

**ENVIRONMENTAL PROTECTION AGENCY****40 CFR Parts 85 and 86**

[EPA-HQ-OAR-2009-0299; FRL-9149-9]

RIN 2060-AP64

**Clean Alternative Fuel Vehicle and Engine Conversions****AGENCY:** Environmental Protection Agency (EPA).**ACTION:** Proposed rule.

**SUMMARY:** EPA is proposing to simplify and streamline the process by which manufacturers of clean alternative fuel conversion systems may demonstrate compliance with vehicle and engine emissions requirements. Specifically, EPA is proposing to revise the regulatory criteria for gaining an exemption from the Clean Air Act prohibition against tampering for the conversion of vehicles and engines to operate on a clean alternative fuel. Under existing EPA regulations, an exemption from the tampering prohibition may only be granted to vehicles and engines covered by a certificate of conformity. The proposed revisions would create additional compliance options beyond certification that would protect manufacturers of clean alternative fuel conversion systems against a tampering violation, depending on the age of the vehicle or engine to be converted. The new options would alleviate some economic and procedural impediments to clean alternative fuel conversions while maintaining environmental safeguards to ensure that acceptable emission levels from converted vehicles are sustained.

**DATES:** Comments must be received on or before July 23, 2010. Under the Paperwork Reduction Act, comments on the information collection provisions are best assured of having full effect if the Office of Management and Budget (OMB) receives a copy of your comments on or before June 25, 2010.

**Public Hearing:** EPA has tentatively scheduled a public hearing about this proposal for 9 a.m. June 23, 2010. EPA will hold the hearing only if any party notifies EPA by June 18, 2010 of interest in presenting oral testimony at the hearing. The hearing will start at 9 a.m. local time and continue until everyone has had a chance to speak.

EPA will cancel the hearing if no one expresses interest by June 18, 2010. EPA will notify the public of a cancellation by publication in the **Federal Register**, via its alternative fuel conversion Web site, <http://www.epa.gov/otaq/>

[consumer/fuels/altfuels/altfuels.htm](http://www.epa.gov/consumer/fuels/altfuels/altfuels.htm) and via Enviroflash.

**ADDRESSES:** Submit your comments, identified by Docket ID No. EPA-HQ-OAR-2009-0299 by one of the following methods:

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

- **Mail:** Environmental Protection Agency, EPA Docket Center (EPA/DC), Air and Radiation Docket, Mail Code 2822T, 1200 Pennsylvania Avenue, NW., Washington, DC 20460, Attention Docket ID No. EPA-HQ-OAR-2009-0299. In addition, please mail a copy of your comments on the information collection provisions to the Office of Information and Regulatory Affairs, Office of Management and Budget (OMB), Attn: Desk Officer for EPA, 725 17th St., NW., Washington, DC 20503.

- **Hand Delivery:** Docket Center, (EPA/DC) EPA West, Room B102, 1301 Constitution Ave., NW., Washington, DC, Attention Docket ID No. EPA-HQ-OAR-2009-0299. Such deliveries are only accepted during the Docket's normal hours of operation, and special arrangements should be made for deliveries of boxed information.

**Public Hearing:** The June 23, 2010 hearing will be held at the EPA National Vehicle and Fuel Emissions Laboratory, 2000 Traverwood Drive, Ann Arbor, Michigan 48105. The hearing will start at 9 a.m. local time and continue until everyone has had a chance to speak. See the Supplementary Information for more information on the public hearing.

**Instructions:** Direct your comments to Docket ID No. EPA-HQ-OAR-2009-0299. EPA's policy is that all comments received will be included in the public docket without change and may be made available online at <http://www.regulations.gov>, including any personal information provided, unless the comment includes information claimed to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Do not submit information that you consider to be CBI or otherwise protected through <http://www.regulations.gov> or e-mail. The <http://www.regulations.gov> Web site is an "anonymous access" system, which means EPA will not know your identity or contact information unless you provide it in the body of your comment. If you send an e-mail comment directly to EPA without going through <http://www.regulations.gov> your e-mail address will be automatically captured and included as part of the comment that is placed in the public docket and made available on the Internet. If you

submit an electronic comment, EPA recommends that you include your name and other contact information in the body of your comment and with any disk or CD-ROM you submit. If EPA cannot read your comment due to technical difficulties and cannot contact you for clarification, EPA may not be able to consider your comment.

Electronic files should avoid the use of special characters, any form of encryption, and be free of any defects or viruses. For additional information about EPA's public docket visit the EPA Docket Center homepage at <http://www.epa.gov/epahome/dockets.htm>.

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

**FOR FURTHER INFORMATION CONTACT:** Amy Bunker, Compliance and Innovative Strategies Division, U.S. Environmental Protection Agency, 2000 Traverwood Drive, Ann Arbor, Michigan 48105. Telephone: (734) 214-4160. E-mail Address: [bunker.amy@epa.gov](mailto:bunker.amy@epa.gov).

**SUPPLEMENTARY INFORMATION:****Public Hearing**

Anyone wishing to present testimony about this proposal at the public hearing should notify the general contact person (see **FOR FURTHER INFORMATION CONTACT**) no later than five days prior to the day of the hearing. The contact person should be given an estimate of the time required for the presentation of testimony and notification of any need for audio/visual equipment. Testimony will be scheduled on a first come, first serve basis. A sign-up sheet will be available at the registration table the morning of the hearing for scheduling those who have not notified the contact earlier. This testimony will be scheduled on a first come, first serve basis to follow the previously scheduled testimony.

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

The official record of the hearing will be kept open for 30 days following the hearing to allow submission of rebuttal and supplementary testimony. All such submissions should be directed to Docket No EPA-HQ-OAR-2009-0299 (see ADDRESSES). The hearing will be conducted informally, and technical rules of evidence will not apply. A written transcript of the hearing will be placed in the above docket. Anyone desiring to purchase a copy of the transcript should make individual

arrangements with the court reporter recording the proceedings.

**Affected Entities**

This action will affect companies and persons that manufacture, sell, or install alternative fuel conversions for light-duty vehicles, light-duty trucks, medium-duty passenger vehicles, and heavy-duty vehicles and engines. Such entities are categorized as follows:

NAICS Codes <sup>1</sup>	Examples of potentially regulated entities
335312 .....	Motor and Generator Manufacturing.
336312 .....	Gasoline Engine and Engine Parts Manufacturing.
336322 .....	Other Motor Vehicle Electrical and Electronic Equipment Manufacturing.
336399 .....	All Other Motor Vehicle Parts Manufacturing.
811198 .....	All Other Automotive Repair and Maintenance.

This list is not intended to be exhaustive, but rather to provide a guide regarding entities likely to be affected by this action. To determine whether particular activities may be affected by this action, you should carefully examine the regulations. You may direct questions regarding the applicability of this action to the contact as noted above in **FOR FURTHER INFORMATION CONTACT**.

**Table of Contents**

- I. Introduction
- II. Authority
  - A. Vehicle and Engine Standards and Certification
  - B. Useful Life
  - C. "Tampering" Prohibition
  - D. Exemption for Conversions
  - E. Authority for Proposed Clean Alternative Fuel Conversions Program
- III. Program Design Elements Applicable to All Clean Alternative Fuel Conversions
  - A. Clean Alternative Fuel Conversions
  - B. Good Engineering Judgment
  - C. Vehicle/Engine Groupings and Emission Data Vehicle/Engine Selection
  - D. Flex-Fuel (Bi-Fuel) and Dual Fuel Conversions
  - E. Vehicle and Packaging Labels
  - F. Marketing
  - G. Compliance
    - 1. Emission Standards
      - a. Light-Duty and Heavy-Duty Complete Vehicle Gross Vehicle Weight Classes and Alternative Fuel Exceptions
      - b. Heavy-Duty Engine Types and Gross Vehicle Weight Classes
    - 2. Useful Life
    - 3. On Board Diagnostics
    - 4. Durability Testing
    - 5. Warranty
    - 6. Other Provisions Applicable to Conversion Manufacturers
    - 7. Misapplication

- H. Regulatory Procedures for Small Volume Manufacturers and Small Volume Test Groups
  - 1. Definition of Small Volume Manufacturers, Small Volume Test Groups, and Small Volume Engine Families
    - a. Light-Duty and Heavy-Duty Complete Vehicles
    - b. Heavy-Duty Engines
  - 2. Assigned Deterioration Factors
  - 3. Changes in Small Volume Manufacturer Status
- IV. Clean Alternative Fuel Conversion Program Details
  - A. New Vehicle and Engine Clean Alternative Fuel Conversion Certification Program
    - 1. Applicability
      - a. New Vehicles and Engines
      - b. Older Vehicles and Engines
    - 2. Test Groups, Engine Families, and Evaporative Families
      - a. Test Groups for Light-Duty and Heavy-Duty Complete Vehicles
        - i. Small Volume Manufacturers
        - ii. Large Volume Manufacturers
      - b. Engine Families for Heavy-Duty Engines and Vehicles
        - i. Small Volume Manufacturers
        - ii. Large Volume Manufacturers
    - 3. Certification Demonstration Requirements
      - a. Exhaust Emissions
        - i. Light-Duty and Heavy-Duty Complete Vehicles
        - ii. Heavy-Duty Engines
      - b. Evaporative/Refueling Emissions
      - c. Durability Demonstration and Assigned Deterioration Factors
        - i. Small Volume Manufacturers
        - ii. Large Volume Manufacturers
    - 4. Certification Notification Process
      - a. Light-Duty and Heavy-Duty Complete Vehicles
        - b. Heavy-Duty Engines
      - b. Heavy-Duty Engines
      - c. Re-Certification
    - 5. In-Use Compliance

- B. Intermediate Age Vehicle and Engine Compliance Program
  - 1. Applicability
    - a. Intermediate Age Vehicles and Engines
    - b. Older Vehicles and Engines
  - 2. Test Groups, Engine Families, and Evaporative Families
    - a. Test Groups for Light-Duty and Heavy-Duty Complete Vehicles
      - i. Small Volume Manufacturers
      - ii. Large Volume Manufacturers
      - iii. Dual-Fuel Vehicle Carry Across
    - b. Engine Families for Heavy-Duty Engines and Vehicles
      - i. Small Volume Manufacturers
      - ii. Large Volume Manufacturers
      - iii. Dual Fuel Engine Carry Across
    - c. Evaporative/Refueling Families
  - 3. Demonstration Requirements
    - a. Exhaust Emissions
      - i. Light-Duty and Heavy-Duty Complete Vehicles
      - ii. Heavy-Duty Engines
    - b. Evaporative/Refueling Emissions
    - c. Durability Demonstration and Assigned Deterioration Factors
      - i. Small Volume Manufacturers
      - ii. Large Volume Manufacturers
    - d. On-Board Diagnostics
  - 4. Notification Process
    - a. Light-Duty and Heavy-Duty Complete Vehicles and Heavy-Duty Engines
    - b. Vehicles and Engines That Were Previously Certified Under the Clean Alternative Fuel Conversion Certification Program
  - 5. In-Use Compliance
- C. Outside Useful Life Clean Alternative Fuel Conversion Compliance Program
  - 1. Applicability
    - a. Outside Useful Life Subcategory Option
  - 2. Test Groups, Engine Families, and Evaporative/Refueling Families
  - 3. Demonstration Requirements
    - a. Option 1
    - b. Option 2
    - c. Option 3
  - 4. Notification Process
  - D. Alternate Registration Approach for Newer Outside Useful Life Vehicles and Engines

<sup>1</sup>North American Industry Classification System (NAICS).

- 1. NOUL Vehicles and Engines
  - Subcategory
  - a. Applicability
  - b. Demonstration Requirements
- V. Technical Amendments
  - A. Exhaust Emission Technical Amendments
  - B. Evaporative Emission Technical Amendments
- VI. Environmental Benefits
- VII. Associated Costs for Light-Duty and Heavy-Duty Complete Vehicles
- VIII. Associated Costs for Heavy-Duty Engines
- IX. Statutory and Executive Order Reviews
  - A. Executive Order 12866: Regulatory Planning and Review
  - B. Paperwork Reduction Act
  - C. Regulatory Flexibility Act (RFA), as Amended by The Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), 5 U.S.C. 601 et seq.
  - D. Unfunded Mandates Reform Act
  - E. Executive Order 13132: Federalism
  - F. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments
  - G. Executive Order 13045: Protection of Children From Environmental Health and Safety Risks
  - H. Executive Order 13211: Actions That Significantly Affect Energy Supply, Distribution, or Use
  - I. National Technology Transfer Advancement Act
  - J. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations
- X. Statutory Provisions and Legal Authority

## I. Introduction

With the vast majority of vehicles in the United States designed to operate on gasoline or diesel fuel, there has been a longstanding and growing interest by the public in aftermarket fuel conversion systems. These systems allow gasoline or diesel vehicles to operate on alternative fuels such as natural gas, propane, alcohol, or electricity. Use of clean alternative fuels opens new fuel supply choices and can help consumers address concerns about fuel costs, energy security, and emissions. The U.S. Environmental Protection Agency (EPA) is responsible for ensuring that all vehicles and engines sold in the United States, including aftermarket conversions, meet emission standards. Today EPA is proposing to simplify and streamline the process by which manufacturers of clean alternative fuel conversion systems may demonstrate compliance with these vehicle and engine emissions requirements. The new options would reduce some economic and procedural impediments to clean alternative fuel conversions while maintaining environmental safeguards to ensure that acceptable emission levels from converted vehicles are sustained.

