timeframe.

VI. The Need of the Nation To Conserve Energy

The United States imported 15 percent of its oil needs in 1955. The import share reached 36.8 percent in 1975, the year EPCA was passed, and peaked at 46.4 percent in 1977, at a cost of \$91 billion (stated in 1992 dollars). Although the share declined to below 30 percent in the mid-1980's, lately the United States has again become increasingly dependent on imported oil. Over 40 percent of the country's petroleum needs have been imported in every year since 1988. In 1992, imports totaled 43.6 percent. Sharply lower oil prices in the past decade, however, cut the value of oil imports to \$50.5 billion in 1992.

Similarly, the percentage of imported oil purchased from OPEC sources, which peaked at 70 percent in 1977, and declined to a low of 36 percent in 1985, has been steadily rising since then, and has been over 50 percent every year since 1989.

The average cost of crude oil imports jumped from \$4.08 per barrel in 1973 to \$12.52 in 1974 as a result of the oil embargo against selected countries, including the United States, by Arab members of OPEC. Additional increases

in the cost of oil occurred in 1979–80, due to unrest in Iran (which eliminated a substantial portion of that country's oil output), and in 1980–81, when the outbreak of the Iran-Iraq war reduced supply from the area. In 1981, the United States adopted a policy of reliance on market forces and decontrolled the price of oil. Since 1981, prices have fallen as conservation efforts continue. In 1990–91, petroleum prices were affected by the conflict in the Persian Gulf. In the beginning of 1992, the continued worldwide economic recession and high levels of crude oil production by OPEC member countries together held down oil prices. The average refiner acquisition cost of imported crude oil in 1992 was \$17.75 per barrel, which was 4.2 percent below the average 1991 level (in 1992 dollars).

The current energy situation and emerging trends point to the continued importance of oil conservation. The United States now imports a higher percentage of its oil needs than it did during 1975, the year EPCA was passed, and the percentage of its oil supplied by OPEC is similar to that of 1975. Oil continues to account for over 40 percent of all energy used in the United States, and 97 percent of the energy consumed in the transportation sector. Despite legislation such as the Clean Air Act Amendments of 1990 and California's strict "clean fuel" and emissions standards, gasoline will likely remain the predominant fuel in the transportation sector. Domestic oil production has declined steadily since reaching a peak of 10.6 million barrels per day in 1985 and dropping to 9.0 million barrels per day in 1992. Domestic production is expected to continue declining by roughly 200,000 barrels per day each year through the year 2000. While the United States is currently the world's second largest oil producer, it contains only about three percent of the world's known oil reserves. Persian Gulf countries contain 63 percent of known world reserves, and former communist countries contain 9 percent.

Long-term projections of petroleum prices, supply, and demand are now influenced by a wide range of uncertainties associated with sweeping economic and political changes in the former U.S.S.R. and in Eastern Europe, environmental issues, and the role of Middle East countries in determining the world's future oil supplies and prices, and future energy demands in populous developing countries. The Department of Energy projects that oil prices will be between \$14 and \$30 (1992 dollars) per barrel in the year 2000, and will rise to between \$19 and

\$39 per barrel by 2010. DOE projects a continuing decline in domestic oil production to between 3.54 and 6.73 million barrels per day in 2010, with imports rising to between 52 percent and 72 percent of total use.

The level of petroleum imports is only one aspect of the total energy conservation picture. Under EPCA and NEPA, for example, national security, energy independence, resource conservation, and environmental protection must all be considered.

In March 1987, the Department of Energy submitted a report to the President entitled "Energy Security." NHTSA believes that the following quotation from that report continues to represent a useful summary of the national security and energy independence aspects of the current energy situation:

Although dependence on insecure oil supplies is * * * projected to grow, energy security depends in part on the ability of importing nations to respond to oil supply disruptions; and this is improving. The decontrol of oil prices in the United States, as well as similar moves in other countries, has made economies more adaptable to changing situations. Furthermore, the large strategic oil reserves that have been established in the United States (and to a lesser extent, in other major oil-importing nations) will make it possible to respond far more effectively to any future disruptions than has been the case in the past.

The current world energy situation and the outlook for the future include both opportunities and risks. The oil price drop of 1986 showed how consumers can be helped by a more competitive oil market. If adequate supplies of oil and other energy resources continue to be available at reasonable prices, this will provide a boost to a world economy. At the same time, the projected increase in reliance on relatively few oil suppliers implies certain risks for the United States and the free world. These risks can be summarized as follows: If a small group of leading oil producers can dominate the world's energy markets, this could result in artificially high prices (or just sharp upward and downward price swings), which would necessitate difficult economic adjustments and cause hardships to all consumers.

Revolutions, regional wars, or aggression from outside powers could disrupt a large volume of oil supplies from the Persian Gulf, inflicting severe damage on the economies of the United States and allied nations. Oil price increases precipitated by the 1978–79 Iranian revolution contributed to the largest recession since the 1930's. Similar or larger events in the future could have far-reaching economic, geopolitical, or even military implications.

Based on the above, NHTSA concludes that there is a continuing need for the nation to conserve energy.

The increase in market share of light trucks points to the need for enhanced

fuel economy for this class of vehicle. Light trucks are less fuel efficient and are driven more miles over their lifetime than passenger automobiles. Currently, more than half of the energy in the transportation sector is used by light-duty vehicles (automobiles and light trucks). Light trucks have steadily increased their share of petroleum use in the transportation sector. In 1973, light trucks accounted for approximately 12 percent of transportation petroleum use, a figure which increased to roughly 20 percent by 1991.

Light trucks meeting the MYs 1996–97 standard will be more fuel-efficient than the average vehicle in the current light truck fleet in service, thus making a positive contribution to petroleum conservation.

VII. Determining the Maximum Feasible Average Fuel Economy Level

As discussed above, section 502(b) requires that light truck fuel economy standards be set at the maximum feasible average fuel economy level. In making this determination, the agency must consider the four factors of section 502(e): technological feasibility, economic practicability, the effect of other Federal motor vehicle standards on fuel economy, and the need of the nation to conserve energy.

A. Interpretation of "Feasible"

Based on definitions and judicial interpretations of similar language in other statutes, the agency has in the past interpreted "feasible" to refer to whether something is capable of being done. The agency has thus concluded in the past that a standard set at the maximum feasible average fuel economy level must: (1) Be capable of being done and (2) be at the highest level that is capable of being done, taking account of what manufacturers are able to do in light of technological feasibility, economic practicability, how other Federal motor vehicle standards affect average fuel economy, and the need of the nation to conserve energy.

B. Industry-wide Considerations

The statute does not expressly state whether the concept of feasibility is to be determined on a manufacturer-by-manufacturer basis or on an industry-wide basis. Legislative history may be used as an indication of congressional intent in resolving ambiguities in statutory language. The agency believes that the below-quoted language provides guidance on the meaning of "maximum feasible average fuel economy level."

The Conference Report to the 1975 Act (S. Rep. No. 94-516, 94th Cong., 1st Sess. 154-55 (1975)) states:

Such determination [of maximum feasible average fuel economy level] should take industry-wide considerations into account. For example, a determination of maximum feasible average fuel economy should not be keyed to the single manufacturer which might have the most difficulty achieving a given level of average fuel economy. Rather, the Secretary must weigh the benefits to the nation of a higher average fuel economy standard against the difficulties of individual manufacturers. Such difficulties, however, should be given appropriate weight in setting the standard in light of the small number of domestic manufacturers that currently exist and the possible implications for the national economy and for reduced competition association [sic] with a severe strain on any manufacturer * * *

It is clear from the Conference Report that Congress did not intend that standards simply be set at the level of the least capable manufacturer. Rather, NHTSA must take industry-wide considerations into account in determining the maximum feasible average fuel economy level.

NHTSA has traditionally set light truck standards at a level that can be achieved by manufacturers whose vehicles constitute a substantial share of the market. The agency did set the MY 1982 light truck fuel economy standards at a level which it recognized might be above the maximum feasible fuel economy capability of Chrysler, based on the conclusion that the energy benefits associated with the higher standard would outweigh the harm to Chrysler. 45 FR 20871, 20876, March 31, 1980. However, as the agency noted in deciding not to set the MYs 1983-85 light truck standards above Ford's level of capability, Chrysler had only 10-15 percent of the light truck domestic sales, while Ford had about 35 percent. 45 FR 81593, 81599, December 11, 1980.