The conversion of vehicles or engines to operate on fuels other than those for which they were originally designed may yield certain benefits, but it also presents several legal and environmental concerns. These concerns stem from Clean Air Act (CAA, the Act) provisions intended to ensure that vehicles and engines remain clean throughout their useful life. To this end, the Act requires EPA to establish motor vehicle emission standards that apply throughout useful life, and to verify through issuance of a certificate of conformity that any vehicle or engine entered into commerce complies with the established emission standards.<sup>2</sup> Once certified, the vehicle or engine generally may not be altered from its certified configuration.<sup>3</sup> The CAA prohibition against alteration or “tampering” is important because emission standards apply well beyond a vehicle’s or engine’s initial entry into commerce. It is extremely difficult to reconfigure integrated and sophisticated modern automotive systems, precisely designed to achieve low pollution levels over time, without negatively affecting their durability or emissions performance.

EPA has long recognized vehicle alteration for the purpose of clean alternative fuel conversion as a special case because while improperly designed or installed conversions can increase emissions, properly engineered conversions can reduce, or at least not increase, emissions. Furthermore use of alternative fuels can contribute to achieving other goals such as diversifying the fuel supply through use of domestic energy sources. Therefore, EPA has established policies through which conversion manufacturers can demonstrate that the conversion does not compromise emissions compliance. It has proven challenging however to design an appropriate demonstration that ensures long-term compliance while not imposing overly burdensome testing and administrative requirements, especially for the small businesses that largely comprise the conversion industry.

The existing compliance demonstration required of conversion manufacturers for a regulatory exemption from tampering involves obtaining a certificate of conformity. This means that converters must follow essentially the same rigorous certification process that EPA requires of original equipment manufacturers (OEMs). The certification requirements currently in place for all converters give

EPA sufficient oversight from an emissions perspective but implementation can be problematic in certain conversion situations. The current regulations were finalized on September 21, 1994 (59 FR 48472) and are located in 40 CFR part 85, subpart F (“the subpart F regulations”). In the 15 years since these regulations were promulgated, experience has shown that the OEM-like certification program for aftermarket conversions is not an optimal mechanism for ensuring compliance with applicable emission standards, particularly for older vehicles and engines. EPA has encountered several practical difficulties when using pre-production certification test procedures on older vehicles and engines. Similarly, certain aspects of the certification procedure are not well suited to aftermarket manufacturers. Some small conversion manufacturers, furthermore, have expressed concerns that the complexity of the certification process presents a barrier to entry into the alternative fuel conversions market.

For all these reasons, EPA believes it is reasonable to modify the current certification requirement for clean alternative fuel converters seeking exemption from the tampering prohibition. The new program would expand compliance options to include less burdensome demonstration requirements that would nonetheless sustain EPA’s oversight and longstanding commitment to the environmental integrity of clean alternative fuel conversions.

Today, EPA is proposing a new approach that streamlines the regulatory process and introduces new flexibilities for conversion manufacturers, while ensuring that converted vehicles and engines retain acceptable levels of emission control. The revised program would also address the uncertainty some converters may experience in determining whether a conversion constitutes tampering that could result in liability. EPA proposes to amend the regulatory procedures in 40 CFR part 85, subpart F and part 86 to remain consistent with the CAA yet reflect the concept that it is appropriate to treat conversion requirements differently based on vehicle or engine age. The new program would facilitate age-appropriate testing and compliance procedures by placing alternative fuel conversions into one of three categories: (1) Conversions of vehicles or engines that are “new and relatively-new” (hereafter referred to as “new” solely for the purpose of this preamble),<sup>4</sup> (2)

<sup>2</sup> See CAA sections 202, 203, and 206.

<sup>3</sup> CAA section 203.

<sup>4</sup> See Section IV.A and proposed §§ 85.505 and 85.510. Proposed §§ 85.505(b)(1) and 85.510 apply

conversions of vehicles or engines that are no longer new (*i.e.*, no longer “new and relatively-new”) but that still fall within EPA’s definition of full useful life, “intermediate age vehicles”, and (3) conversions of vehicles or engines that are outside EPA’s definition of useful life.

EPA is also requesting comment on whether to establish a subcategory for vehicles and engines that exceed the useful life threshold in mileage before they reach the threshold in years, with its own demonstration requirement.

Under our proposal, for the first category, conversions of new vehicles and engines, EPA believes that a requirement for a certificate of conformity remains appropriate because those vehicles and engines were entered into commerce as the subject of a recently issued OEM certificate of conformity. Such vehicles would typically have the majority of their useful life remaining and the condition of a relatively new vehicle or engine is still likely to be representative of an OEM vehicle or engine used in certification testing. Furthermore, a certification requirement for new vehicle and engine conversion would eliminate any perceived incentive that might otherwise exist for OEMs to circumvent certifying original-configuration alternative fuel vehicles/engines, by instead converting already-certified traditional fuel configurations to operate on an alternative fuel. Thus, EPA proposes to largely retain the current certification requirements for manufacturers of conversion systems for new vehicles and engines, while providing some new flexibility in grouping such vehicles for certification purposes. For the second category, intermediate age vehicles and engines, we are proposing that manufacturers of conversion systems demonstrate through testing that the converted vehicle or engine still meets applicable emission standards promulgated under the authority of the CAA section 202.

For the third category, vehicles and engines outside their full useful life, there is no longer an applicable standard to serve as a benchmark. Since it is not possible to assess compliance by comparing emissions to a standard, EPA is seeking comment on three

to “new and relatively-new” vehicles or engines, *i.e.*, where the date of conversion is in a calendar year that is not more than one year after the original model year of the vehicle or engine. In this preamble, we refer to these “new and relatively-new” vehicles and engines as “new” only as a shorthand reference to the proposed category of “new and relatively-new” engines or vehicles. This shorthand use of “new” is not intended to mean that these engines or vehicles are “new” under the Act or any EPA regulations.

options through which manufacturers of conversion systems for older vehicles and engines could demonstrate that the conversion is technically viable and will not increase emissions. The options are described in detail in Section IV.C.

EPA is also offering an alternate approach for comment that would create two subcategories of outside useful life vehicles. The alternate approach is described in detail in Section IV.D.

The primary purpose of the new program EPA is proposing today is to facilitate the compliance process for clean alternative fuel conversion manufacturers. Consistent with this intent, EPA would require any conversion to be technically sound, regardless of the vehicle or engine age category, and would continue to hold the conversion manufacturer accountable for acceptable emissions performance once the converted vehicle or engine is in customer service. EPA would employ compliance tools as appropriate, such as confirmatory testing and in-use vehicle emissions monitoring to check fleet performance, as it does with OEM vehicles.

## II. Authority

### A. Vehicle and Engine Standards and Certification

The CAA grants EPA authority to establish, administer, and enforce emission standards for motor vehicles and engines. The CAA states that a new vehicle or engine may not be introduced into commerce unless it has been issued a certificate of conformity (“certificate”) by EPA.<sup>5</sup> A certificate is issued when a manufacturer has demonstrated to EPA through a regulatory testing and data submission process that the vehicle or engine will conform for its useful life to the standards promulgated by EPA.<sup>6</sup> Each certificate is valid for up to one model year.<sup>7</sup>

### B. Useful Life

The CAA directs EPA to promulgate emission standards that are applicable for a vehicle or engine’s “useful life,” and to establish the useful life period through regulation.<sup>8</sup> The full useful life varies among pollutant standards and among vehicle or engine categories.<sup>9</sup> For example, recent model year light-duty vehicles (cars and small trucks) have a useful life of 10 years or 120,000 miles, whichever comes first.<sup>10</sup> Recent model

year heavy-duty complete vehicles and medium-duty passenger vehicles have a useful life of 11 years or 120,000 miles, whichever comes first.<sup>11</sup> For current Otto-cycle heavy-duty engines, the useful life is 110,000 miles or 10 years, whichever first occurs.<sup>12</sup> For current diesel heavy-duty engines (also referred to as “compression-ignition” or “diesel cycle”), there are different useful life definitions based on gross vehicle weight, pollutant being controlled, and test procedure, ranging from 10 years or 110,000 miles, whichever first occurs, to 10 years or 435,000 miles or 22,000 hours of engine operation, whichever first occurs.<sup>13</sup>

### C. “Tampering” Prohibition

Under CAA section 203(a)(3), it is prohibited:

(A) For any person to remove or render inoperative any device or element of design installed on or in a motor vehicle or motor vehicle engine in compliance with regulations under this subchapter prior to its sale and delivery to the ultimate purchaser, or for any person knowingly to remove or render inoperative any such device or element of design after such sale and delivery to the ultimate purchaser; or

(B) For any person to manufacture or sell, or offer to sell, or install, any part or component intended for use with, or as part of, any motor vehicle or motor vehicle engine, where a principal effect of the part or component is to bypass, defeat, or render inoperative any device or element of design installed on or in a motor vehicle or motor vehicle engine in compliance with regulations under this subchapter, and where the person knows or should know that such part or component is being offered for sale or installed for such use or put to such use.

The CAA prohibition against tampering applies to vehicles regardless of age or mileage accumulation.<sup>14</sup>

### D. Exemption for Conversions

The CAA provides for several statutory exemptions to the prohibition on tampering. One of these exemptions is for actions which are “for the purpose of a conversion of a motor vehicle for use of a clean alternative fuel (as defined in this subchapter) and if such vehicle complies with the applicable standard under section 202 when operating on such fuel.”<sup>15</sup>

<sup>11</sup> 40 CFR 86.1805–04.

<sup>12</sup> 40 CFR 86.004–2.

<sup>13</sup> 40 CFR 86.004–2.

<sup>14</sup> Any alteration of a motor vehicle or engine, its fueling system, or the integration of these systems, which may be classified as “tampering” under section 203(a) and which does not satisfy the proposed exemptions would be a violation of the CAA for which section 205 authorizes EPA to assess penalties, currently set at up to \$37,500 per vehicle or engine. See 40 CFR part 19.

<sup>15</sup> CAA section 203(a).

<sup>5</sup> CAA section 203(a)(1).

<sup>6</sup> CAA sections 202 and 206.

<sup>7</sup> 40 CFR 86.1848–01.

<sup>8</sup> CAA section 202.

<sup>9</sup> Regulations may also include optional standards such as in 40 CFR 86.1805–04(b) and (e).

<sup>10</sup> 40 CFR 86.1805–04.

### *E. Authority for Proposed Clean Alternative Fuel Conversions Program*

The regulatory issue posed by vehicle and engine clean alternative fuel conversions is how to design a program that allows manufacturers to demonstrate that their conversion system warrants an exemption from the prohibition against tampering. The 1994 rulemaking that created the subpart F regulations stated, "It has always been the Agency's policy that an aftermarket conversion not degrade the emissions performance of the original vehicle as a condition of being exempt from prosecution for tampering violations."<sup>16</sup>

Today's proposal is based on EPA's interpretation that section 203(a) provides a tampering exemption for clean alternative fuel conversions. The section 203(a) exemption from tampering applies when the otherwise prohibited act is for "the purpose of a conversion of a motor vehicle for use of a clean alternative fuel (as defined in this subchapter) and if such vehicle complies with the applicable standard under section 202 when operating on such fuel." Thus, the threshold qualification for the exemption is the proper purpose (*i.e.* "conversion \* \* \* for use of a clean alternative fuel"). The second criterion for the exemption is compliance with the applicable standard.

EPA is proposing a program that requires a demonstration to satisfy both of these criteria for vehicles and engines that are still within their useful life. For vehicles and engines that are outside their useful life, even though a standard under CAA Section 202 is no longer applicable, EPA believes it is important to provide a legal path under which outside useful life vehicles and engines can be converted to use alternative fuels. Only clean alternative fuel conversion systems that comply with the proposed regulations would qualify for the CAA section 203(a) exemption from the tampering prohibition for application to outside useful life vehicles and engines. Thus, EPA is proposing a program that requires the conversion manufacturer to demonstrate that the threshold criterion is met (*i.e.* "conversion \* \* \* for use of a clean alternative fuel"). To meet the threshold criterion, the conversion manufacturer would be required to demonstrate that emissions have not degraded as a result of the clean alternative fuel conversion. Such a demonstration would serve to maintain air quality, consistent with the congressional intent in creating the exemption.

### **III. Program Design Elements Applicable to All Clean Alternative Fuel Conversions**

The clean alternative fuel conversion program EPA is proposing is designed to increase flexibility for conversion manufacturers while ensuring that converted vehicles retain acceptable emission levels. Certain aspects of the program design depend on the age of the vehicle or engine being converted, while other program elements are common to all conversions. This section describes those program elements which are applicable to all clean alternative fuel conversions, regardless of vehicle or engine age.

In general there are three types of typical alternative fuel conversions: (1) Those that result in dedicated alternative fueled vehicles or engines; (2) those that result in dual-fueled vehicles or engines; and (3) those that result in flex-fueled (also known as bi-fueled) vehicles or engines.<sup>17</sup> The first type, dedicated alternative fueled vehicles or engines, are only capable of operating on one type of fuel. Dual-fueled vehicles or engines, the second type, can operate on two types of fuel, either the fuel they were originally designed for or on a new alternative fuel. The third type, flex-fueled or bi-fueled vehicles or engines, are able to operate on either the original fuel or the alternative fuel, or on a mix of the two fuels. For example, an ethanol flex-fueled vehicle operates on 100% gasoline or on any combination of gasoline and ethanol, up to an 85% mixture of ethanol (known as "E85").

EPA currently regulates all types of alternative fuel conversions pursuant to the regulations specified in 40 CFR part 85, subpart F and certification provisions in 40 CFR part 86 and part 1065. EPA would continue to regulate the typical types of conversions under today's proposal, along with newer or innovative types of fuel conversions that do not fit neatly into one of the general categories listed above. These include conversions of conventional gasoline or diesel vehicles to hybrid-electric vehicles, and conversions from hybrid-electric vehicles to plug-in hybrid electric vehicles. Since alternative fuel conversion activity often acts as a laboratory for new fuels and new technology, it is not possible to present an exhaustive list of covered categories or special cases. Each special case may require unique test procedures that are

appropriate to new and developing technologies.<sup>18</sup>

#### *A. Clean Alternative Fuel Conversions*

Under today's proposal, only clean alternative fuel conversions that are designed in accordance with EPA requirements, and for which the manufacturer has complied with the proposed regulations would qualify for the CAA section 203(a) exemption from the tampering prohibition. EPA proposes clean alternative fuel conversion (also referred to as "fuel conversion" or "conversion system") to be any alteration of a motor vehicle or engine, its fueling system, or the integration of these systems, that allows the vehicle or engine to operate on a fuel or power source different from the fuel or power source for which the vehicle or engine was originally certified; and that is designed, constructed, and applied consistent with good engineering judgment and in accordance with all applicable regulations. A clean alternative fuel conversion also includes the components, design and instructions to perform this alteration. A clean alternative fuel conversion manufacturer (also referred to as "conversion manufacturer" or "converter") is a company or individual that manufactures, assembles, sells, imports, or installs a motor vehicle or engine fuel conversion for the purpose of use of a clean alternative fuel. To demonstrate clean alternative fuel conversion compliance, conversion manufacturers would be required to submit data and/or other information to EPA. For purposes of this proposal we will refer to the appropriate submission as a "demonstration" and to the process of submitting the demonstration as "notification." The specifics of the demonstration would depend on the age of vehicles or engines being converted, but the general demonstration and notification requirements would apply to all conversion systems. Section IV contains a detailed description of the age-specific demonstration and notification requirements. EPA will maintain lists of conversion systems that have satisfied the age-appropriate demonstration requirements through the EPA notification process and will make this information publicly available.

Any requirement in the existing subpart F regulations, testing or otherwise that is not specifically addressed in this proposal would remain in place. EPA seeks comment about whether there are aspects of 40 CFR part 86 or part 1065

<sup>17</sup>Note that other Federal agencies may define the terms dual-fuel and bi-fuel differently than EPA definitions.

<sup>18</sup>See 40 CFR 86.1840-01.

<sup>16</sup>59 FR 48478 (Sep. 21, 1994).

implementation that have direct implications for clean alternative fuel conversions and that should be updated to reflect the proposed changes in requirements for clean alternative fuels conversion.

#### B. Good Engineering Judgment

A clean alternative fuel conversion manufacturer would be eligible for the exemption from the CAA tampering prohibition only if the conversion system is designed, constructed, and applied using good engineering judgment. EPA understands that in the context of exempting clean alternative fuel conversions from the CAA tampering prohibition, certain aspects of good engineering judgment may vary as a function of clean alternative fuel type, OEM technology, and other factors. In general, good engineering judgment would mean that the conversion manufacturer has provided sufficient technical documentation for EPA to ascertain that the converted vehicle or engine will continue to satisfy emissions requirements, such as meeting standards within useful life or maintaining emissions performance after conversion. Such documentation would need to be submitted to EPA in writing before any conversion kit is distributed or installed. EPA would evaluate several factors in assessing whether a conversion system represents good engineering judgment. These factors may include the following: whether the system employs technology that is at least equivalent and equally effective in design, materials and overall sophistication to that of the OEM system; uses components that are sized to match the engine power requirements; uses instantaneous feedback control; and maintains proper On-Board Diagnostic (OBD) system function. Documentation provided to support a claim of good engineering judgment may include emissions test data or other engineering analysis to demonstrate that the conversion technology will sustain acceptable emissions performance in the intended vehicles or engines. Good engineering judgment also dictates that any testing or data used to satisfy demonstration requirements must be generated at a quality laboratory that is capable of performing emission tests that comply with EPA regulations and that exercise good laboratory practices.

#### C. Vehicle/Engine Groupings and Emission Data Vehicle Selection

The unit of vehicle certification and compliance under the CAA and under EPA's implementing regulations is a group of vehicles that share similar

technologies, design features, and emission control characteristics. Thus each OEM certificate of conformity can and usually does cover several vehicle models that have in common a unique combination of exhaust emissions, evaporative emissions, and on-board diagnostic (OBD) system features. The common exhaust emission system characteristics are represented by a grouping called a "test group." The common evaporative emission system characteristics are represented by an "evaporative/refueling family." The OBD system features are represented by an "OBD group." Light-duty vehicles and Otto-cycle complete heavy-duty vehicles receive a single certificate covering a unique combination of test group, evaporative/refueling family, and OBD group.

The unit of certification is slightly different for heavy-duty engines. Instead of receiving a single certificate that covers both exhaust and evaporative emission control characteristics, heavy-duty engines are issued separate certificates by "engine family" for engines having common exhaust characteristics, and by evaporative/refueling families, if applicable.<sup>19</sup> Even though heavy-duty engine certificates are based on a different unit, the concept behind allowable groupings remains consistent between light-duty vehicle and heavy-duty engine certification and compliance. Groupings share similar technologies, design features, and emission control characteristics. In this proposal, EPA is proposing to expand the grouping flexibility for conversion manufacturers by permitting somewhat broader grouping criteria for both light-duty vehicles and heavy-duty engines than those available for OEM certification.

The general concept behind groupings for the conversion program would apply to all vehicle and engine age categories, although the specific criteria for designating conversion groups would vary somewhat among the new, intermediate age, and outside useful life programs (see Section IV). Conversion manufacturers would use the applicable criteria to designate a conversion group, and would select a "worst case" emissions data vehicle (EDV) or emission data engine (EDE) to represent the group for demonstration and notification purposes. Consistent with current requirements, the conversion EDV/EDE would be expected to represent the most challenging emissions compliance technology of all the models it represents. Use of a worst-

case emission data vehicle or engine gives EPA confidence that all models covered by a certificate in the case of OEM certification, or by EPA's acceptance of the conversion group demonstration in the case of conversion, comply with all applicable emission requirements. These may include exhaust emission standards, evaporative emission standards, OBD compliance requirements, and other criteria. Therefore conversion manufacturers may need to submit data from more than one EDV or EDE to represent the worst case condition for each of the applicable requirements.

#### D. Flex-Fuel (Bi-Fuel) and Dual-Fuel Conversions

EPA regulations require flex-fueled and dual-fueled vehicles and engines to comply with all requirements established for each fuel or blend of fuels on which the system is capable of operating.<sup>20</sup> These requirements would continue to apply to flex- and dual-fuel conversions. Certain demonstration requirements could potentially be waived for clean alternative fuel conversions if the conversion manufacturer has not altered the OEM configuration of the vehicle or engine when operating on its original fuel. However, if the conversion of the vehicle or engine to dual-fuel or flex-fuel operation alters the OEM certified configuration in any way while operating on the original fuel, then EPA would require the conversion manufacturer to demonstrate compliance for each fuel with all applicable exhaust emissions, evaporative/refueling emissions, and OBD demonstration and notification requirements, appropriate for the age of the vehicle as described in Section IV.

EPA proposes to continue to allow a statement of compliance in lieu of test data for operation on the original fuel if the conversion manufacturer can attest that the conversion retains all the OEM fuel system, engine calibration, and emission control system functionality when operating on the fuel with which the vehicle was originally certified and the conversion retains all the functionality of the OEM OBD system (if so equipped) when operating on the fuel with which the vehicle was originally certified. The conversion manufacturer would still be required to submit data demonstrating compliance with the applicable requirements when the

<sup>19</sup> Certain fuels such as diesel fuel do not have heavy-duty evaporative emissions standards.

<sup>20</sup> See, e.g., 40 CFR 86.1810-01, 40 CFR 86.1811-04, 40 CFR 86.1812-01, 40 CFR 86.1813-01, 40 CFR 86.1814-01, 40 CFR 86.1814-02, 40 CFR 86.1815-01, 40 CFR 86.1815-02, 40 CFR 86.1816-05, 40 CFR 86.1816-08.

vehicle is operating on the new alternative fuel.<sup>21</sup>

Because a flex-fuel vehicle or engine operates on a fuel mixture, with the fuels combusted together at a variety of fuel ratios, EPA would generally require a flex fuel vehicle or engine conversion manufacturer to demonstrate compliance with applicable requirements for each fuel. The conversion manufacturer may need to conduct testing on multiple fuel ratios to adequately represent worst case emission scenarios.<sup>22</sup> Conversion manufacturers should work with EPA to make good engineering judgment decisions about the worst case emission data vehicle or engine requirements for flex-fuel vehicles and engines.

EPA has specific concerns about canister purge in dual-fuel conversions because of potential for uncontrolled evaporative emissions when the converted vehicle or engine is operating on the new alternative fuel. Although much of the OEM functionality is likely to remain fully operational on the original fuel after conversion to dual-fuel, OEM canister purge may have been designed to depend on the frequency and duration of engine operation on the original fuel. Therefore, for dual-fuel conversions, EPA proposes to require the conversion manufacturer either to test canister purge and submit data, or to provide a separate attestation for evaporative emission canister purge. For vehicles and engines converted to dual-fuel operation, the attestation would include statements that the evaporative emissions canister purge continues to operate as originally designed while operating on each fuel. EPA would expect the clean alternative fuel conversion manufacturer to supply a description of the canister purge operation while the vehicle or engine is operating on the alternative fuel. EPA would expect that the canister purge while operating on the alternative fuel is identical to the OEM canister purge operation.

#### *E. Vehicle and Packaging Labels*

Vehicle and engine labeling requirements for clean alternative fuel conversions are currently set forth in 40 CFR 85.505. These regulations list the information that must be included on the label and require the label to be permanently affixed adjacent to the OEM vehicle emissions control information (VECI) label. EPA proposes

to maintain these labeling requirements for clean alternative fuel converted vehicles and engines. We also propose to require some additional content on the vehicle conversion label. The newly required content would include the conversion manufacturer's evaporative/refueling family and test group or engine family and a statement specifying the minimum age and/or mileage requirements, OEM model year of vehicles, and the specific OEM test groups or engine families to which the conversion system is applicable. Conversion manufacturers would be required to submit the vehicle label information to EPA as part of the notification process. Failure to supply or install compliant labels would leave conversion manufacturers and installers subject to prosecution for tampering.

It has been suggested that conversion manufacturers be required to submit to EPA Vehicle Identification Numbers (VIN) information for all converted vehicles, in addition to vehicle label information. The reason for VIN tracking would be to assist automotive dealers or repair facilities, State Inspection and Maintenance program personnel, and others who might need to know whether a vehicle or engine has been altered from its OEM configuration. EPA requests comment as to whether converters should submit VIN tracking information to EPA and whether EPA should make such information publicly available.

EPA proposes that any packaging label information must be consistent with the conversion manufacturer's demonstration and notification to EPA. This would include the minimum vehicle or engine age requirements and OEM manufacturer, model year, carline (model) and vehicle test groups or engine families to which the clean alternative fuel conversion may be applied.

EPA seeks comment on whether the proposed information content of the vehicle and packaging labels is appropriate for vehicles and engines that have been converted to operate on a clean alternative fuel.

#### *F. Marketing*

EPA would continue to expect that any marketing material associated with any aftermarket fuel conversion product would be consistent with and not contravene the information required on the vehicle or packaging labels. For instance, the marketing of the applicability of the product must be consistent with the label information to ensure the product would not be

misapplied to other vehicles or engines.<sup>23</sup>

#### *G. Compliance*

Clean alternative fuel conversion manufacturers would continue to be subject to all certification requirements and warranty, defect, and recall requirements applicable to new vehicle and engine manufacturers in 40 CFR parts 85 and 86.<sup>24</sup>

EPA plans to audit conversion manufacturers and enforce against violations.

#### *1. Emission Standards*

EPA has previously determined that it is appropriate to require vehicle and engine fuel conversions to meet the same emission standard as required for the originally certified OEM vehicle or engine.<sup>25</sup> OEM standards would continue to apply for the required test cycles, including intermediate useful life standards and full useful life standards where applicable.<sup>26</sup> If a converter designates a conversion group that combines multiple OEM test groups/engine families, the most stringent OEM standards represented within that group would become the applicable standards for the conversion group. For example, if a converter establishes a conversion test group that includes OEM test groups originally certified to Tier 2, Bin 4 and Bin 5 standards, all the vehicles in the combined conversion test group would be subject to more stringent Tier 2, Bin 4 standard.

#### *a. Light-Duty and Heavy-Duty Complete Vehicle Gross Vehicle Weight Classes and Alternative Fuel Exceptions*

Emission standards for light-duty passenger cars, light-duty trucks,

<sup>23</sup> If any marketing material implies or states that the installation of the conversion system is legal or appropriate for vehicles/engines not listed in the documentation provided to EPA, EPA would deem the marketing material to be evidence that the marketer caused a customer to install an inappropriate conversion system and thus tampered with the vehicle.

<sup>24</sup> 40 CFR 85.503 and 85.504 and 59 FR 48478.

<sup>25</sup> 59 FR 48488.

<sup>26</sup> In almost all cases the standards in place for an OEM vehicle or engine will continue to apply to the converted vehicle or engine. The only exceptions involve fuel specific standards (or exemptions from standards) that were not applicable to the OEM configuration but are applicable to the converted configuration, or vice versa. In those cases the converted vehicle/engine will be held to the fuel-specific standard that would have been in place for an OEM vehicle/engine certified to operate on that fuel. For example, diesel-fueled vehicles are currently exempt from evaporative emission standards but vehicles fueled with most other fuels are not. If a diesel fuel vehicle is converted to run on an alternative fuel, the converted vehicle would be held to the evaporative emission standards that would have applied to an OEM vehicle certified operating on that fuel.

<sup>21</sup> Compliance testing and data submission requirements will vary by vehicle age and mileage. See Section IV.