C. Petroleum Consumption

The energy savings that could result from the MYs 1996-97 standard can be illustrated by considering the potential effects of a standard set at different levels. Since Ford and Chrysler project CAFE levels for both MY 1996 and 1997 above 20.7 mpg, a standard set at 20.7 mpg would not likely have any effect on those companies. Since GM currently projects a CAFE level of 20.5 mpg for both model years, a standard set at 20.7 mpg, the level NHTSA has determined to be GM's capability, would encourage it to achieve a higher CAFE level. If a 20.7 mpg standard resulted in GM achieving a CAFE level 0.2 mpg above its current projection, there would be a savings of 102 million gallons of

gasoline over the lifetime of GM's fleet for each model year. (This assumes GM would sell the same number of light trucks in MY 1996 and MY 1997 as it did in MY 1993.)

The potential savings associated with a MY 1996-97 standard above 20.7 mpg are highly uncertain. Assume, for example, that a standard could be set at 21.2 mpg, 0.5 mpg above GM's capability for both model years and 0.4 mpg above Chrysler's capability for MY 1996 and 0.2 mpg above its capability for MY 1997. Since Ford projects CAFE levels of 21.1 mpg and 21.6 mpg for MY 1996-97, such standards would likely have little or no impact on that company. GM and Chrysler could likely meet the levels of the standards only by restricting the sales of their large light trucks. If this occurred, consumers might tend to keep their older, less-fuel efficient light trucks in service longer. Also, consumers might purchase still larger trucks that are not subject to CAFE standards. Therefore, the agency believes that any additional energy savings associated with alternative higher fuel economy standards above 20.7 mpg (the level the agency has determined to be GM's capability) would be uncertain and speculative.

D. The MYs 1996-97 Standard

Based on its analysis described above and on manufacturers' projections, the agency concludes that the major domestic manufacturers can achieve the light truck fuel economy levels listed in the following table:

Manufacturer	Approximate market share (percent, based on MY 1993)	CAFE (mpg)	
		MY 1996	MY 1997
GM	30	20.7	20.7
Ford	31	21.2	21.6
Chrysler	23	20.8	21.0

As indicated above, most light truck manufacturers other than GM, Ford and Chrysler only compete in the small vehicle portion of the light truck market and are therefore expected to achieve CAFE levels well above those companies. Only three light truck manufacturers, Range Rover, PAS and UMC, are expected to have fuel economy levels lower than the major domestic manufacturers. Since these companies have an extremely small market share, NHTSA concludes that setting a standard based on their capabilities would be inconsistent with a determination of maximum feasibility that takes industry-wide considerations into account, as required by statute.

As indicated above, NHTSA has concluded that GM is the least capable manufacturer with a substantial share of sales for MYs 1996-97. NHTSA also concludes that 20.7 mpg is the maximum feasible standard for both MYs 1996 and 1997. For the reasons discussed below, this level balances the potential petroleum savings associated with a higher standard against the difficulties of manufacturers facing a potentially higher standard.

The agency believes that a 20.7 mpg, light truck CAFE standard for MYs 1996-97 will make a positive contribution to petroleum conservation by encouraging GM, which has a large market share, to achieve a higher CAFE level than it currently projects while remaining within its fuel economy capability. The agency notes that a 20.7 mpg standard is 0.2 mpg higher than GM's current MYs 1996-97 CAFE projection.

A 20.7 mpg standard will not unduly restrict consumer choice or have adverse economic impacts on the large domestic manufacturers. The current product plans of Ford and Chrysler indicate that they expect to achieve MYs 1996-97 CAFE levels that are above 20.7 mpg. Therefore, they will not have to make any changes in their product plans to achieve the level of the standard.

While GM's current product plan shows expected MYs 1996-97 CAFEs of 20.5 mpg in each model year, NHTSA's analysis indicates that company can achieve a CAFE of 20.7 mpg in both years. As discussed above, this conclusion is based on the following assumptions: (1) The 4WD share of the market will not significantly increase between now and MYs 1996-97, (2) GM will make successful efforts to maintain market share of certain vehicles, (3) GM can make minor changes in the performance levels of its vehicles to bring them more in line with its competitors, and (4) GM can make small improvements by increasing the penetration of some engine and transmission technology improvements that are not projected for full implementation. All of these actions are very minor and, the agency believes, within GM's capability.

NHTSA believes that a higher standard than 20.7 mpg for MYs 1996-97 could result in serious economic difficulties for GM. While GM can achieve 20.7 mpg CAFE without significant product restrictions, such restrictions could be required to achieve a CAFE higher than 20.7 mpg. Given leadtime constraints, NHTSA believes that the first potential fuel-efficiency actions that GM or any other manufacturer would consider in

response to a higher standard would consist of marketing actions. For the reasons discussed in other notices, however, the agency does not believe that marketing actions can be relied upon to significantly improve a manufacturer's CAFE. See, e.g., MY 1993-94 light truck CAFE final rule (56 FR 13775, April 4, 1991). If such marketing actions were unsuccessful in whole or in part, GM would likely have to engage in significant product restrictions to achieve the level of a higher CAFE standard. Such product restrictions could result in adverse economic consequences for GM, its employees and the economy as a whole and limit consumer choice, especially with regard to the load-carrying needs of light truck purchasers.

As indicated above, while NHTSA has concluded that GM is the least capable manufacturer with a substantial share of sales, the agency believes that GM's capability is not significantly below that of Chrysler. GM and Chrysler, combined, sell over 50 percent of all new light trucks each model year. Therefore, even if the agency were to set a standard above GM's capability, the standard could not be much above 20.7 mpg and still remain within the capability of the majority of the industry.

NHTSA believes that the 20.7 mpg standard balances the potentially serious adverse economic consequences for GM that could result from a higher standard with the potential for increased petroleum savings. The agency concludes, in view of the statutory requirement to consider specified factors, that the relatively small and uncertain energy savings associated with setting a standard above GM's capability would not justify the potential harm to that company and the economy as a whole.

Consumer Alert and CEI requested that NHTSA consider the safety effects of its decision. Those commenters stated that the agency should not in any way avoid analyzing the potential safety consequences of a decision to increase the CAFE standards for light trucks. Consumer Alert and CEI cited the record of NHTSA's rulemaking concerning the MY 1990 passenger car CAFE standard, although they recognized that the safety consequences of a decision to raise the CAFE standard for light trucks may differ somewhat.

In the context of passenger car CAFE standards, NHTSA has recognized that CAFE standards could adversely affect safety to the extent that they result in significant reductions in car size and/or weight. This issue was discussed at length in the agency's notice

terminating rulemaking on the MY 1990 passenger car CAFE standard (see 58 FR 6939, February 3, 1993).

An analysis of the extent to which significantly higher light truck CAFE standards could affect safety is more complex than for passenger car standards, since purchasers would have many more options for substitution (e.g., different kinds of light trucks, trucks with a high enough GVWR that they are not subject to CAFE standards, etc.) The agency notes that since light trucks are generally significantly larger and heavier than passenger cars, any safety effects of a particular weight reduction would likely be smaller than for cars.

While NHTSA recognizes that significantly higher light truck CAFE standards could adversely affect safety, to the extent that they resulted in significant reductions in light truck size and/or weight, the available evidence indicates that MYs 1996-97 standard of 20.7 mpg will not have any impact on safety. NHTSA notes that, in setting the light truck CAFE standards for recent model years, the agency did not include in its analyses of manufacturer capabilities any product plan actions that would significantly affect the weight, size or cost of the vehicles the manufacturers planned to offer. The agency also notes that the average equivalent test weight of light trucks has increased from 3,805 pounds in MY 1984 to 4,169 pounds in MY 1992. Therefore, NHTSA believes that CAFE standards during this period have not had any measurable effect on light truck weight or size.

The agency also notes that the levels of the light truck CAFE standards have not varied significantly for more than a decade. The light truck CAFE standards for MY 1987-89 and MY 1994 were set at 20.5 mpg, and, as far back as MY 1984, the standard was 20.0 mpg.

NHTSA therefore believes that the size and weight of current and planned light trucks are not significantly different from what would have occurred in the absence of CAFE standards. As discussed above, Ford and Chrysler will exceed the level of the 20.7 mpg standard for MYs 1996-97 without making any changes in their product plans. While GM will need to make some changes in its product plan to achieve a CAFE of 20.7 mpg, the agency does not believe that it is necessary, or likely, for that company to take actions that would have any adverse effect on safety, in order to achieve that CAFE level.

As indicated above, in determining that GM can achieve MYs 1996-97 CAFE levels of 20.7 mpg, NHTSA adjusted GM's projected CAFE level of

20.5 mpg based on several factors. First, the agency adjusted it upward to reflect more realistic mix assumptions with respect to 4WD market share and maintaining market share of certain more fuel-efficient vehicles. Since this adjustment simply reflects the agency's judgment of what GM is likely to be able to sell, based on historical experience, the adjustment does not induce or compel any actions with safety implications.