<sup>22</sup> Compliance testing and data submission requirements will vary by vehicle age and mileage. See Section IV.

medium-duty passenger vehicles, and Otto-cycle heavy-duty complete vehicles less than 14,000 pound gross vehicle weight are codified in 40 CFR part 86, subpart S.<sup>27</sup> Standards are specific to vehicle type and gross vehicle weight ratings.

Light-duty vehicles, both OEM vehicles and conversions, are currently exempt from Supplemental Federal Test Procedure (SFTP) standards and cold carbon monoxide (CO) standards when certified on alternative fuels.<sup>28</sup> However, for dual-fuel and flex-fuel (bi-fuel) light-duty vehicles, SFTP and cold CO standards do apply while the vehicle is operating on gasoline or diesel fuel.<sup>29</sup> At this time, EPA is not proposing any changes to the regulations in 40 CFR 86.1810–01(i)(4). However, EPA is requesting comment on whether SFTP standards and testing are appropriate for alternative fueled light-duty vehicles; both OEM vehicles and clean alternative fuel conversions (see Section IV.A.3.a).<sup>30</sup> In the future, if SFTP standards are amended to apply to vehicles operated on alternative fuels, these standards and test procedures would also be applicable to fuel conversions.

#### b. Heavy-Duty Engine Types and Gross Vehicle Weight Classes

Heavy-duty engine standards are categorized in several ways. There are divisions by engine type, either compression ignition or spark ignition, and there are divisions by application gross vehicle weight. Standards for heavy-duty engines are described in 40 CFR part 86, subpart A. Generally, heavy-duty engine standards apply to engines installed in vehicles with a gross vehicle rating (GVWR) greater than 8,500 pounds. As noted in Section III.G.1, Otto-cycle complete vehicles must be certified using standards and procedures set forth in 40 CFR part 85, subpart F. In addition, Otto-cycle incomplete vehicles with GVWR up to 14,000 pounds which were optionally certified by the OEM using the provisions found in 40 CFR part 86, subpart S, would also follow these provisions for conversion to a clean alternative fuel.<sup>31</sup> OEM manufacturers

<sup>27</sup> For purposes of this NPRM, this group of vehicles will be described as light-duty and heavy-duty complete vehicles from this point forward.

<sup>28</sup> All medium-duty passenger vehicles are also currently exempt from SFTP standards, regardless of fuel type. 40 CFR 85.1811–04(f)(1). Medium duty passenger vehicles, operating on gasoline, do have a cold CO standard (40 CFR 86.1811–04(g)).

<sup>29</sup> 40 CFR 86.1810–01(i)(4) and 40 CFR 86.1811–04(g).

<sup>30</sup> 40 CFR 86.1811–04(f).

<sup>31</sup> As described in Section III.G.1.a of this preamble.

of compression ignition engines in complete heavy-duty vehicles between 8,500 and 14,000 pounds may optionally chassis certify using the provisions in 40 CFR part 86, subpart S. The clean alternative fuel conversion manufacturer would use the same certification provisions (engine or chassis-certification provisions) that the OEM used at the time of the original certification.

#### c. Dual-Fuel Standards

EPA as a matter of policy requires dual fuel vehicles and engines to certify operation on both fuel types to the same emission standards. A dual-fuel natural gas-gasoline vehicle, for example, would need to certify to the same Tier 2 bin level for both natural gas and gasoline. The same policy applies to evaporative/refueling standards and family emission levels (FELs) for engines. Therefore, conversion manufacturers of systems that convert single-fuel OEM systems to dual-fuel systems must certify to the OEM standard, even if test data demonstrate that the converted vehicle or engine is able to meet a lower standard while operating on the alternative fuel. If a conversion manufacturer wishes to certify to a lower standard on both fuels, a demonstration would be required on both fuels showing compliance with the said standard. This policy would continue to apply to all vehicle fuel conversions, regardless of age or compliance program.<sup>32</sup> In each case the notification process for a dual-fuel vehicle will require separate submissions for groups of vehicles with different standards. However, test data from an EDV or EDE demonstrating compliance with a lower standard may be able to be carried across to other vehicles or engines that meet the criteria available for the combination of exhaust groups, such as test groups and engine families, described in Sections IV.A.2 and IV.B.2.

#### 2. Useful Life

In the rulemaking that established the existing aftermarket conversions certification program, EPA determined it was not appropriate to extend the useful life of a conversion beyond that of the original vehicle given that conversions generally rely on many original vehicle components for proper operation.<sup>33</sup> EPA's revised program would leave this determination unchanged such that the applicable

<sup>32</sup> Compliance testing and data submission requirements will vary by vehicle age and mileage. See Section IV.

<sup>33</sup> 59 FR 48488.

useful life of a converted vehicle or engine would not extend beyond the useful life of the original vehicle or engine. Thus, the useful life of the conversion would continue to end at the same time as the useful life of the original vehicle, including any optional useful life standards to which the OEM certified the original vehicle.<sup>34</sup>

#### 3. On Board Diagnostics (OBD)

As part of the good engineering judgment requirement described in Section III.B, OEM vehicles or engines subject to OBD requirements would also be required to have properly functioning OBD systems once converted.<sup>35</sup> OBD systems are designed to monitor critical vehicle or engine emission control components and to alert the vehicle operator or State emissions inspection official to malfunction, deterioration, or other problems that might cause excessive emissions. States rely on OBD systems to flag vehicles that exceed Inspection and Maintenance thresholds and may require repair. OBD systems are also designed to store diagnostic information in the vehicle's computer to assist technicians in diagnosing and repairing the problem EPA is proposing that the conversion OBD system would need to include any new monitoring capability necessary to identify potential emission problems associated with the new fuel. In addition, consistent with other EPA regulations, EPA proposes that any dual-fuel clean alternative fuel conversion would require the OBD to remain fully functional on the original fuel.<sup>36</sup>

#### 4. Durability Testing

Manufacturers must conduct durability testing for both exhaust and evaporative emissions to determine expected useful life deterioration. Durability procedures for light-duty vehicles and heavy-duty complete vehicles are codified in 40 CFR 86.1823–01, 86.1824–01, 1824–07, 1824–08, and 86.1825–01, 85.1825–08. Durability procedures for heavy-duty engines are currently set forth in 40 CFR 86.096–24, 86.098–24, 86.001–24,

<sup>34</sup> Examples of optional useful life include those described in 40 CFR 86.1805–04(b) and (e).

<sup>35</sup> OBD systems were phased in for light-duty and heavy-duty complete vehicles beginning in 1994. See 40 CFR 86.1806–01, 86.1806–04, and 86.1806–05. OBD systems were phased in for heavy-duty vehicles weighing less than 14,000 pounds GVWR beginning in 2004. 40 CFR 86.005–17. OBD requirements for heavy-duty engines for vehicles over 14,000 pounds begin phase-in in 2010. 40 CFR 86.005–18. According to 40 CFR 86.010–18(o)(1)(v), engines in vehicles over 14,000 pounds GVWR certified on alternative fuels are exempt from OBD requirements for model years 2010–2012.

<sup>36</sup> Multi-fueled vehicles must be compliant on both fuels. See, for example, 40 CFR 86.1811–01.

86.094–26, 86.001–26, 86.0004–26, 86.094–28, et al. In lieu of durability testing, these regulations provide that small volume manufacturers may be eligible to utilize EPA assigned deterioration factors to predict the emission rates at the end of a vehicle or engine's useful life. See Section IV.B.3.c for more information.

EPA requests comment as to whether the durability procedures that would be established under this proposal are appropriate for small and large volume conversion manufacturers. EPA also requests comment on whether the proposed procedures provide adequate assurance that the emission control systems in converted vehicles and engines will continue to function properly over time.

#### 5. Warranty

The CAA requires manufacturers to warrant that a vehicle or engine is (1) designed, built, and equipped to conform to applicable regulations and (2) free from defects in material and workmanship which cause the vehicle or engine to fail to conform to applicable regulations for its useful life.<sup>37</sup> For light-duty vehicles, this defect warranty is applicable through two years or 24,000 miles of use (whichever first occurs).<sup>38</sup> Specified major emission control components, including catalysis, engine control units (ECUs), and OBD are warranted for eight years or 80,000 miles of use (whichever first occurs).<sup>39</sup> For Otto-cycle heavy-duty engines and vehicles (complete and incomplete) and light heavy-duty diesel engines, the warranty period is at least 5 years or 50,000 miles, whichever first occurs. For all other heavy-duty diesel engines, the warranty period is at least 5 years or 100,000 miles, whichever first occurs. For all heavy-duty engines the warranty period may not be shorter than the basic mechanical warranty period that the original equipment manufacturer provides.<sup>40</sup> Conversion manufacturers must accept in-use liability for warranty and recall as a condition for gaining exemption from tampering under EPA's current aftermarket conversions certification program.

EPA would continue to apply this approach to in-use liability for warranty under the revised clean alternative fuel conversions program being proposed today. Under this policy, the clean alternative fuel conversion manufacturer would normally be held accountable for fixing problems that

occur as the result of conversion, while the OEM would generally retain responsibility for the performance of any parts or systems that retain their original function following conversion and are unaffected by the conversion. It is important that both clean alternative fuel conversion manufacturers and consumers understand these provisions because they could result in a transfer of warranty liability for certain failed components from the OEM to the converter. A reasonable indicator of cause and accountability might be whether the failure of the part or system is also occurring in non-converted configurations of the same vehicle. If so, the problem is most likely not related to conversion and the OEM would typically remain liable for performing repairs. If only converted vehicles are experiencing the problem, it would be appropriate to trace the problem to the conversion and to hold the converter responsible for warranty repairs. These views are consistent with the liability provisions in the existing subpart F regulations.<sup>41</sup> EPA seeks comment on the best way to inform consumers about the possibility that converting their vehicle or engine, even with an EPA compliant system, may transfer portions of their OEM warranty liability to the converter.

#### 6. Other Provisions Applicable to Conversion Manufacturers

As stated above, all clean alternative fuel conversion manufacturers would continue to be subject to labeling, warranty, and certification requirements applicable to new vehicle and engine manufacturers in 40 CFR parts 85 and 86.<sup>42</sup> In addition, there are recall and defect reporting requirements in 40 CFR 85.503 and 85.504 which would also continue to apply.

Conversion manufacturers are subject to the recall regulations in 40 CFR part 85, subpart S and the emission defect reporting requirements in 40 CFR part 85, subpart T. If EPA determines that a substantial number of vehicles or engines in a class or category do not meet applicable emission standards in actual use even though they are properly maintained and used, EPA can require the manufacturer to recall and fix affected vehicles.<sup>43</sup> All manufacturers are also required to report to EPA certain defects affecting emission-related parts.

Sections 206, 207 and 208 of the Act authorize EPA to establish procedures to ensure that production vehicles and

engines comply with emission standards when they are new and continue to comply with emission requirements after they are in customer service. These provisions provide EPA broad authority to conduct testing as the Administrator deems necessary to monitor in-use vehicle and engine compliance. EPA intends to extend these emission testing programs to cover clean alternative fuel conversions as well as OEM vehicles.

#### 7. Misapplication

EPA may revisit the age-based approach being proposed today should there at any time be evidence of widespread conversion system misapplication that can be traced to differences among the age-based demonstration or notification requirements. For example, if exempted outside useful life conversion systems are commonly marketed to vehicles that are still within their useful life, EPA would not only consider the misapplication to be tampering, but would also consider revising this rule to eliminate or constrain the age-based demonstration approach.

#### H. Regulatory Procedures for Small Volume Manufacturers and Small Volume Test Groups

EPA regulations afford certain flexibilities to small volume manufacturers in recognition of special compliance challenges they may face. The clean alternative fuels industry has historically been comprised of companies that qualify for small volume manufacturer status. Existing eligibility criteria and special procedures available to small volume conversion manufacturers, along with changes under today's proposal, are discussed below.

##### 1. Definition of Small Volume Manufacturers, Small Volume Test Groups, and Small Volume Engine Families

###### a. Light-Duty and Heavy-Duty Complete Vehicle Small Volume Manufacturers and Small Volume Test Groups

EPA has regulatory procedures specific to light-duty and heavy-duty complete vehicle small volume manufacturers and small volume test groups, set forth in 40 CFR 86.1838–01. A manufacturer is eligible for small volume manufacturer status for light-duty and heavy-duty complete vehicle procedures, if the manufacturer's annual model year motor vehicle and engine total sales volume in all States and territories of the United States (or aggregate sales volume for manufacturers in an aggregate

<sup>37</sup> 42 U.S.C. 7541.

<sup>38</sup> CAA section 207(i)(1).

<sup>39</sup> CAA section 207(i)(2).

<sup>40</sup> 40 CFR 86.004–2.

<sup>41</sup> 59 FR 48488.

<sup>42</sup> 40 CFR 85.504 and 59 FR 48478.

<sup>43</sup> CAA section 207(c).

relationship) is less than 15,000 units.<sup>44</sup> (For sales aggregation rules for related manufacturers, refer to 40 CFR 86.1839–01(b)(3)). A large volume manufacturer may also use small volume manufacturer certification procedures for test groups of vehicles which total less than 15,000 units. For small volume test group eligibility criteria for large volume manufacturers who participate in aggregate relationships, refer to 40 CFR 86.1838–01(b)(2) for more details.

#### b. Heavy-Duty Engine Small Volume Manufacturers

The EPA regulatory provisions for small volume heavy-duty engines are promulgated in 40 CFR 86.094–14, 86.096–14 and 86.098–14. Heavy-duty engine small volume manufacturer status is tiered. Certain procedures apply to manufacturers with aggregate sales of less than 301 units, and other procedures may apply to manufacturers with aggregate sales volumes less than 10,000 units. For sales aggregation rules, refer to 40 CFR 86.094–14(b)(2) and 86.094–14(b)(5).