NHTSA also concluded that GM can improve its projected MYs 1996-97 CAFE by a slight reduction in vehicle performance. This would involve changes in such things as axle ratios. The agency believes that a slight reduction in performance would not have any adverse safety consequences.

Finally, the agency concluded that GM could improve its MYs 1996-97 CAFE by increasing the penetration of some engine and transmission technology improvements that are not projected for full implementation. This action would not result in reduced vehicle weight.

Since the 20.7 mpg light truck CAFE standard for MYs 1996-97 will not lead to significant reductions in light truck size or weight, or shifts toward less safe vehicles, the agency concludes that it is not likely to have any impact on safety.

VIII. Rulemaking Analyses and Notices

A. Economic Impacts

The agency has considered the economic implications of the standard for MYs 1996-97 and determined that it is significant within the meaning of Executive Order 12866, and significant within the meaning of the Department's regulatory procedures. This rulemaking was reviewed under Executive Order 12866. The agency's detailed analysis of the economic effects is set forth in a Regulatory Evaluation, copies of which are available from the Docket Section. The contents of that analysis are generally described above.

B. National Environmental Policy Act

The agency has analyzed the environmental impacts of the MY 1996-97 light truck average fuel economy standard in accordance with the National Environmental Policy Act, 42 U.S.C. 4321 *et seq.* Copies of the Environmental Assessment are available from the Docket Section. The agency has concluded that no significant environmental impact will result from this rulemaking action.

C. Regulatory Flexibility Act

Pursuant to the Regulatory Flexibility Act, the agency has considered the

impact this rulemaking will have on small entities. I certify that this action will not have a significant economic impact on a substantial number of small entities. Therefore, a regulatory flexibility analysis is not required for this action. No light truck manufacturer subject to the standard will be classified as a "small business" under the Regulatory Flexibility Act. In the case of other small businesses, small organizations, and small governmental units which purchase light trucks, the standard will not affect the availability of the full range of light trucks or have a significant effect on the overall cost of purchasing and operating light trucks.

D. Executive Order 12612 (Federalism)

This action has been analyzed in accordance with the principles and criteria contained in Executive Order 12612, and it has been determined that the MYs 1996-97 standard will not have sufficient Federalism implications to warrant the preparation of a Federalism Assessment.

E. Civil Justice Reform

This final rule will not have any retroactive effect. Under section 509(a) of the Motor Vehicle Information and Cost Savings Act (the Cost Savings Act; 15 U.S.C. 2009(a)), whenever a Federal motor vehicle fuel economy standard is in effect, a state may not adopt or enforce any law or regulation relating to fuel economy standards or average fuel economy standards applicable to vehicles covered by the Federal standard. Under section 509(b) of the

Cost Savings Act (15 U.S.C. 2009(b)), a state may not require fuel economy labels on vehicles covered by section 506 of the Cost Savings Act (15 U.S.C. 2006) which are not identical to the Federal standard. Section 509 does not apply to vehicles procured for the State's use. Section 504 of the Cost Savings Act (15 U.S.C. 2004) sets forth a procedure for judicial review of final rules establishing, amending or revoking Federal average fuel economy standards. That section does not require submission of a petition for reconsideration or other administrative proceedings before parties may file suit in court.

F. Department of Energy Review

In accordance with section 502(j) of the Act, NHTSA submitted a pre-publication copy of this rule to the Department of Energy for review. The Department made no unaccommodated comments.

List of Subjects in 49 CFR Part 533

Energy conservation, Motor vehicles.

PART 533—[AMENDED]

In consideration of the foregoing, 49 CFR part 533 is amended as follows:

1. The authority citation for part 533 continues to read as follows:

Authority: 15 U.S.C. 2002; delegation of authority at 49 CFR 1.50.

2. Section 533.5(a) is amended by adding Table IV immediately following Table III to read as follows:

§ 533.5 Requirements.

* * * * *

TABLE IV

Model year	Standard
1996	20.7
1997	20.7

* * * * *

Issued: March 31, 1994.

Christopher A. Hart,
Deputy Administrator.

[FR Doc. 94-8133 Filed 3-31-94; 4:00 pm]

BILLING CODE 4910-69-P

DEPARTMENT OF TRANSPORTATION

National Highway Traffic Safety Administration

49 CFR Part 533

[Docket No. 94-20; Notice 1]

RIN 2127-AF16

Light Truck Average Fuel Economy Standards, Model Years 1998-2006

AGENCY: National Highway Traffic Safety Administration (NHTSA), Department of Transportation (DOT).

ACTION: Advance Notice of Proposed Rulemaking (ANPRM).

SUMMARY: In a final rule published elsewhere in today's edition of the *Federal Register*, NHTSA is establishing light truck average fuel economy standards for model years 1996 and 1997. The purpose of this advance notice is to announce that the agency is beginning to develop a proposal for light truck average fuel economy standards for model years after 1997, and to request comments to assist the agency in developing the proposal. NHTSA plans to propose standards for some or all of model years 1998 to 2006. The agency is seeking information that will help it assess the extent to which manufacturers can improve light truck fuel economy during the period in question, the benefits and costs to consumers of improved fuel economy, the benefits to the nation of reducing fuel consumption, and the number of model years that should be covered by the proposal.

DATES: Comments must be received on or before August 4, 1994.

ADDRESSES: Comments must refer to the docket and notice numbers set forth above and be submitted (preferably in 10 copies) to Docket Section, National Highway Traffic Safety Administration, room 5109, 400 Seventh Street SW., Washington, DC 20590. The Docket is open 9:30 a.m. to 4 p.m., Monday through Friday. Submissions containing information for which confidential treatment is requested should be submitted (in three copies) to Chief Counsel, National Highway Traffic Safety Administration, room 5219, 400 Seventh Street, SW., Washington, DC 20590, and seven additional copies from which the purportedly confidential information has been deleted should be sent to the Docket section.

FOR FURTHER INFORMATION CONTACT: Mr. Orron Kee, Chief, Motor Vehicle Requirements Division, Office of Market Incentives, National Highway Traffic Safety Administration, 400 Seventh

Street SW., Washington, DC 20590, (202) 366-0846.

SUPPLEMENTARY INFORMATION:

I. Introduction

In December 1975, Congress enacted the Energy Policy and Conservation Act (EPCA) because of a national concern with the depletable nature and uncertain availability of most of the energy upon which the Nation relies for its economic and social well being, and the need to implement a national program for conserving energy. Among other things, EPCA added Title V, "Improving Automotive Efficiency," to the Motor Vehicle Information and Cost Savings Act (Cost Savings Act). Title V provides for the establishment of corporate average fuel economy (CAFE) standards for passenger cars and light trucks.

While Title V provides that the CAFE standard for passenger cars is 27.5 mpg for each model year after model year (MY) 1984 unless NHTSA amends it, the statute does not specify any particular level of light truck CAFE standards. Instead, Title V requires the agency to set light truck CAFE standards for each model year, at least 18 months before the beginning of the model year. In a final rule published elsewhere in today's edition of the *Federal Register*, NHTSA is establishing light truck CAFE standards for MYs 1996 and 1997 at 20.7 mpg. The final rule follows a notice of proposed rulemaking (NPRM) published by the agency in the *Federal Register* (57 FR 61377) on December 24, 1992. That NPRM did not address standards for model years after 1997.

With the rulemaking for the MYs 1996-1997 light truck CAFE standards completed, NHTSA is turning its attention to developing a proposal for light truck average fuel economy standards for model years after MY 1997. While the agency has in the last decade set light truck CAFE standards for only one or two model years at a time, it believes that it may be appropriate now to set standards for a much longer period, i.e., for some or all of the period including MYs 1998 to 2006.

Since the early 1980's, NHTSA has established light truck CAFE standards as little as 18 months and not more than 30 months before the beginning of the model year. The effect of this practice has been to limit the CAFE increases that could be required because there was insufficient leadtime for the manufacturers to change their product plans and improve their light truck fuel economy by means of significant technological improvements. In this

period, the light truck CAFE standard changed very little. For MY 1984, it was 20 mpg; for MY 1994, it is 20.5 mpg.

NHTSA explained the impact of such limited leadtime as follows in its December 1992 NPRM to establish the MYs 1995-97 light truck CAFE standards:

NHTSA recognizes that the leadtime necessary to implement significant improvements in engines, transmissions, aerodynamics and rolling resistance is typically at least three years. Also, * * * once a new design is established and tested as feasible for production, the leadtime necessary to design tools and test components is typically 30 to 36 months. Some potential major changes may take even longer. Leadtimes for new vehicles are usually at least three years. Further, light trucks have a long model life, i.e., 8-10 years or more. If a manufacturer must make a major model change ahead of its normal schedule, this change may have a significant, unprogrammed impact.