#### 2. Assigned Deterioration Factors

All light-duty and heavy-duty complete vehicle small volume manufacturers or qualified small volume test groups are eligible to use assigned deterioration factors (DFs) in lieu of durability testing to predict emission rates at the end of a vehicle's useful life.<sup>45</sup> EPA assigned deterioration factors are authorized in 40 CFR 86.1826–01 and are periodically updated by EPA via manufacturer guidance letters.<sup>46</sup>

Heavy-duty engine small volume manufacturers may also be eligible for assigned DFs instead of conducting durability demonstrations.<sup>47</sup> Under the regulations, manufacturers with sales volumes of less than 10,000 units are eligible to use assigned DFs determined by EPA.

Because assigned deterioration factors are determined assuming the vehicle or engine is new, EPA proposes to allow small volume conversion manufacturers to use deterioration factors, proportionate to the vehicle or engine age under certain conditions. This would help create a level playing field for older vehicles and engines that have already experienced some of their

expected emissions degradation. EPA proposes that conversion manufacturers are eligible to use scaled DFs for vehicles or engines that have accumulated more than 10,000 miles. EPA proposes to allow a proportionate scaling of the EPA assigned deterioration factor, if applicable, to demonstrate compliance with the intermediate and/or full useful-life standards. See Section IV.B.3.c.i for more detail.

#### 3. Changes in Small Volume Manufacturer Status

If a conversion manufacturer's annual sales volume may surpass the threshold for small volume manufacturer or test group status for a given model year,<sup>48</sup> the conversion manufacturer must satisfy the regulatory requirements required for large volume manufacturers or test groups, even if the conversion manufacturer initially complied properly (in a previous model year) with the small volume requirements. Conversion manufacturers should be aware that this status change could result in new demonstration and notification requirements involving new testing under both the new and intermediate age programs. EPA proposes to require conversion manufacturers to report to EPA the number of conversion systems they have sold annually in an end-of year submission.

A change from small volume status to large volume status could occur in several different situations. First, if a conversion manufacturer is required to recertify a vehicle or engine (see Section IV.A.4.c for an explanation of recertification) after a sales volume status change, all large volume test procedures and requirements would need to be conducted prior to the issuance of the new certificate. Second, if a small volume conversion manufacturer crosses the annual sales volume threshold and becomes a large volume conversion manufacturer, the conversion manufacturer would need to update their demonstration and complete all applicable large volume requirements for the intermediate age vehicle or engine conversions which are no longer eligible for small volume manufacturer or test group.

#### IV. Clean Alternative Fuel Conversion Program Details

As summarized earlier in this Notice, EPA is proposing to revise the demonstration and notification procedures for clean alternative fuel conversions based on the age of the vehicle or engine to be converted. All conversion manufacturers would be required to demonstrate to EPA that the conversion satisfies technical criteria to qualify as a clean alternative fuel conversion, but demonstration and notification requirements would be different depending on vehicle or engine age. The age-specific requirements are summarized in Table IV–1 and are presented in detail below.

The age-based demonstration and notification requirements that EPA is proposing stem from both legal and practical considerations. The proposed distinctions between the demonstration required for new, intermediate age, and outside useful life vehicles and engines address the issues posed by the absence of applicable emission standards for converted vehicles and engines that have exceeded full useful life. At the same time, the proposed approach recognizes that new vehicles and engines, at the time of conversion, should resemble the certified OEM configuration from the perspective of emissions degradation and should therefore be held to the same durability and deterioration factor demonstrations required for OEM certification. Intermediate age vehicles and engines fall between the new and outside useful life categories. While useful life standards still apply, certain certification requirements are no longer suitable for aging vehicles and engines.

As with demonstration protocols, EPA believes different notification protocols are appropriate for the three age classes. The proposed notification protocols reflect the level of detail EPA has determined to be necessary for conversion manufacturers to adequately document and for EPA to review the required emissions demonstration. The proposed age-based notification system would streamline the notification process and would create a simple system that both small and large conversion manufacturers could easily understand and follow.

<sup>44</sup> 40 CFR 86.1838–01.

<sup>45</sup> 40 CFR 86.1838–01(c)(1). Manufacturers not eligible for small volume manufacturer or small volume test group status are required to follow durability procedures in 40 CFR 86.1823–01, 86.1923–08, 86.1824–01, 86.1824–07, 86.1824–08, 86.1825–01, and 86.1825–08.

<sup>46</sup> The current light-duty light duty and heavy-duty complete vehicles assigned deterioration factor guidance document issued pursuant to 40 CFR 86.1826(b)(1)(ii) and (b)(2)(i)(c), is available electronically at [http://iaspub.epa.gov/otaqpub/display\\_file.jsp?docid=14285&flag=1](http://iaspub.epa.gov/otaqpub/display_file.jsp?docid=14285&flag=1). The current heavy-duty engine assigned deterioration guidance letter is available electronically at <http://>

[iaspub.epa.gov/otaqpub/display\\_file.jsp?docid=14183&flag=1](http://iaspub.epa.gov/otaqpub/display_file.jsp?docid=14183&flag=1).

<sup>47</sup> 40 CFR 86.094–14, 40 CFR 86.095–14, 40 CFR 86.096–14, 49 CFR 86.098–14.

<sup>48</sup> Manufacturers of conversion systems for intermediate age and outside useful life vehicles would use calendar year sales volume to determine small volume manufacturer status.

TABLE IV-1—OVERVIEW OF PROPOSED PROGRAM ELEMENTS <sup>49</sup>

Category	Vehicle/engine age		Conversion manufacturer requirement		Certificate of conformity	Compliance detail preamble section
	Applicability	Example for 2010 <sup>50</sup>	Demonstration	Notification		
New .....	MY > = current calendar year - 1.	MY 2009, 2010, 2011 and < useful life mileage.	Exhaust, Evap, and OBD testing <sup>51</sup> .	Certification Application.	Yes	IV.A
Intermediate age ....	MY < = current calendar year - 2 and within useful life.	MY 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008 and < useful life mileage.	Exhaust and Evap testing <sup>51</sup> + OBD attestation.	Data Submission <sup>52</sup>	No	IV.B
Outside useful life ...	Exceeds useful life	MY 2000 and older or > full useful life mileage.	See Sec. IV.C for options.	See Sec. IV.C for options <sup>52</sup> .	No	IV.C

*A. New Vehicle and Engine Clean Alternative Fuel Conversion Certification Program*

EPA proposes to require that conversions of new vehicles and engines (as defined for purposes of this preamble) <sup>53</sup> be covered by a certificate of conformity in order to qualify for an exemption from the tampering prohibition. EPA also proposes to allow, but not require, conversions of intermediate age vehicles and engines to qualify for an exemption from the tampering prohibition by obtaining a certificate of conformity (see Sections IV.A.1.b. and IV.B). Certification would satisfy the statutory tampering exemption prerequisites that the conversion is “for use of a clean alternative fuel” and that the converted vehicle “complies with the applicable standards under section 202.” <sup>54</sup>

EPA believes that certification of clean alternative fuel conversions remains an appropriate demonstration of compliance with useful life standards for new vehicles and engines. New vehicles and engines have not yet experienced deterioration and are still likely to be representative, for purposes of emissions, of the technical condition of the vehicle or engine that the OEM used for EPA certification. Thus the certification process is suitable for and may be directly applied to new vehicle

and engine clean alternative fuel conversions.

EPA also believes that a certification demonstration requirement for new vehicle and engine conversions is prudent to maintain a level playing field for OEMs and conversion manufacturers. We believe it is important to prevent the potential opportunity for an OEM to circumvent the new vehicle and engine certification process by choosing to certify and then convert a traditionally-fueled vehicle or engine rather than to certify it in an alternative fuel configuration in the first place. New vehicles represent the vast majority of clean alternative fuel conversion activity. For model year 2009, only two light duty vehicle fuel conversion certificates out of 60 were issued based on data from a vehicle that was more than one year old. EPA believes that a new vehicle and engine certification requirement would continue to cover most newly developed clean alternative fuel conversion systems and therefore would preserve existing EPA control over their technical viability and environmental performance. While new vehicle and engine clean alternative fuel conversion manufacturers would still be subject to certification requirements under today’s proposal, they would benefit from reduced burden because the intermediate age compliance program (see Section IV.B) would allow conversion manufacturers to continue to sell their products as vehicles and engines age without renewing certificates and paying certification fees after vehicles and engines are about two years old. <sup>55</sup>

This proposal leaves the existing regulatory procedures for demonstration, notification, and

<sup>55</sup> Conversion manufacturers would be able to use their certification data to qualify for a tampering exemption under the intermediate age vehicle/engine program described in Section IV.B.

compliance documents relatively unchanged for clean alternative fuel conversion of new vehicles and engines. The demonstration of compliance with applicable standards would use the same certification procedures required of conversion manufacturers under the existing subpart F regulations with a few technical amendments and other allowances. <sup>56</sup> The notification process in existing subpart F regulations would also remain unchanged for conversion of new vehicles and engines. Conversion manufacturers would continue to submit applications, including test data, certification fees, and other required information to EPA on an annual basis. The compliance document, a certificate of conformity, would also remain unchanged for conversion of new vehicles and engines.

1. Applicability

a. New Vehicles and Engines

EPA proposes to define “new and relatively-new” (as discussed above in Section I in this preamble we refer to “new and relatively-new” vehicles and engines as “new”) vehicle or engine clean alternative fuel conversions as those for which the date of conversion is in a calendar year that is not more than one year after the original model year (MY) of the vehicle or engine. <sup>57</sup> For example, in calendar year 2010, certified conversion systems would be

<sup>56</sup> Technical amendment proposals are described in Section V. See section IV.B.3.c.i for a description of the proposed scaling of assigned deterioration factors for small volume manufacturers who conduct demonstration testing on a vehicle with over 10,000 miles.

<sup>57</sup> OEM model years are often introduced ahead of the calendar year. Thus, to calculate which conversions must be certified, subtract the original vehicle model year from the current calendar year. If the difference is one or less than one, then a certified conversion is required to qualify for the tampering exemption. If the difference is more than one, then the conversion may comply with the intermediate age or outside useful life provisions as applicable.

<sup>49</sup> See Section X of this preamble for more compliance details.

<sup>50</sup> This example is for Light-duty Tier 2 vehicles which have a useful life of 10 years or 120,000 miles.

<sup>51</sup> Exhaust and Evap refers to all exhaust emission testing and all evaporative emission and refueling emission testing required for new vehicle certification, unless otherwise excepted.

<sup>52</sup> EPA is proposing that the compliance notification process for intermediate age and outside useful life conversion would be electronic submission of data and supporting documents.

<sup>53</sup> See footnote 4.

<sup>54</sup> CAA 203(a)(3).

required for MY 2009, MY 2010, and MY 2011 vehicles or engines.

As stated previously, EPA believes that certification is an appropriate requirement for new vehicles and engines because their emissions and mileage accumulation still largely reflect the vehicle's condition at the time of OEM certification. For consumer and conversion manufacturer clarity, it makes sense to compare vehicle model year to the current calendar year. This can be accomplished by applying the formula presented in Table IV-1 above. In practice this means that certification would be required for vehicles or engines that are less than about two years old.

EPA is proposing an age threshold of less than about two years old for the new vehicle and engine certification requirement on the basis of historical conversion certification age patterns. EPA requests comment regarding whether EPA has properly identified the vehicle and engine age range for which certification is appropriate and should be required for conversions. In particular EPA requests emissions or other data to support comments suggesting a different age range than the proposed two year period.

#### b. Older Vehicles and Engines

Manufacturers of conversion systems for vehicles and engines that are older than the age range defined above for new vehicles and engines, but still fall within the original vehicle's or engine's useful life, may opt for certification as their demonstration of compliance with useful life standards. These systems are also eligible for the intermediate age notification program described in Section IV.B.

### 2. Test Groups, Engine Families and Evaporative/Refueling Families

#### a. Test Groups for Light-Duty and Heavy-Duty Complete Vehicles

##### i. Small Volume Manufacturers

In seeking to streamline the certification process for clean alternative fuel conversion manufacturer, EPA proposes to allow conversion manufacturers to combine several OEM test groups into larger conversion test groups, where the regulatory requirements of 40 CFR 86.1827-01 and 86.1820-01 are still satisfied. Test groups cannot span multiple durability groups.<sup>58</sup> However, all clean alternative fuel conversion manufacturers who meet the Small Volume Manufacturer criteria in 40 CFR 86.1838-01 are eligible to use EPA

assigned deterioration factors.<sup>59</sup> By default the assigned deterioration factors define the durability group. As such, EPA proposes to use select criteria in the durability group determination, 40 CFR 86.1820-01, the test group determination, 40 CFR 86.1827-01, and other additional criteria to allow OEM test groups to be combined into a single clean alternative fuel conversion test group.

Vehicles can be placed into the same clean alternative fuel conversion test group using good engineering judgment if they satisfy the following:<sup>60</sup>

- (1) Same OEM and OEM model year<sup>61</sup>
- (2) Same OBD group<sup>62</sup>
- (3) Same vehicle classification (*e.g.* light-duty vehicle, heavy-duty vehicle)
- (4) Engine displacement is within 15% of largest displacement or 50 CID, whichever is larger
- (5) Same number of cylinders or combustion chambers
- (6) Same arrangement of cylinders or combustion chambers (*e.g.* in-line, v-shaped)
- (7) Same combustion cycle (*e.g.* two stroke, four stroke, Otto-cycle, diesel-cycle)
- (8) Same engine type (*e.g.* piston, rotary, turbine, air cooled versus water cooled)
- (9) Same OEM fuel type (except otherwise similar gasoline and E85 flex fuel vehicles may be combined into dedicated alternative fuel vehicles)
- (10) Same fuel metering system (*e.g.* throttle body injection vs. port injection)
- (11) Same catalyst construction (*e.g.* beads or monolith, metal vs. ceramic substrate)
- (12) All converted vehicles are subject to the most stringent emission standards used in certifying the OEM test groups within the conversion test group

EPA requests comment on the proposed conversion test group criteria and what additional criteria, if any, should be considered to adequately ensure that models within a conversion test group share emissions characteristics that would be similarly affected by the conversion system being

<sup>59</sup> 40 CFR 86.1826-01.