Given the leadtime constraints, the agency does not believe that manufacturers can achieve significant improvements in their projected CAFE levels for these model years by additional technological actions.

57 FR 61379, December 14, 1992. The agency notes that manufacturers commenting on the December 1992 NPRM argued that the leadtimes discussed above are more typical for passenger cars and that light truck leadtimes are even longer.

If the upcoming light truck CAFE rulemaking is to be effective in encouraging manufacturers to improve their light truck fuel economy by means of significant technological improvements, it must address model years for which the manufacturers would have substantial leadtime. Thus, the rulemaking must address model years well beyond MY 1997, the last model year for which a standard has been established.

There are several reasons why it appears necessary now for the agency to change the way it has been setting light truck CAFE standards and to establish them high enough and far enough in advance to require significant fuel economy improvements.

First, the need of the Nation to conserve energy is increasing. The import share of oil is growing, as is the percentage from Arab OPEC sources. The United States imported 15 percent of its oil needs in 1955. The import share reached 36.8 percent in 1975, the year EPCA was passed, and peaked at 46.4 percent in 1977, at a cost of \$91 billion (stated in 1992 dollars). Although the share declined to below 30 percent in the mid-1980's, lately the United States has again become increasingly dependent on imported oil.

In 1992, imports totaled 43.6 percent. The Department of Energy projects that imports will rise to between 52 percent and 72 percent of total use in 2010.

Thus, the United States now imports a higher percentage of its oil needs than it did during 1975, the year EPCA was passed. Despite the establishment of the Strategic Petroleum Reserve in the late 1970s, concern still exists over the stability of the oil import supply. The trend during the 1980s toward increasing diversity in sources of oil imports appears to be reversing. In 1975, OPEC accounted for 61 percent of U.S. oil imports; by 1984, OPEC's share had dropped to 43 percent. However, in 1992 OPEC accounted for 59 percent of U.S. oil imports. Moreover, the percentage of total U.S. oil consumption supplied by Arab OPEC sources was 11.6 percent in 1992, higher than the 8.5 percent level for 1975. Oil continues to account for over 40 percent of all energy used in the United States, and 97 percent of the energy consumed in the transportation sector. Despite legislation such as the Clean Air Act Amendments of 1990 and California's strict "clean fuel" and emissions standards, fuels derived from petroleum will likely remain the predominant fuels in the transportation sector.

Domestic oil production has declined steadily since reaching a peak of 10.6 million barrels per day in 1985. By 1992, it had dropped to 9.0 million barrels per day. Domestic production is expected to continue declining by roughly 200,000 barrels per day each year through the year 2000. While the United States is currently the world's second largest oil producer, it contains only about three percent of the world's known oil reserves. Persian Gulf countries contain 63 percent of known world reserves, and former Communist countries contain 9 percent. The Department of Energy projects a continuing decline in domestic oil production to between 3.54 and 6.73 million barrels per day in 2010.

A second reason why NHTSA believes there may be a need now to change its approach to setting light truck CAFE standards is the current lack of consumer demand or other market pressure for manufacturers to improve light truck fuel economy. In the early 1980's, during the energy crisis brought on by events in Iran, gasoline prices rose rapidly. That rise significantly increased consumer demand for more fuel-efficient vehicles. Thereafter, however, gasoline prices fell sharply and have remained at very low levels for a decade. Consumers now place much greater emphasis on high performance, and make little demand for improved

light truck fuel economy. Performance levels are now higher than they were when EPCA was enacted.

In the absence of strong consumer demand or other market pressure for improved light truck fuel economy, there is no reason to expect manufacturers to make significant technological improvements for the purpose of improving light truck fuel economy, absent higher light truck CAFE standards or other government measures. Indeed, light truck CAFE has not changed appreciably in the last six years and is not expected to do so in the next several years. The average light truck fuel economy of the domestic manufacturers was 20.5 mpg in MY 1987, and 20.4 mpg in MY 1992, five model years later. (The import manufacturers' average light truck CAFE, representing a relatively small market share, declined significantly during this time, from slightly more than 25 mpg in MY 1987 to less than 23 mpg in MY 1992.) Moreover, as discussed in today's final rule establishing the MY 1996-97 light truck CAFE standards, GM currently projects a MY 1997 CAFE of 20.5 mpg, Ford 21.6 mpg, and Chrysler 20.9 mpg.

A third reason why effective light truck CAFE standards assume increased importance now is the continued growth in market share of those vehicles. Light truck production increased from 1.9 million in MY 1980 to 4.1 million in MY 1992. Data Resources, Inc., projects sales of 6 million light trucks in MY 1998 and close to 7 million by MY 2004. Light trucks comprised nearly 33 percent of the total light vehicle production in MY 1992, almost double their share in MY 1980. That share is expected to increase to 39 percent in MY 1998 and 42 percent by MY 2004. As light trucks increase in market share, so does their impact on energy consumption and the importance of their potential contribution in addressing the Nation's need to conserve energy.

The impact of the growing light truck population on energy conservation efforts can be more fully appreciated when the CAFE of the total light truck fleet is compared with that of the total passenger car fleet. The light truck CAFE is approximately 21 mpg, while the passenger car CAFE is approximately 28 mpg.

NHTSA also notes that there has been increasing concern in recent years about the impact of cars, light trucks and other personal vehicles on global warming. There is an almost direct relationship between fuel consumption and emission of carbon dioxide, a primary "greenhouse" gas. In other words,

reducing fuel consumption also reduces carbon dioxide emissions.

As part of the Administration's Climate Change Action Plan, issued in October 1993, the White House's National Economic Council, the Office on Environmental Policy and the Office of Science and Technology Policy will co-chair a process to develop measures to significantly reduce greenhouse gas emissions from personal motor vehicles. The efforts of the task force may have a bearing on future light truck fuel economy standards.

NHTSA also notes that the Administration is supporting research in improving vehicle fuel efficiency in a number of areas, including the Partnership for a New Generation of Vehicles. However, the purpose of this notice is a limited one—requesting comments to assist NHTSA in developing a proposal for light truck CAFE average fuel economy standards for model years after 1997, possibly through MY 2006. To aid the agency in obtaining useful comments, this notice discusses a variety of issues which are considered by NHTSA in developing a CAFE standard proposal, and asks a number of questions and makes a number of requests for data. For easy reference, the questions and requests are numbered consecutively throughout the document.

In providing a comment on a particular matter or in responding to a particular question, interested persons are requested to provide any relevant factual information to support their conclusions or opinions, including but not limited to test data, statistical and cost data, and the source of such information.

In addition to the questions in the body of this notice, NHTSA is also including an appendix to this notice which consists of a number of additional questions directed primarily toward light truck manufacturers. The appendix questions address their product plans through MY 2006 and the assumptions underlying those plans. The agency recognizes that the manufacturers' product plans may not be approved formally for even the earlier model years addressed in this notice and that some of the questions may be difficult to answer. Setting standards well in advance instead of only one or two years in advance necessitates reliance on less definitive information. However, that approach is necessary in order for the agency to attain greater CAFE improvements. The agency would appreciate answers that are as responsive as possible so that appropriate weight can be given to the many factors whose magnitude now can

only be estimated. While the questions in the appendix are directed toward manufacturers, the agency welcomes comments from all interested persons in response to those questions.

II. The Statute

Section 502(b) of the Cost Savings Act requires the Secretary of Transportation to issue light truck fuel economy standards for each model year. The Act provides that the fuel economy standards must be set at the maximum feasible average fuel economy level. In determining maximum feasible average fuel economy level, the Secretary is required under section 502(e) of the Act to consider four factors: Technological feasibility; economic practicability; the effect of other Federal motor vehicle standards on fuel economy; and the need of the nation to conserve energy. The Secretary is permitted but not required to set separate standards for different classes of light trucks. (Responsibility for the automotive fuel economy program was delegated by the Secretary of Transportation to the Administrator of NHTSA (41 FR 25015, June 22, 1976).)

Based on definitions and judicial interpretations of similar terms in other statutes, the agency interprets "feasible" to refer to something that is capable of being done. Therefore, a standard set at the maximum feasible average fuel economy level must: (1) Be capable of being done and (2) be at the highest level that is capable of being done, taking account of what manufacturers are able to do in light of technological feasibility, economic practicability, how other Federal motor vehicle standards affect average fuel economy, and the need of the nation to conserve energy.

The statute does not expressly state whether the concept of feasibility is to be determined on a manufacturer-by-manufacturer basis or on an industry-wide basis. As discussed in many fuel economy notices, it is clear from the legislative history that Congress did not intend that standards simply be set at the level of the least capable manufacturer. Instead, NHTSA must take industry-wide considerations into account in determining the maximum feasible average fuel economy level. NHTSA has consistently set light truck standards at a level that can be achieved by manufacturers whose vehicles constitute a substantial share of the market. Because of the relatively high volume of production by those manufacturers, their capability bears a strong and close relationship to that of the industry as a whole.

III. Issues in Developing a Proposal for MY 1998-2006

Among the significant issues involved in developing a proposal for the MY 1998-2006 light truck CAFE standards is the ability of manufacturers to improve their light truck fuel economy during that period. In order to help it analyze that issue, NHTSA requests information or comments on the questions which follow.

NHTSA is interested in the technology that will be available for improving fuel economy. It is particularly interested in technological advancements. For example, the development of two-cycle engines may have progressed to the point that their introduction to the light truck fleet would be feasible some time in the MY 1998-2006 period. Another example is the development of aluminum and nonmetal composites for automotive applications. These high performance materials, which have become less expensive, are providing new opportunities for lightweight, high-performance automotive components. The Miller cycle engine or other variations on the internal combustion engine may offer improvements in fuel economy.

1. What is the technological feasibility and economic practicability of the various fuel efficiency enhancing technologies, including, but not limited to each of the following, which were noted in the National Academy of Sciences (NAS) study discussed below: Multi-valve and variable valve timing engines; electronic engine controls; port fuel injection; lean burn-fast burn combustion; engine friction reduction; two-stroke engines; turbocharging; improved transmissions, including continuously variable transmissions and electronic controls; redesigning vehicles for weight reduction and aerodynamic enhancement; substitution of lighter-weight materials; lowering rolling resistance; low-friction lubricants; and reducing parasitic losses, for improving manufacturers' CAFE for MY 1998-2006? In answering this question, please address, for each of these technologies, as well as any other relevant technologies not yet available:

- (a) The impact on fuel efficiency;
- (b) Costs and benefits to the consumer;
- (b) Manufacturer costs;
- (c) Leadtime;
- (d) Potential fleet penetration.

2. What is the cost-effectiveness of each technology identified in Question 1, as well as any other relevant technologies, assuming alternative plausible gasoline prices forecast for MY

1998-2006, and assuming alternative payback periods ranging from 3 years to 10 years?

3. Taking into account the response to Question 1, indicate the ability of each manufacturer to improve its light truck CAFE for each model year during the MY 1998-2006 timeframe. By what model year would maximum penetration of all current fuel economy enhancing technologies be feasible? Why wouldn't such maximum penetration be feasible earlier than that model year?

4. What analyses of manufacturer light truck fuel economy capabilities for MY 1998-2006 are available? What are the strengths and weaknesses of each such analysis?

NHTSA notes that, in 1991, it joined with the Federal Highway Administration in commissioning the NAS to estimate the practically achievable levels of fuel economy for various classes of passenger cars and light trucks. The NAS report, *Automotive Fuel Economy—How Far Should We Go?*, was published in April 1992. NAS did not reach conclusions on what the "practically achievable" levels of fuel economy were because it stated that it could not determine the correct balance of the variables that would affect such an estimate. The variables include the "technically achievable" levels of fuel economy (described below), the economic effects in terms of jobs, higher vehicle prices, and competitiveness, the effects on vehicle safety and petroleum consumption, etc.

The NAS report did venture to offer "technically achievable" predictions of fuel economy capabilities in MYs 2001 and 2006. The "technically achievable" values were based on certain assumptions. The assumptions were that only currently existing technologies would be used, that fleets would meet the Tier I emissions standards of the Clean Air Act Amendments (CAAA) of 1990, that vehicle interior volume and acceleration performance would be equivalent to those of the MY 1990 fleet, and that the technologies used would be cost-effective at gasoline prices of \$5-10 or less.

NAS offered two estimates for the light truck fleet for both MYs 2001 and 2006. One estimate was given with a high degree of confidence that the light truck fleet could achieve such a level. The other estimate, for a higher CAFE level, was given with a lower degree of confidence that the fleet could achieve that level due to unidentified uncertainties. These values are as follows:

TABLE 1.—“TECHNICALLY ACHIEVABLE” FUEL ECONOMY LEVELS: NEW LIGHT TRUCK FLEET (FROM NAS REPORT)

	MY 2001	MY 2006
Higher confidence	24	26
Lower confidence	25	28

The figures in the table have several limitations. They do not represent the capability of any particular manufacturer. Instead, they are intended to represent the light truck fleet as a whole. However, the fleet used by NAS did not include all light trucks. The fleet included small pickups, small vans, small utility vehicles, and large pickups, but not large vans and large utility vehicles. While those last two types of vehicles make up a small percentage of the light truck market, they have low fuel economies.

NHTSA is particularly interested in receiving comments concerning the NAS report and whether, and how, it should be used in rulemaking for the MY 1998–2006 light truck CAFE standards.

Energy and Environmental Analysis, Inc. has prepared a report for the Department of Energy that analyzes the domestic manufacturers' light duty truck fuel economy potential to 2005. NHTSA is including it in the docket for this notice, and would welcome comments on the relevance of the report to this rulemaking.

NHTSA and the Environmental Protection Agency (EPA) have mandated a number of safety and emissions standards for light trucks that become effective in the next few years and that are likely to contribute to increased weight (and, hence, decreased fuel economy) and increased cost of these vehicles. Among the safety requirements are the addition of air bags (which phase-in through MY 1999), quasi-static side impact protection (by MY 1995), roof crush resistance (by MY 1995), and interior head impact protection (with an effective date to be determined). The Clean Air Act Amendments mandated a phase-in of more stringent emission standards for light trucks. The U.S. has agreed under the Montreal Protocol to phase-out the chlorofluorocarbons used in vehicle air conditioners. This will result in somewhat heavier and less efficient air conditioners. Finally, EPA has also issued several final rules relating to test procedures which could require calibration changes that reduce fuel economy and to onboard diagnostics which could add weight.

5. To what extent are other Federal standards likely to affect manufacturers'

CAFE capabilities in MYs 1998–2006? Answers to this question should include not only the effects of such standards when first implemented, but also the prospect for reducing those effects subsequently.

6. Assuming that NHTSA establishes a single light truck CAFE standard for each of MYs 1998–2006, what would be the manufacturers' responses to CAFE standards set at alternative levels, and what would the energy savings be from those levels? For example, what would be the effect of setting a CAFE standard at $x - y$ mpg versus x mpg versus $x + y$ mpg for a given model year? NHTSA requests that, at a minimum, commenters answer the questions in this paragraph based on the standard levels discussed in the NAS report.

Another issue that the agency must consider in setting light truck CAFE standards is the basic structure of the standards. As indicated above, Title V provides the agency with discretion concerning whether to establish a single standard for all light trucks or separate standards for different classes of light trucks. While NHTSA has in the past used its authority to set separate standards for different classes of light trucks, most notably for two-wheel drive and four-wheel drive light trucks, it has more recently established a single standard for all light trucks.

A single standard has the advantage of maximizing manufacturer flexibility, e.g., enabling a manufacturer to decide where in its light truck fleet to make fuel efficiency improvements. On the other hand, since the agency sets standards at a level that can be achieved by manufacturers whose vehicles constitute a substantial share of the market, it is possible that a single large manufacturer with a mix toward larger, less fuel-efficient vehicles could skew the single standard downward for the entire industry. It might be possible to address this potential problem by establishing separate standards for different classes of light trucks. The agency requests comments on the following question:

7. For MYs 1998–2006, should NHTSA propose a single standard for all light trucks or separate standards for different classes of light trucks? Should the answer to this question vary depending on the extent to which the CAFE capabilities of manufacturers differ? If the agency should propose separate standards for different classes of light trucks, how should the different classes be defined?

In the final rule issued today establishing light truck CAFE standards for MYs 1996–1997, NHTSA stated it believes that CAFE standards for the last

decade have not had any measurable effect on light truck weight or size; and, hence, safety. In support of that belief, the agency noted that the levels of the light truck CAFE standards have not varied significantly for more than a decade. The light truck CAFE standards for MY 1987–89 and MY 1994 were set at 20.5 mpg, and, as far back as MY 1984, the standard was only slightly lower at 20.0 mpg. NHTSA also noted that, in setting the light truck CAFE standards over the last decade, the agency has not included in its analyses of manufacturer capabilities any product plan actions that would significantly affect the weight, size or cost of the vehicles the manufacturers planned to offer. Further, the average equivalent test weight of light trucks increased from 3,805 pounds in MY 1984 to 4,200 pounds in MY 1993.