<sup>60</sup> Of the criteria listed above, #4-#6 are from 40 CFR 86.1827-01(a) and #7-#11 are from 40 CFR 86.1820-01. To provide flexibility in combining OEM test groups, this proposal does not include the precious metal composition and catalyst grouping statistic criteria in CFR 86.1820-01.

<sup>61</sup> Aftermarket fuel conversion manufacturers would continue to be able to use carry-over of test results from one model year to the next if the OEM exercised such flexibility in accordance with EPA regulations.

<sup>62</sup> On rare occasion, an OEM test group contains multiple OBD groups. When this occurs, EPA proposes to allow the conversion test group to include the multiple OBD groups that are covered by the OEM test group.

certified. EPA also requests comment on whether the data generated from a worst case EDV will adequately represent the proposed allowable fuel conversion test groups.

##### a. Dual-Fuel Vehicle Carry-Across Procedures for Small Volume Manufacturers

As described in Section III.G.1.c, dual-fuel vehicles cannot be certified to different standards for each fuel. However, if the vehicles would otherwise meet the test group criteria described above, the exhaust emissions test data for the new, alternative fuel from dual-fueled emission data vehicles could be carried across to vehicles which otherwise meet the test group criteria above. Test data can only be carried across if the data demonstrate compliance with the most stringent standard among the vehicles to which it is being applied. This means that for dual-fuel conversions a manufacturer would have to apply for multiple certificates if the OEM vehicles in the proposed test group combination were originally certified to different standards; however, the data acquired on the alternative fuel may be applicable to multiple certificates when the test group criteria above are otherwise met and the data demonstrate that the most stringent standard within the group is met.

##### ii. Large Volume Manufacturers

Large volume manufacturers must create test groups according to the regulations in 40 CFR 86.1827-01. As required by these regulations, the manufacturer must first create durability groups pursuant to 40 CFR 86.1820-01, and then divide those groups into test groups for the purposes of exhaust emissions testing.

#### b. Engine Families for Heavy-Duty Engines

##### i. Small Volume Manufacturers

In seeking to streamline the certification process and maintain consistency with the policy for light-duty vehicles, EPA proposes to allow combinations of several original OEM engine families into larger conversion engine families. Engines can be placed into the same clean alternative fuel conversion engine family using good engineering judgment if they satisfy the following:<sup>63</sup>

- (1) Same OEM
- (2) Same OBD group after 2013

<sup>63</sup> These proposed criteria are consistent with the 2009 guidance letter, CISD 09-14, which can be accessed electronically at [http://iaspub.epa.gov/otaqpub/display\\_file.jsp?docid=20194&flag=1](http://iaspub.epa.gov/otaqpub/display_file.jsp?docid=20194&flag=1).

<sup>58</sup> 40 CFR 86.1827-01.

(3) Same service class (e.g. light heavy-duty diesel engines, medium heavy-duty diesel engines, heavy heavy-duty diesel engines)

(4) Engine displacements is within 15% of largest displacement or 50 CID, whichever is larger

(5) Same number of cylinders

(6) Same arrangement of cylinders

(7) Same combustion cycle

(8) Same method of air aspiration

(9) Same fuel type (e.g. diesel/gasoline)

(10) Same fuel metering system (e.g., mechanical direct or electronic direct injection)

(11) Same catalyst/filter construction (e.g., metal vs. ceramic substrate)

(12) All converted vehicles are subject to the most stringent emission standards. For example, 2005 and 2007 heavy-duty diesel engines may be in the same family if they meet the most stringent (2007) standards

(13) Same emission control technology (e.g., internal or external EGR)

#### a. Dual-Fuel Engine Carry-Across

Heavy-duty dual-fuel engines cannot be certified to different standards for each fuel.<sup>64</sup> However, if the engines would otherwise meet the engine family criteria described above, the exhaust emissions test data for the new, alternative fuel from dual-fueled test engines could be carried across to engines which otherwise meet the engine family criteria above. Test data can only be carried across if the data demonstrates compliance with the most stringent standard among the engines to which it is being applied. This means that for dual-fuel conversions, a manufacturer would have to apply for multiple engine family certificates if the OEM engines in the proposed engine family combination were originally certified to different standards; however, the data acquired on the alternative fuel may be applicable to multiple certificates when the engine family criteria above are otherwise met and the data demonstrates that the most stringent standard within the conversion engine family is met.

#### ii. Large Volume Manufacturers

All large volume heavy-duty engine manufacturers must create engine families as set forth in 40 CFR 86.001–24.

#### c. Evaporative/Refueling Families

Conversion manufacturers would be required to follow the regulatory provisions for designating evaporative

and refueling families. These provisions are located in 40 CFR 86.1821–01 for light-duty vehicles and heavy-duty complete vehicles and in 40 CFR 86.096–24(a)(12)–(13) for heavy-duty engines. If the clean alternative fuel conversion system continues to use the OEM evaporative/refueling emissions system in their original configurations, the conversion evaporative/refueling families will remain identical to the OEM evaporative/refueling families. If, however, the conversion requires a new evaporative/refueling system (as for pressurized fuels, such as CNG and LPG), then the conversion manufacturer may create a single evaporative/refueling family as long as the regulatory criteria for evaporative/refueling families are met. Small volume manufacturers may use EPA assigned evaporative/refueling deterioration factors in lieu of evaporative/refueling durability demonstrations.

Clean alternative fuel conversion evaporative families for dual-fueled vehicles and engines may not include vehicles and engines which were originally certified to different evaporative emissions standards.

#### 3. Certification Demonstration Requirements

EPA proposes that certification for clean alternative fuel conversions be based on the certification procedures specified in 40 CFR part 86, subpart A, B and/or S and 40 CFR part 1065 as applicable, subject to the exceptions and special provisions described in Section III.G.1.a and Section V, if applicable.

#### a. Exhaust Emissions

##### i. Light-Duty and Heavy-Duty Complete Vehicles

The exhaust emissions testing demonstration for light-duty and heavy-duty complete vehicles would be conducted on a test group basis. The worst-case emission data vehicle from each test group would be used to demonstrate compliance with the most stringent standards represented among the OEM vehicles when they were originally certified. All exhaust certification requirements and test procedures which are required in regulations for OEM certification would be required for fuel conversion certification. Test procedures and certification requirements are currently located in 40 CFR part 86, subparts B and S.

The certification test procedures for conventionally-fueled vehicles include test cycles designed to represent a variety of “real world” driving conditions. One of these, the US06 test

procedure and drive cycle, is intended to emulate high speeds, aggressive accelerations, and other typical driving patterns not captured by the FTP (Federal Test Procedure). The US06 drive cycle is required for conventionally-fueled vehicles, but alternative fuel vehicles were excepted from the current regulations.<sup>65</sup> It has been suggested that the US06 exhaust emissions test is valuable for confirming catalyst protection when vehicle operation results in high exhaust temperatures. EPA seeks comment about the need to add a US06 demonstration or statement of compliance with the US06 standard to the exhaust certification demonstration requirement for clean alternative fueled vehicle conversions.

##### ii. Heavy-Duty Engines

The exhaust emissions testing demonstration for heavy-duty engines would be conducted on an engine family basis. The worst-case emission data engine from each engine family would be used to demonstrate compliance with the most stringent standards represented among the OEM engines when they were originally certified. All exhaust certification requirements and test procedures which are required in regulations for OEM certification would be required for fuel conversion certification. Test procedures and certification requirements are currently located in 40 CFR part 86 and part 1065.

#### b. Evaporative/Refueling Emissions

EPA proposes to retain the evaporative and refueling emissions test procedures and requirements promulgated in 40 CFR part 86 and part 1065 as the demonstration requirement for clean fuel conversion certification. Please see the technical amendments discussed in Section V for fuel-specific amendments that apply to conversions to CNG (or LNG), LPG, or hydrogen fuels.

#### c. Durability Demonstration and Assigned Deterioration Factors

##### i. Small Volume Manufacturer Assigned Deterioration Factors

##### a. Light-Duty and Heavy-Duty Complete Vehicles

As noted in Section III.H.2 above, small volume light-duty and heavy-duty complete vehicle manufacturers and eligible small volume test groups are permitted to use EPA-assigned deterioration factors in lieu of exhaust and evaporative/refueling durability

<sup>64</sup> See Section III.G.1.c.

<sup>65</sup> 61 FR 54871 (Oct. 22, 1996).

demonstrations. If the emission data vehicle (EDV) has accrued more than 10,000 miles, we propose to allow the conversion manufacturer to utilize the scaled assigned deterioration factors described in Section IV.B.3.c below.<sup>66</sup>

#### b. Heavy-Duty Engines

For consistency with light-duty vehicles, EPA also proposes that heavy-duty engine manufacturers who are eligible to use EPA assigned deterioration factors would be permitted to use scaled assigned deterioration factors when the emission data engine has accrued more than 10,000 miles.

#### ii. Large Volume Manufacturer Durability Procedures

Large volume manufacturers would be required to conduct all applicable durability testing demonstrations.

#### d. On-Board Diagnostics

EPA believes that a fully functional OBD system is valuable in sustaining long-term emissions control and therefore proposes that the same OBD requirements that apply to OEMs would continue to apply to clean alternative fuel conversion systems. The certification demonstration would require a submission of emissions data to prove that the OBD continues to function and the Malfunction Indicator Light (MIL) illuminates at the proper thresholds as set forth in 40 CFR 86.1806–01, 86.1806–04, and 86.1806–05 for light-duty vehicles and heavy-duty complete vehicles. EPA also proposes that if an OEM heavy-duty engine was certified with an OBD requirement, the conversion should follow those requirements, unless an alternative fuel OBD requirement is otherwise excepted from the OBD regulations. Heavy-duty engine OBD requirements are promulgated in 40 CFR 86.007–17, 86.007–30, 86.010–18, and 86.010–38.

#### 4. Certification Notification Process

EPA proposes a conversion certification notification process based on the OEM certification procedures specified in 40 CFR part 86, as applicable. The proposed notification requirement is intended to continue to incorporate the entire OEM certification process. If the OEM process is amended in the future, the fuel conversion certification procedures would also change, unless specifically excepted. The following is a brief overview of the current light-duty and heavy-duty complete vehicle certification process,

<sup>66</sup> This is due in part to the Fuel Economy testing requirements which effectively limit the testing of vehicles with more than 10,000 miles.

but should not be considered an exhaustive list of all certification requirements:

1. Manufacturer requests an EPA manufacturer code and creates a data entry (Verify) account. Instructions for this are located at <http://www.epa.gov/otaq/verify/mfr-code.htm>.

Manufacturers are assigned an EPA certification representative.

2. Manufacturer contacts their assigned EPA certification representative to describe the certification plan, including a discussion on how emissions durability will be demonstrated.

3. Manufacturer conducts all testing, including exhaust emission testing, evaporative/refueling emission testing, and on-board diagnostics demonstrations.

4. Manufacturer enters data in web-based data entry system (Verify) and fills out a confirmatory testing waiver request to request a place in the EPA confirmatory testing queue.

5. EPA conducts confirmatory testing based on the need to test the first vehicle from a new manufacturer, a random selection of an emission data vehicle through the computerized Verify system, the desire to test a vehicle employing new technology, or other EPA reasons as appropriate.

6. Certification fees are paid to EPA. Reduced fees may be available. See <http://www.epa.gov/otaq/guidance.htm> for instructions and forms pertaining to fee payment.

7. Manufacturer submits an application for certification according to 40 CFR 86.1843–01 and 86.1844–01. The application must contain any applicable statements of compliance or attestations<sup>67</sup> and an OBD approval

<sup>67</sup> The certification process may permit several statements of compliance or attestations in lieu of test data. Some of these are found in the OEM certification regulations in 40 CFR part 86, subparts A and S and 40 CFR part 1065. In addition we are proposing attestation statements specific to conversion to a clean alternative fuel. These would include:

1. The test group or engine family converted to dual fuel operation retains all the OEM fuel system, engine calibration, and emission control system functionality when operating on the fuel with which the vehicle was originally certified.

2. The test group or engine family converted to dual fuel operation retains all the functionality of the OEM OBD system (if so equipped) when operating on the fuel with which the vehicle was originally certified.

3. The test group or engine family converted to dual fuel operation properly purges hydrocarbon vapor from the evaporative emission canister when the vehicles/engines are operating on the alternative fuel.

4. The test group or engine family converted to an alternative fuel has fully functional OBD systems (if the OEM vehicles or engines are OBD equipped) and therefore meet the OBD requirements in 40 CFR Part 86, subpart S or subpart A, as appropriate, when operating on the alternative fuel.

letter from the California Air Resources Board or an EPA OBD approval letter if the vehicle will be sold only in States which have not adopted the California emissions standards.

8. If EPA testing confirms that all standards are met, based on testing at the EPA NVFEL laboratory, or based on a review of the data submitted by the manufacturer if no EPA confirmatory testing is conducted, a Certificate of Conformity is issued to the manufacturer for the appropriate fuel conversion test group and evaporative emissions family of vehicles. The certificate is valid until December 31st of the model year on the certificate.

#### a. Re-Certification

Conversion manufacturers who wish to renew a certificate that has expired may re-certify the same conversion group in subsequent years using the same data. To re-certify, the manufacturer would update the cover page of the application, re-enter the necessary data into EPA's on-line data submission Web site, and submit the certification fees.