8. NHTSA requests comments on the extent to which the increases in light truck CAFE feasible during MYs 1998–2006 involve means, such as significant weight or size reduction, that could adversely affect safety. Would achievement during that period of NAS' estimated “technically achievable” levels necessarily depend on such means?

In setting CAFE standards, the agency takes into consideration that there are often technological risks associated with actually achieving the full potential fuel economy improvement from a particular type of technology.

9. How should the agency take technological risks into account in setting the light truck CAFE standards? What technological risks are associated with gaining the full potential fuel economy improvements from any of the available types of fuel economy enhancing technologies? What are the prospects for overcoming those risks or offsetting their effects on CAFE capability?

IV. Rulemaking Analyses and Notices

A. Executive Order 12866 (Regulatory Planning and Review) and the Departmental Regulatory Policies and Procedures

This rulemaking was reviewed under E.O. 12866. The agency has considered the potential economic implications of this rulemaking and determined that it is significant within the meaning of the Department's regulatory policies and regulatory procedures. A preliminary regulation evaluation has been prepared for this notice and placed in the public docket.

B. Executive Order 12612 (Federalism)

This action has been analyzed in accordance with the principles and criteria contained in Executive Order 12612, and it has been determined that it is likely that CAFE standards for MYs 1998–2006 will not have sufficient Federalism implications to warrant the preparation of a Federalism Assessment.

C. Civil Justice Reform

This rule, when proposed, would not have any retroactive effect. Under section 509(a) of the Act (15 U.S.C. 2009(a)), whenever a Federal motor vehicle fuel economy standard is in effect, a state may not adopt or enforce any law or regulation relating to fuel economy standards or average fuel economy standards applicable to vehicles covered by the Federal standard. Under section 509(b) of the Cost Savings Act (15 U.S.C. 2009(b)), a state may not require fuel economy labels on vehicles covered by section 506 of the Cost Savings Act (15 U.S.C. 2006) which are not identical to those required by the Federal requirement. Section 509 does not apply to vehicles procured for the State's use. Section 504 of the Cost Savings Act (15 U.S.C. 2004) sets forth a procedure for judicial review of final rules establishing, amending or revoking Federal average fuel economy standards. That section does not require submission of a petition for reconsideration or other administrative proceedings before parties may file suit in court.

Comments

NHTSA solicits public comments on the questions presented in this ANPRM and on other relevant issues. It is requested but not required that 10 copies be submitted.

All comments must not exceed 15 pages in length. (49 CFR 553.21). Necessary attachments may be appended to these submissions without regard to the 15-page limit. This limitation is intended to encourage commenters to detail their primary arguments in a concise fashion.

If a commenter wishes to submit certain information under a claim of confidentiality, three copies of the complete submission, including purportedly confidential business information, should be submitted to the Chief Counsel, NHTSA, at the street address given above, and seven copies from which the purportedly confidential information has been deleted should be submitted to the Docket Section. A request for confidentiality should be accompanied by a cover letter setting forth the information specified in the

agency's confidential business information regulation. 49 CFR Part 512.

All comments received before the close of business on the comment closing date indicated above for the advance proposal will be considered. To the extent possible, comments filed after the closing date will also be considered. Comments on the advance proposal will be available for inspection in the docket. After the closing date, NHTSA will continue to file relevant information in the docket as this information becomes available, and recommends that interested persons continue to examine the docket for new material.

Those persons desiring to be notified upon receipt of their comments in the rules docket should enclose a self-addressed, stamped postcard in the envelope with their comments. Upon receiving the comments, the docket supervisor will return the postcard by mail.

A regulatory information number (RIN) is assigned to each regulatory action listed in the Unified Agenda of Federal Regulations. The Regulatory Information Service Center publishes the Unified Agenda in April and October of each year. The RIN contained in the heading of this document can be used to cross reference this action with the Unified Agenda.

List of Subjects in 49 CFR Part 533

Energy conservation, Gasoline, Imports, Motor vehicles.

Authority: 15 U.S.C. 2002; delegation of authority at 49 CFR 1.50.

Dated: March 31, 1994.

Barry Felrice,

Associate Administrator for Rulemaking.

APPENDIX**I. Definitions**

As used in this appendix—

1. "Automobile," "fuel economy," "manufacturer," and "model year," have the meaning given them in Section 501 of the Motor Vehicle Information and Cost Savings Act, 15 U.S.C. 2001.

2. "Cargo-carrying volume," "gross vehicle weight rating" (GVWR), and "passenger-carrying volume" are used as defined in 49 CFR 523.2.

3. "Basic engine" has the meaning given in 40 CFR 600.002–85(a)(21). When identifying a basic engine, respondent should provide the following information:

- (i) Engine displacement (in cubic inches).
- (ii) Number of cylinders or rotors.
- (iii) Number of valves per cylinder.
- (iv) Cylinder configuration (V, in-line, etc.).
- (v) Number of carburetor barrels, if applicable.
- (vi) Other engine characteristics, abbreviated as follows:
DD—Direct Injection Diesel
ID—Indirect Injection Diesel
R—Rotary

TB—Throttle Body Fuel Injection S.I. (Spark Ignition)

MP—Multipoint Fuel Injection S.I.

TD—Turbocharged Diesel

TS—Turbocharged S.I.

FFS—Feedback Fuel System

2C—Two—Cycle

OHC—Overhead camshaft

DOHC—Dual overhead camshafts

4. "Domestically manufactured" is used as defined in Section 503(b)(2)(E) of the Act.

5. "Light truck" means an automobile of the type described in 49 CFR Part 523.5.

6. A "model" of light truck is a line, such as the Chevrolet C-10 or Astro, Ford F150 or E150, Jeep Wrangler, etc., which exists within a manufacturer's fleet.

7. "Model Type" is used as defined in 40 CFR 600.002–85(a)(19).

8. "Percent fuel economy improvements" means that percentage which corresponds to the amount by which respondent could improve the fuel economy of vehicles in a given model or class through the application of a specified technology, averaged over all vehicles of that model or in that class which feasibly could use the technology. Projections of percent fuel economy improvement should be based on the assumption of maximum efforts by respondent to achieve the highest possible fuel economy increase through the application of the technology. The baseline for determination of percent fuel economy improvement is the level of technology and vehicle performance with respect to acceleration and gradeability for respondent's 1994 model year light trucks in the equivalent class.

9. "Percent production implementation rate" means that percentage which corresponds to the maximum number of light trucks of a specified class which could feasibly employ a given type of technology if respondent made maximum efforts to apply the technology by a specified model year.

10. "Production percentage" means the percent of respondent's light trucks of a specified model projected to be manufactured in a specified model year.

11. "Project" or "projection" refers to the best estimates made by respondent, whether or not based on less than certain information.

12. "Redesign" means any change, or combination of changes, to a vehicle that would change its weight by 50 pounds or more or change its frontal area or aerodynamic drag coefficient by 2 percent or more.

13. "Relating to" means constituting, defining, containing, explaining, embodying, reflecting, identifying, stating, referring to, dealing with, or in any way pertaining to.

14. "Respondent" means each manufacturer (including all its divisions) providing answers to the questions set forth in this appendix, and its officers, employees, agents or servants.

15. "Test weight" is used as defined in 40 CFR 86.082–2.

16. "Transmission class" is used as defined in 40 CFR 600.002–05(22)(a). When identifying a transmission class, respondent also must indicate whether the transmission is equipped with a lockup torque converter (LUTC), a split torque converter (STC), and/or a wide gear ratio range (WR) and specify

the number of forward gears or whether the transmissions a continuously variable design (CVT).

17. "Truckline" means the name assigned by the Environmental Protection Agency to a different group of vehicles within a make or car division in accordance with that agency's 1994 model year pickup, van (cargo vans and passenger vans are considered separate truck lines), and special purpose vehicle criteria.

18. "Utility vehicle" means a form of light truck, either two-wheel drive (4x2) or four-wheel drive (4x4), and is exemplified by a Jeep Wrangler or Cherokee, a Chevrolet Blazer, Ford Explorer, or a Toyota Land Cruiser.

19. The term "van" is used as defined in 40 CFR 86.082-2.

20. "Variants of existing engines" means versions of an existing basic engine that differ from that engine in terms of displacement, method of aspiration, induction system or that weigh at least 25 pounds more or less than that engine.

II. Assumptions

All assumptions concerning emission standards, damageability regulations, safety standards, etc., should be listed and described in detail by the respondent.

III. Specifications

1. Identify all light truck models currently offered for sale in MY 1994 whose production you project discontinuing before MY 1999 and identify the last model year in which each will be offered.

2. Identify all basic engines offered by respondent in MY 1994 light trucks which respondent projects it will cease to offer for sale in light trucks before MY 1999, and identify the last model year in which each will be offered.

3. Does the respondent currently project offering for sale for the time period of MY 1998-2006 any new or redesigned light trucks, including vehicles smaller than those now produced? If so, provide the following information for each model (e.g., Chevrolet C-10, Ford F150). Model types which are essentially identical except for their nameplates (e.g., Dodge Caravan/Plymouth Voyager) may be combined into one item. See Table A for a sample format; 4x2 and 4x4 light trucks are different models.

a. Body types to be offered for sale (e.g., regular cab, super cab).

b. Description of basic engines, including optional horsepower and torque ratings, if any; displacement; number and configuration of cylinders; type of carburetor or fuel injection system; fuel type; number of valves per cylinder, and whether it is 2-cycle or 4-cycle.

c. Transmission type (manual, automatic, number of forward speeds, overdrive, etc., as applicable), including gear ratios and final drive, alternative ratios offered, driveline configuration, and special features such as torque converter lockup clutches, electronic controls or CVT design.

d. (i) The range of GVW ratings to be offered for each body type.

(ii) The range of test weights for each body type.

e. All wheelbases.

f. Estimated power absorption unit (PAU) setting, in hp.

g. The range of projected EPA composite fuel economies for each body type in the initial model year of production.

h. Projected introduction date (model year).

i. Projected sales for each model year from the projected year of introduction through MY 2006, expressed both as an absolute number of units sold and as percentage of all light trucks sold by respondent.

j. Projections of:

(i) Existing models replaced by new models.

(ii) Reduced sales of respondent's existing models as a result of the sale of each of the new models.

(iii) New sales not captured from any of the respondent's existing models.

4. Does respondent project introducing any variants of existing basic engines or any new basic engines, other than those mentioned in your response to Question 3, in its light truck fleets in MYs 1998-2006? If so, for each basic engine or variant indicate:

a. The projected year of introduction.

b. Type (e.g., spark ignition, direct injection diesel, 2-cycle, alternative fuel use).

c. Displacement.

d. Type of induction system (e.g., fuel injection with turbocharger, naturally aspirated, 2 barrel carburetor).

e. Cylinder configuration (e.g., V-8, V-6, I-4).

f. Number of valves per cylinder (e.g., 2, 3, 4).

g. Horsepower and torque ratings.

h. Models in which engines are to be used, giving the introduction model year for each model if different from "a," above. (See Table B for a sample format.)

5. Relative to MY 1994 levels, for MYs 1998-2006, please provide information, by truckline and as an average effect on a manufacturer's entire light truck fleet, on the weight and/or fuel economy impacts of the following standards or equipment:

a. Federal Motor Vehicle Safety Standard (FMVSS 208) Automatic Restraints.

b. FMVSS 214 Side Door Strength.

c. FMVSS 216 Roof Crush Resistance.

d. Voluntary installation of safety equipment (i.e., antilock brakes).

e. Environmental Protection Agency regulations.

f. California Air Resources Board requirements.

g. Other applicable motor vehicle regulations affecting fuel economy.

6. For each of the model years 1998-2006, and for each light truck model projected to be manufactured by respondent (if answers differ for the various models), provide the requested information for each of items "6a" through "6f" listed below:

(i) Description of the nature of the technological improvement;

(ii) The percent fuel economy improvement averaged over the model;

(iii) The basis for your answer to 6(ii), (e.g., data from dynamometer tests conducted by respondent, engineering analysis, computer simulation, reports of test by others);

(iv) The percent production implementation rate and the reasons limiting the implementation rate;

(v) A description of the 1994 baseline technologies and the 1994 implementation rate; and

(vi) The reasons for differing answers you provide to items (ii) and (iv) for different models in each model year. Include as a part of your answer to 6(ii) and 6(iv) a tabular presentation, a sample portion of which is shown in Table C.

a. Improved automatic transmissions. Projections of percent fuel economy improvements should include benefits of lock-up or bypassed torque converters, electronic control of shift points and torque converter lock-up, and other measures which should be described.

b. Improved manual transmissions. Projections of percent of fuel economy improvement should include the benefits of increasing mechanical efficiency, using improved transmission lubricants, and other measures (specify).

c. Overdrive transmissions. If not covered in "a" or "b" above, project the percentage of fuel economy improvement attributable to overdrive transmissions (integral or auxiliary gear boxes), two-speed axles, or other similar devices intended to increase the range of available gear ratios. Describe the devices to be used and the application by model, engine, axle ratio, etc.

d. Use of engine crankcase lubricants of lower viscosity or with additives to improve friction characteristics or accelerate engine break-in, or otherwise improved lubricants to lower engine friction horsepower. When describing the 1994 baseline, specify the viscosity of and any fuel economy-improving additives used in the factory-fill lubricants.

e. Reduction of engine parasitic losses through improvement of engine-driven accessories or accessory drives. Typical engine-driven accessories include water pump, cooling fan, alternator, power steering pump, air conditioning compressor, and vacuum pump.

f. Reduction of tire rolling losses, through changes in inflation pressure, use of materials or constructions with less hysteresis, geometry changes (e.g., increased aspect ratio), reduction in sidewall and tread deflection, and other methods. When describing the 1994 baseline, include a description of the tire types used and the percent usage rate of each type.

g. Reduction in other driveline losses, including losses in the non-powered wheels, the differential assembly, wheel bearings, universal joints, brake drag losses, use of improved lubricants in the differential and wheel bearing, and optimizing suspension geometry (e.g., to minimize tire scrubbing loss).

h. Reduction of aerodynamic drag.

i. Turbocharging or supercharging.

j. Improvements in the efficiency of 4-cycle spark ignition engines including (1) increased compression ratio; (2) leaner air-to-fuel ratio; (3) revised combustion chamber configuration; (4) fuel injection; (5) electronic fuel metering; (6) interactive electronic control of engine operating parameters (spark advance, exhaust gas recirculation, air-to-fuel ratio); (7) variable valve timing or valve lift; (8) multiple valves per cylinder; (9) friction reduction by means such as low tension

piston rings and roller cam followers; (11) higher temperature operation; and (12) other methods (specify).

k. Naturally aspirated diesel engines, with direct or indirect fuel injection.

l. Turbocharged or supercharged diesel engines with direct or indirect fuel injection.

m. Stratified-charge reciprocating or rotary engines, with direct or indirect fuel injection.

n. Two cycle spark ignition engines.

o. Other technologies for improving fuel economy.

7. For each model of respondent's light truck fleet projected to be manufactured in each of MYs 1998–2006, describe the methods used to achieve reductions in average test weight. For each specified model year and model, describe the extent to which each of the following methods for reducing vehicle weight will be used. Separate listings are to be used for 4x2 light trucks and 4x4 light trucks.

a. Substitution of materials.

b. "Downsizing" of existing vehicle design to reduce weight while maintaining interior roominess and comfort for passengers, and utility, i.e., the same or approximately the same, payload and cargo volume, using the same basic body configuration and driveline layout as current counterparts.

c. Use of new vehicle body configuration concepts which provides reduced weight for approximately the same payload and cargo volume.

8. For each model year 1998–2006, list all projected light truck model types and provide the information specified in "a" through "k" below for each model type.

The information should be in tabular form, with a separate table for each model year.

Each grouping is to be subdivided into separate listings for models with 4x2 and 4x4 drive systems. Engines having the same displacement but belonging to different engine families are to be grouped separately. The vehicles are to be sorted first by truckline, second by basic engine, and third by transmission type. For these groupings, the average test weights are to be placed in ascending order. List the categories in terms "a" through "k" below in the order specified from left to right across the top of the table. Include in the table for each model year the total sales-weighted harmonic average fuel economy and average test weight for imported and domestic light trucks for each truckline and for all of the respondent's light trucks.

a. Truckline, e.g., C-10, F-150, B-150. Model types which are essentially identical except for their nameplates (e.g., Chevrolet S-10/GMC S-15 and Dodge Caravan/

Plymouth Voyager) may be combined into one line item.

b. Light truck vehicle type, e.g., compact pickup, cargo van, passenger van, utility, truck-based station wagon, and chassis cab. Other light truck designations, which are adequately defined, can be used if these are not suitable.

c. Basic engine: Include the engine characteristics used in Definition 3.

d. Transmission class (e.g., A3, L4, A40D, M5, CVT): Include the characteristics used in Definition 16.

e. Average ratio of engine speed to vehicle speed in top gear (N/V), rounded to one decimal place.

f. Average test weight.

g. Average PAU setting: Provide the value and show whether the value (or estimated value) is based on coastdown testing (T) or calculated from the vehicle frontal area (C). Round the PAU value to one decimal place.

h. Composite fuel economy (Sales weighted, harmonically averaged over the specified vehicles, rounded to the nearest 0.1 mpg).

i. Projected sales for the vehicles described in each line item.