#### 5. In-Use Compliance

Clean alternative fuel conversion manufacturers are subject to in-use requirements. Many of these are described in Section III above, including warranty, defect reporting and recall requirements, as well as EPA's authority to perform in-use testing.

#### B. Intermediate Age Vehicle and Engine Compliance Program

EPA is proposing an alternative to certification to satisfy the compliance demonstration and notification requirements for vehicles and engines that are no longer new but still fall within their useful life.<sup>68</sup> The intermediate age vehicle and engine compliance program (intermediate age program) would require conversion manufacturers to demonstrate through testing that the converted vehicle or engine will continue to meet applicable standards through its useful life. Alternatively, to qualify for an exemption to the tampering prohibition, manufacturers could opt to certify conversion systems for intermediate age vehicles and engines as if they were new vehicles and engines. See Section IV.A.

<sup>68</sup> The original subpart F rulemaking weighed several options for useful life determination of a fuel converted vehicle or engine, and it was determined that the useful life of the original vehicle or engine would not be extended after fuel conversion. 59 FR 48488. This proposal leaves this determination unchanged.

The proposal to create an alternative to certification for intermediate age vehicle and engine conversion systems addresses EPA's interest in creating a streamlined compliance process that is appropriate for vehicles and engines that have been subject to real-world aging. EPA does not believe certification of intermediate age vehicles and engines is necessary because they are generally no longer representative of certification vehicles, as described in 40 CFR part 86, subpart S. EPA originally developed the certification test procedures for new OEM vehicles and engines. Typical OEM vehicles delivered to EPA for confirmatory testing are recently manufactured pre-production models with about 4,000 miles of engine and emission control system stabilization mileage. No OEM vehicles with more than 10,000 miles are tested for certification.<sup>69</sup>

The proposed program for intermediate age vehicles and engines maintains many of the existing certification test procedures, but departs from the existing subpart F requirements in several notable areas. The demonstration of compliance with applicable standards would use the same procedures required of certified conversion manufacturers for exhaust and evaporative emissions testing.<sup>70</sup> However, the OBD demonstration requirement would be significantly different. Instead of requiring OBD demonstration testing as required for certification, an attestation that the OBD system is fully functional would be required to meet the OBD demonstration requirement for conversion of an intermediate age vehicle or engine.<sup>71</sup> The notification process would also be significantly different for intermediate age vehicles and engines. Conversion manufacturers would still submit test data, attestations, and other required information to EPA; however the application process would be significantly streamlined. Certification fees would not be assessed unless EPA updates its fees rule in the future.<sup>72</sup> Conversion manufacturers participating in the intermediate age program would not receive a certificate of conformity. Rather, EPA would maintain a publicly available list identifying conversion

<sup>69</sup>This is due in part to fuel economy testing regulations which limit the accrued mileage for a fuel economy test vehicle to 10,000 miles. 40 CFR 600.007-08(b)(1).

<sup>70</sup>The technical amendment proposals described in Section V and the proposed scaling of assigned deterioration factors described in section IV.B.3.c.i would be available.

<sup>71</sup>See Section IV.B.4 for more information about the required OBD attestations.

<sup>72</sup>CFR part 1027.

systems that have satisfied the intermediate age demonstration and notification requirements, and that therefore have qualified for the tampering exemption.

#### 1. Applicability

Vehicles and engines would become eligible for the intermediate age compliance program when the date of their conversion is in a calendar year that is at least two years after the original model year of the vehicle or engine, *i.e.* when they are about two years old. For example, in calendar year 2010, model year 2008 and earlier vehicles and engines would be eligible for the intermediate age program.

EPA proposes that manufacturers of conversion systems for vehicles and engines that are outside their full useful life may also use the intermediate age program as a demonstration sufficient to qualify for the clean alternative fuel conversion exemption from tampering. Conversion manufacturers that choose to participate in the intermediate age program would need to demonstrate compliance with the full useful life standards, even if the vehicle or engine has surpassed its useful life in age or mileage. In that case it would not be required to generate or use deterioration factors.

#### 2. Test Groups/Engine Families and Evaporative/Refueling Families

##### a. Test Groups for Light-Duty and Heavy-Duty Complete Vehicles

##### i. Small Volume Manufacturer Test Groups

EPA proposes that small volume manufacturers of conversion systems for intermediate age vehicles be permitted some additional flexibility in creating test groups to which the conversion is applicable. The primary difference between proposed test group criteria for the new and intermediate age programs is the elimination of the OBD group criterion under the intermediate age program. Vehicles can be placed into the same clean alternative fuel conversion test group using good engineering judgment if they satisfy the following:

- (1) Same OEM and OEM model year<sup>73</sup>
- (2) OBD still functional<sup>74</sup>
- (3) Same vehicle classification (*e.g.*, light-duty vehicle, heavy-duty vehicle)

<sup>73</sup>Aftermarket fuel converters are currently permitted to use carry-over of test results from one model year to the next if the OEM exercised such flexibility in accordance with EPA regulations.

<sup>74</sup>Note that a functional OBD system means that it must not be disabled, there are no false MILs or false DTCs, and all readiness flags must be set.

(4) Engine displacement (within 15% of largest displacement or 50 CID, whichever is larger)

(5) Same number of cylinders or combustion chambers

(6) Same arrangement of cylinders or combustion chambers (*e.g.*, in-line, v-shaped)

(7) Same combustion cycle (*e.g.*, two stroke, four stroke, Otto-cycle, diesel-cycle)

(8) Same engine type (*e.g.*, piston, rotary, turbine, air cooled versus water cooled)

(9) Same OEM fuel type (except otherwise similar gasoline and E85 flex fuel vehicles may be combined into dedicated alternative fuel vehicles)

(10) Same fuel metering system (*e.g.*, throttle body injection vs. port injection)

(11) Same catalyst construction (*e.g.*, beads or monolith, metal vs. ceramic substrate)

(12) All converted vehicles are subject to the most stringent emission standards used in certifying the OEM test groups within the conversion test group

EPA especially seeks comment regarding whether the 15% engine displacement criterion should apply to intermediate age vehicles and engines. EPA seeks comment on allowing additional flexibility by permitting combinations of vehicles based on any other criteria. EPA would like to receive relevant data supporting any combination suggestions.

##### ii. Large Volume Manufacturers

EPA proposes to allow large volume manufacturers the same test group combination flexibility as small volume manufacturers when designating intermediate age vehicle test groups. See Section IV.B.2.a.i for details. However, large volume manufacturers are required to conduct durability testing, as noted below.

##### iii. Dual-Fuel Vehicle Carry-Across

Under the proposed rule, dual-fuel vehicles which have different standards would need to create a separate submission to EPA for each OEM test group with different standards. However, as is described above in Section IV.A.2.a.i.a, test data from an emission data vehicle on the alternative fuel may be used to satisfy the demonstration requirement of multiple OEM test groups if the conversion test group criteria described above are otherwise met and the data demonstrate compliance with each standard.

b. Engine Families for Heavy-Duty Engines

i. Small Volume Manufacturers

EPA proposes to allow the same engine family combination criteria that are described in Section IV.A.2.b.i for clean alternative fuel conversion of new engines.

ii. Large Volume Manufacturers

EPA proposes to allow large volume manufacturers the same flexibility as small volume manufacturers when designating intermediate age heavy-duty engine families. See Section IV.B.2.b.i for details. However, large volume manufacturers are required to conduct durability testing.

iii. Dual-Fuel Engine Carry-Across

EPA proposes to allow the same data carry-across procedures for intermediate age dual-fuel engines described in Section IV.A.2.b.i.a.

c. Evaporative/Refueling Families

EPA proposes that evaporative family criteria under the intermediate age program remain as provided in 40 CFR part 86. If the OEM evaporative system is no longer functionally necessary (e.g., conversion to dedicated CNG or LPG), then conversion manufacturers may create new evaporative conversion groups following the criteria in 40 CFR 86.1821-01 for light-duty and heavy-duty complete vehicles and 40 CFR 86.096-24(a)(12)-(13) for heavy-duty engines. Clean alternative fuel conversion evaporative/refueling families for dual-fueled vehicles cannot include vehicles that were originally certified to different evaporative emissions standards.

3. Demonstration Requirements

EPA proposes that the demonstration requirements for clean alternative fuel conversions be based on the certification procedures specified in 40 CFR part 86, subparts A, B and/or S and 40 CFR part 1065 as applicable, subject to the exceptions and special provisions described in this section, Section III.G.1.a and Section V, if applicable.

a. Exhaust Emissions

Exhaust emissions testing demonstration is conducted on a test group (light-duty) or engine family (heavy-duty) basis. The worst-case emission data vehicle or engine from each test group or engine family would be used to demonstrate compliance with the most stringent standards represented among the OEM vehicle or engines when they were originally certified. All exhaust demonstration requirements and test procedures which are required in regulations for OEM certification would be required for fuel conversion compliance. Test procedures and other requirements are currently located in 40 CFR part 86, subparts A, B, C, O, P, S and 40 CFR part 1065.

b. Evaporative/Refueling Emissions

The acceptable test procedures to demonstrate that a vehicle or engine will meet evaporative standards during normal vehicle operation, including refueling, are specified in 40 CFR part 86 and part 1065. EPA proposes that these test procedures and other requirements continue to apply for the intermediate age vehicle and engine fuel conversion program. Please see the technical amendments discussed in Section V for fuel-specific amendments which apply to conversions to CNG (or LNG) and LPG or hydrogen fuels.

c. Durability Demonstration and Assigned Deterioration Factors

i. Small Volume Manufacturers

As noted in Section III.H.2 above, small volume manufacturers and eligible small volume test groups are permitted to use EPA-assigned deterioration factors in lieu of exhaust and evaporative/refueling durability demonstrations. EPA proposes to continue this practice for purposes of evaluating conversion systems that will be applied to intermediate age vehicles and engines. In addition, EPA is proposing a new concept which would be applicable to emissions data vehicles and engines with more than 10,000 miles. EPA proposes to allow small volume manufacturers to use "scaled deterioration factors." Scaled deterioration factors would be derived

using current assigned deterioration factors to determine mileage applicable deterioration factors from 10,000 miles through intermediate useful life and from intermediate useful life through full useful life.<sup>75</sup> Although the actual rates of emissions deterioration from 10,000 miles to intermediate useful life and from intermediate useful life to full useful life may vary, EPA may assume a linear increase of emissions with increasing mileage in order to facilitate a simple scaling of the EPA-assigned deterioration factors. In the future, EPA may adjust these scaled assigned deterioration factors if we find the rate of deterioration non-constant or the rate differs by fuel type. Mathematically, a constant rate of deterioration can be expressed as:

$$\frac{\Delta \text{Mileage}}{\Delta \text{gpm}} = \text{Constant} \quad (\text{Eq. 1})$$

**Note:** This does not mean that the deterioration factor increases linearly with mileage. The equation assumes that the grams of pollutant per mile increases at a constant rate as vehicle mileage increases.

In addition to this primary assumption, EPA proposes to use these two definitions:

$$(1) \quad ADF(FUL) = \frac{FULgpm}{INITgpm} \quad (\text{Eq. 2})$$

$$(2) \quad SDF(FUL) = \frac{FULgpm}{MGgpm} \quad (\text{Eq. 3})$$

Where:

*ADF(FUL)* is the full useful life assigned multiplicative deterioration factor (DF).

*FULgpm* is the grams per mile of pollutant projected at full useful life.

*INITgpm* is the grams per mile of pollutant measured at the beginning of the vehicle or engine's useful life.

*SDF(FUL)* is the scaled full useful life multiplicative DF.

*MGgpm* is the grams per mile of pollutant at the actual mileage of emission data vehicle or engine.

Based on the assumption in equation 1:

$$\frac{FULMG - MG}{INITgpm - MGgpm} = \frac{FULMG - INITMG}{FULgpm - INITgpm}$$

<sup>75</sup> Intermediate standards only apply to those vehicles originally certified with intermediate standards.

Where:  
*FULMG* is the appropriate full useful life mileage.

*MG* is the actual mileage of the emission data vehicle or engine.  
*INITMG* is the mileage at the beginning of the useful life. Note that this value is zero for

heavy-duty vehicles, since evaluation is done at the zero-hour level.  
 From this expression, equations 2 and 3 can be used to ultimately arrive at:

$$SDF(FUL) = \frac{FULMG - INITMG}{FULMG - INITMG - (FULMG - MG) \left( 1 - \frac{1}{ADF(FUL)} \right)} \quad (\text{Eq. 4})$$

This equation shows how the scaled full useful life multiplicative DF can be calculated using the emissions data vehicle or engine mileage and the

assigned full useful life multiplicative DF.

By carrying out the same processes, scaled intermediate useful life of

deterioration factors, where applicable, can be determined by the expression:

$$SDF(MID) = \frac{MIDMG - INITMG}{MIDMG - INITMG - (MIDMG - MG) \left( 1 - \frac{1}{ADF(MID)} \right)} \quad (\text{Eq. 5})$$

Where:  
*SDF(MID)* is the scaled intermediate useful life multiplicative DF.

*MIDMG* is the intermediate useful life mileage.  
*ADF(MID)* is the intermediate useful life assigned multiplicative DF, where applicable.

In the same manner, additive scaled deterioration factors could also be derived. The resulting equations are:

$$ASDF = ODF \left( \frac{MG - INITMG}{FULMG - INITMG} \right) \quad (\text{Eq. 6})$$

Where:  
*ODF* is the OEM's original additive DF and *ASDF* is the additive scaled deterioration factor.