9. For each transmission identified in response to 8(d) above, provide a listing showing whether the transmission is manual or automatic, the gear ratios for the transmission, and the models which will use the transmission.

10. Indicate any MY 1998–2006 light truck model types which have higher average test weights than comparable MY 1994 model types. Describe the reasons for any weight increases (e.g., increased option content, less use of premium materials) and provide supporting justification.

11. For each new or redesigned vehicle identified in response to Question 3 and each new engine or fuel economy improvement identified in your response to Questions 3, 5, and 6, provide your best estimate of the following, in terms of constant 1993 dollars:

(a) Total capital costs required to implement the new/redesigned model or improvement according to the implementation schedules specified in your response. Subdivide the capital costs into tooling, facilities, launch, and engineering costs.

(b) The maximum production capacity, expressed in units of capacity per year, associated with the capital expenditure in (a) above. Specify the number of production shifts on which your response is based and define "maximum capacity" as used in your answer.

(c) The actual capacity that is planned to be used each year for each new/redesigned model or fuel economy improvement.

(d) The increase in variable costs per affected unit, based on the production volume specified in (b) above.

(e) The equivalent retail price increase per affected vehicle for each new/redesigned model or improvement. Provide an example describing methodology used to determine the equivalent retail price increase.

12. Please provide respondent's actual and projected U.S. light truck sales, 4x2 and 4x4, 0–8,500 lbs. GVWR and 8501–10,000 lbs., GVWR for each model year from 1994 through 2006, inclusive. Please subdivide the data into the following vehicle categories:

i. Standard Pickup Heavy (e.g., C-20/30, F-250/350, D-250/350)

ii. Standard Pickup Light (e.g., C-10, F-150, D-150)

iii. Compact Pickup (e.g., S-10, Ranger)

iv. Standard Cargo Vans Heavy (e.g., G-30, E-250/350, B-350)

v. Standard Cargo Vans Light (e.g., G-10/20, E-150, B-150/250)

vi. Standard Passenger Vans Heavy (e.g., G-30, E-250/350, B-350)

vii. Standard Passenger Vans Light (e.g., G-10/20, E-150, B-150/250)

viii. Compact Cargo Vans (e.g., Astro, Aerostar, Mini Ram Van)

ix. Compact Passenger Vans (e.g., Astro, Villager, Voyager)

x. Standard Utilities (e.g., K1500 Blazer, Bronco)

xi. Compact Utilities (e.g., S-10 Blazer, Explorer, Wrangler)

xii. Other (e.g., Suburban, Loyale)

See Table D for a sample format.

13. Please provide your estimates of projected total industry U.S. light (0–10,000 lbs, GVWR) truck sales for each model year from 1994 through 2006, inclusive. Please subdivide the data into 4x2 and 4x4 sales and into the vehicle categories listed in the sample format in Table E.

14. Please provide your company's assumptions for U.S. gasoline and diesel fuel prices during 1994 through 2006.

15. Please provide projected production capacity available for the North American market (at standard production rates) for each of your company's light truckline designations during MYs 1994–2006.

16. Please provide your estimate of production leadtime for new models, your expected model life in years, and the number of years over which tooling costs are amortized.

TABLE A.—NEW MODELS

[Model: A-1 Standard Pickups Drivetrain Configuration: 4x2, Front Engine/Rear Drive]

Body type (3a.)	Passenger volume, ft ³	No. of seating positions	Cargo volume, ft ³	Wheelbase, in. (3e.)	PAU setting, hp. (3f.)
Regular cab, short bed	50	3	48	115	7.5
Regular cab, long bed	50	3	64	133	7.8
Extended cab, long bed	75	4	64	151	8.2
Crew cab, long bed	100	6	64	170	9.0

Engine options (b.)	Config./ No. of cyl.	Fuel sys- tem	Hp @ RPM	Torque @ RPM
160 CID, turbocharged ¹	I-4	MPI	140 @ 4200	90 @ 3400
235 CID	V-6	TBI	150 @ 3800	125 @ 2800
235 CID, 4-valve ²	V-6	MPI	180 @ 4500	130 @ 3200
285 CID	V-8	MPI	200 @ 4200	150 @ 3000

¹Not available with crew cab.²Available with automatic transmission only.

Ratios (c.)	Transmission type		
	Manual over- drive	Manual creeper	Automatic with elec- tronic con- trols and TCLU
1st gear	4.50	6.50	3.20
2nd gear	3.00	3.60	2.50
3rd gear	1.75	1.80	1.50
4th gear	1.00	1.00	1.00
5th gear	0.80		
Reverse gear	4.70	6.10	3.00
Torque converter			2.10
Axle	3.54/3.73	3.54/3.73	3.23/3.54

Body type (3a.)	Range of GVWR (3d.(i))	Range of test weights (3d.(ii))	Range of composite fuel economy ratings (3g.)
Regular cab, short bed	6,050-7,000	4,250-4,500	16.0-17.5
Regular cab, long bed	6,100-7,200	4,250-4,500	16.0-17.2
Extended cab, long bed	6,100-7,400	4,500-5,000	15.5-17.0
Crew cab, long bed	6,300-7,800	4,500-5,000	14.5-16.5

Model year	Production (3i.)	Share of fleet, percent (3i.)	Notes (3h., 3j.)
1998	36,000	5	Mid-year introduction, North American production.
1999	78,000	10	
2000	110,000	13	Extended cab introduced.
2001	120,000	14	Facelift.

New Models

Model year (3k.)	New model designation	Model replaced or augmented	Sales derived from old model	Additional sales antici- pated
1998	A-Std Pickup	T-Std Pickup	20,000	10,000
1999	do	do	50,000	30,000

TABLE B.—NEW ENGINES

New/Redesigned Engines

Year of introduction by model (4a./h.)	Type (4b.)	Displace- ment, L. (4c.)	Induction system (4d.)	Configura- tion (4e.)	Valves per cylinder (4f.)	Horse- power @ rpm (4g.)	Torque, lb- ft @ rpm (4g.)
1998—Std Pickups	2-cycle, diesel	4.42	Turbocharged, direct injection.	W-9	3	250 @ 4000	190 @ 3500
1999—Std Vans							

TABLE C.—TECHNOLOGY IMPROVEMENTS

Technological improvement	Percent fuel economy improvement	Percent production share					
		1998	1999	2000	2001	2002	2003
Improved auto trans. (6a.):							
LT-1	7.0	0	0	15	25	55	60
LT-2	6.5	0	0	0	20	25	30
LT-3	5.0	0	10	30	60	60	60
Improved Manual Trans. (6b):							
LV-1	1.0	2	5	5	5	5	5
U-1	0.7	0	0	0	8	10	10

TABLE D.—ACTUAL AND PROJECTED U.S. SALES

Amalgamated Motors 2WD light truck sales projections

Model Line (12.)	Model Year					
	1994	1995	1996	1997	1998	etc.
0-8,500 lbs. GVWR:						
Std pickup, heavy	43,500					
Std pickup, light	509,340					
Compact pickup	120,000					
Std cargo van, heavy	60,000					
Std cargo van, light	20,000					
Compact cargo van	29,310					
Std passenger van, heavy	54,196					
Std passenger van, light	38,900					
Compact passenger van	30,000					
Std utility	53,800					
Compact utility	44,000					
Other (specify)						
8,501-10,000 lbs. GVWR:						
Std pickup heavy	5,500					
Std vans, heavy	4,000					
Other (specify)						
Total	1,012,546					

TABLE E.—TOTAL U.S. TRUCK SALES

Model type (13.)	1994	1995	1996	1997	1998	etc.
1. 2WD light trucks:						
a. Pickup:						
Compact						
Mid-size						
Standard						
b. Cargo vans:						
Compact						
Standard						
c. Passenger vans:						
Compact						
Standard						
d. Utilities:						
Compact						
Standard						
Pass. car based						
e. Truck based station wagons						
f. Other (specify)						
2. 4WD light trucks [same breakout as 2WD]						
3. Total light trucks [2WD + 4WD]						