EPA proposes using equations 4, 5 and 6 to scale deterioration factors of vehicles with more than 10,000 miles used in the testing of clean alternative fuel conversions, for demonstration of compliance with exhaust and evaporative/refueling emissions standards. Only the derivation of the full useful life scaled additive deterioration factor is presented. However, the derivation of the intermediate useful life scaled additive deterioration factor would follow the same process.

#### ii. Large Volume Manufacturer Durability Procedures

##### a. Light-Duty and Heavy-Duty Complete Vehicles

Durability testing would be required for large volume manufacturers of clean alternative fuel conversions of intermediate age vehicles. EPA proposes that durability groups for intermediate age vehicles would be designated using the provisions set forth in 40 CFR 86.1820-01, except the durability grouping criteria for intermediate age

vehicles need not include the precious metal composition and catalyst grouping statistic criteria, since they are not included in the test group criteria for clean alternative fuel conversions.

##### b. Heavy-Duty Engines

Durability testing would be required for large volume manufacturers of clean alternative fuel conversions for intermediate age engines.

##### d. On-Board Diagnostics

EPA believes the proper functioning of an OBD system is essential to ensure continued emission compliance of an aging vehicle or engine. However, EPA proposes that the demonstration of OBD compliance for intermediate age vehicles and engines may be streamlined relative to the current certification requirements. In lieu of the OBD demonstration test data requirement, EPA proposes to allow manufacturers of intermediate age clean alternative fuel conversion systems to attest that the OBD system on the converted vehicle or engine will continue to properly detect and identify malfunctions in all monitored emission-related systems or components consistent with 40 CFR part 86 OBD requirements, including any new

monitoring capability to identify potential emission problems associated with the new fuel. These include but are not limited to: Fuel trim lean and rich monitors, catalyst deterioration monitors, engine misfire monitors, oxygen sensor deterioration monitors, EGR system monitors, if applicable, and vapor leak monitors, if applicable. The manufacturer would not be allowed to alias, remove, or turn off any applicable original OBD system monitor. Furthermore the malfunction indicator light system would be required to continue to function properly and not display an illuminated Malfunction Indicator Light unless system indicators or emission thresholds are truly being exceeded. EPA would also require readiness flags to be properly set for all monitors that identify any malfunction for all monitored components.

Additionally, EPA seeks comment on whether a readiness flag demonstration is appropriate for intermediate age vehicles. Such a demonstration could involve the same process proposed as "Option 3" demonstration for vehicles and engines outside of useful life. See Section IV.C.3.b for more details.

#### 4. Notification Process

For intermediate age clean alternative fuel conversions EPA proposes that converters complete and submit emission data vehicle information, test data, compliance statements and all other appropriate information using an electronic data submission form and process. EPA would provide information about the process through its Web site and other information dissemination mechanisms.

EPA would require the conversion manufacturer to enter information about the emission data vehicle or engine, emission results from the exhaust and evaporative emissions testing, including any permissible carry-over data, applicable exhaust and evaporative emissions standards and deterioration factors, and the OEM test groups or engine families and evaporative/refueling families for which the conversion system is intended. In this submission, EPA would allow conversion manufacturers to use the appropriate exhaust and evaporative emissions scaled deterioration factors for vehicles and engines with greater than 10,000 miles as described in Section IV.B.3.c.i to demonstrate that the converted vehicle meets the same standards to which the OEM vehicle or engine was certified.

The intermediate age program notification requirements would also include submission of any required compliance statements and other supporting documents such as an example label and packaging information, warranty provisions, and maintenance requirements. The specific set of necessary compliance statements will depend on the vehicle or engine category, the applicable standards, the alternative fuel type, and other factors.

The intermediate age vehicle and engine notification process would enable conversion manufacturers to submit statements of compliance or attestations instead of submitting test data for certain system features. Some of these compliance statements are found in the OEM certification regulations in 40 CFR part 86, subparts A and S and 40 CFR part 1065. In addition we are proposing attestation statements specific to conversion to a clean alternative fuel. These would include:

1. The test group or engine family converted to dual-fuel operation retains all the OEM fuel system, engine calibration, and emission control system functionality when operating on the fuel with which the vehicle or engine was originally certified.
2. The test group or engine family converted to dual-fuel operation retains

all the functionality of the OEM OBD system (if so equipped) when operating on the fuel with which the vehicle was originally certified.

3. The test group or engine family converted to an alternative fuel has fully functional OBD systems (if the OEM vehicles are OBD equipped) and therefore meets the OBD requirements in 40 CFR part 86, Subpart S when operating on the alternative fuel.

4. The test group or engine family converted to dual fuel operation properly purges hydrocarbon vapor from the evaporative emission canister when the vehicles or engines are operating on the alternative fuel.

5. The test group or engine family converted to an alternative fuel use fueling systems, evaporative emission control systems, and engine powertrain components that are compatible with the alternative fuel and that are designed with the principles of good engineering judgment.

EPA proposes that this information would be submitted electronically in a format specified by the Administrator. If the test results meet both the intermediate and full useful life standards, after applying the deterioration factors (*see* Section IV.3.c.i), all supporting documents are included, and all compliance statements are attested, then the conversion manufacturer may submit the test data form to EPA.

EPA will periodically update its list of conversion systems that have satisfied EPA demonstration and notification requirements. The exemption from the tampering prohibition is void *ab initio* if the conversion manufacturer fails to meet all of the requirements for the program. This is the case even if a submission has been made and the conversion system has been publicly posted.

#### a. Previously Certified Clean Alternative Fuel Conversion Systems

EPA proposes to allow manufacturers who have previously certified conversion systems for either new or intermediate age vehicles or engines to move those systems into the intermediate age program by using the intermediate age compliance process described above. The manufacturer would not need to generate new data but rather could re-submit the same data previously used for certification. The transfer option would apply only to vehicles/engines that meet intermediate age applicability criteria and that fall within the identical test group and evaporative family as those covered by the conversion certificate. Manufacturers who transfer previously

certified conversion systems to the intermediate age compliance program would no longer need to renew the certificate each year. Once transferred, the conversion system would no longer be listed as certified but rather would appear on EPA's list of conversion systems that are compliant for intermediate age vehicles.

#### 5. In-Use Compliance

Clean alternative fuel conversion manufacturers are subject to in-use requirements. Many of these are described in Section III above, including warranty, defect reporting and recall requirements, as well as EPA's authority to perform in-use testing.

#### C. Outside Useful Life Program

As discussed in Section II, vehicle and engine emission standards established under the CAA apply not only at the time of production but also until the vehicle or engine reaches an age or usage threshold known as "full useful life." EPA regulations defining useful life are found in 40 CFR part 86, subpart S. Once a vehicle or engine has exceeded the useful life threshold there is no longer a statutory or regulatory obligation to comply with the applicable standard. However, the prohibition against tampering in section 203(a)(3) still applies to vehicles and engines outside their useful life. Thus, it is important to provide a program that enables converters of older vehicles and engines to use the clean alternative fuel tampering exemption, provided that all requirements of the regulations are satisfied. We are proposing such a program through which manufacturers of clean alternative fuel conversion systems for outside useful life vehicles and engines can qualify for an exemption in order to avoid violating the tampering prohibition.

The absence of an applicable section 202 standard for vehicles and engines outside their useful life necessitates a different demonstration requirement than the demonstration of compliance with the applicable section 202 standard that we are proposing for conversion of vehicles and engines still within their useful life. There are several possible approaches to a demonstration that would help assure that outside useful life conversions are consistent with the CAA prohibition on tampering and do not cause environmental degradation. EPA intends to finalize a single demonstration requirement for outside useful life vehicles and engines but we are seeking comment on three options described below. EPA requests comment on all aspects of the outside useful life demonstration options and especially

on the relative advantages and disadvantages of each of the options with regard to clarity of what would be required, ability of conversion manufacturers to satisfy the demonstration requirement, quality of information EPA would receive to evaluate emissions performance and durability, and enforceability. Please note that while the demonstration requirement would differ among the three options, all other elements of the outside useful life program would be the same. The notification process would be the same under all options, as would the public listing of conversion systems qualifying for EPA-compliant status, much like the list that would be maintained for intermediate age vehicle and engine conversion systems. Also, under all options, the exemption from the tampering prohibition is void *ab initio* if the conversion manufacturer fails to meet all of the requirements for the program. This is the case even if a submission has been made and the conversion system has been publicly posted.

#### 1. Applicability

Clean alternative fuel conversion of vehicles and engines that have exceeded their useful life are eligible for the outside useful life program. As vehicle and engine technologies have advanced and changed, so have the regulatory definitions for useful life. Please refer to Section II.B for current useful life references.

Manufacturers of conversion systems for outside useful life vehicles may also qualify for exemption from the tampering prohibition through the intermediate age vehicle and engine compliance program. See Section IV.B.

EPA requests comment on whether to establish a subcategory of outside useful life vehicles and engines that reach the applicable mileage threshold for outside useful life status before they reach the applicable age threshold in years (see Section II.B for discussion of useful life). The reason to consider establishing a subcategory of “younger” outside useful life vehicles and engines that might be subject to a demonstration requirement much like the intermediate age requirement is that the on-road fleet will include both inside- and outside-useful life vehicles/engines of the same model year and test group/engine family. This presents a potential opportunity for misapplication and inappropriate marketing of conversion systems developed for outside useful life vehicles or engines. These outside useful life conversion systems could be inappropriately marketed and misapplied to vehicles and engines that

are still within useful life. This type of inappropriate marketing and misapplication presents practical challenges for enforcement.

#### a. Outside Useful Life Subcategory Option

The outside useful life subcategory option would create two subcategories of outside useful life vehicles and engines. One subcategory would include vehicles and engines that have achieved outside useful life status because of their age in years. For this subcategory of vehicles and engines, EPA is soliciting comment on three demonstration options described in Sections IV.C.3.A, B, and C. A second subcategory of outside useful life vehicles or engines would include those that have achieved outside useful life status because of their mileage, but that have not yet reached the useful life age threshold in years. An example of a vehicle in the second subcategory would be a light duty vehicle with 125,000 miles that is five years old. This vehicle would have exceeded its useful life only because of its mileage. EPA is seeking comment on whether, for purposes of achieving exemption from the tampering prohibition for clean alternative fuel conversions, it is reasonable to establish a subcategory of outside useful life vehicles that have exceeded the useful life mileage threshold but that are still young in years. EPA further requests comment as to whether manufacturers of conversion systems for this subcategory of vehicles and engines should be required to satisfy a different demonstration requirement than would be required for conversion of vehicles/engines in the “old by years” outside useful life subcategory. Specifically, EPA requests comment about whether to establish the Option 2 demonstration requirement described in Section IV.C.3.a., below, for this subcategory of vehicles/engines, regardless of the demonstration option that is applied to the other outside useful life vehicles and engines (those that have qualified by years alone, or by years and mileage).

#### 2. Test Groups, Engine Families, and Evaporative/Refueling Families

EPA proposes that the same requirements and criteria for test groups, engine families, and evaporative refueling family designations as are proposed for intermediate age vehicles and engines would also apply to outside useful life vehicles and engines. See Section IV.B.2.

#### 3. Demonstration Requirements

As stated above, there are several possible approaches to a demonstration that would satisfy EPA’s interest in assuring that conversion of vehicles and engines beyond their useful life are for the purpose of conversion to a clean alternative fuel and do not cause environmental degradation. EPA is seeking comment on the three options below. All three options would require a demonstration that the conversion is technically viable and will not increase emissions; however, the means by which the conversion manufacturer could make that demonstration differs among the three options. EPA intends to finalize a single demonstration requirement, unless two subcategories of outside useful life vehicles are established in the final rule, in which case, EPA may finalize two demonstration requirements, one for each subcategory of outside useful life vehicles.

##### A. Option 1

Manufacturers of conversion systems for outside useful life vehicles and engines would satisfy the demonstration requirement by submitting to EPA a detailed description of the conversion system. The submission would need to provide a level of technical detail sufficient for EPA to confirm the conversion system’s ability to sustain acceptable emission levels in the intended vehicle or engine. Required technical information would include but not be limited to a complete characterization of exhaust and evaporative emissions control strategies, and specifications related to OBD system functionality. EPA would audit the submission and could require the conversion manufacturer to supply additional information, including test data, to support the claim that the technology involves good engineering judgment that is being applied for purposes of conversion to a clean alternative fuel.

Examples of the kind of information EPA would expect to be included in the demonstration could include test data, component or part specifications, technical descriptions or diagrams, and any other information necessary for EPA to evaluate the technical viability of the conversion system and the use of good engineering judgment in its design, such as information concerning:

*Exhaust Control System:* The original engine controller, sensors, actuators, catalysts and other emission control components would be connected and functional, and actively monitored by the OBD system.

*Evaporative Control System:* The alternative fuel system would be leak free and utilize materials compatible with the alternative fuel. Dual-fuel and flex-fuel vehicles would retain the components and the functionality of the OEM evaporative emission control system. For dual-fuel and flex-fuel systems the evaporative emission control system would purge the evaporative emission canister in a manner identical to the OEM designed purge system when the vehicle is operating on the alternative fuel.

*Fuel Delivery System:* The alternative fuel delivery system would employ technology that is at least equivalent in sophistication to the OEM fuel delivery system. For example, conversions of engines with multiple port injectors would need to employ alternative fuel systems with multiple port injectors; engines with throttle injection would need to use alternative fuel systems with throttle injection; OEM carbureted engines would be able to use alternative fuel systems with central air mixers. Conversions of OEM vehicles with closed loop feedback fuel control systems would be expected to have similar closed loop control systems to maintain stoichiometric air/fuel control. Acceptable fuel control could also be achieved by using a secondary electronic control unit which adjusts fuel injector pulse width based on existing sensor inputs and on the alternative fuel's properties. Good engineering design would preclude the use of driver actuated controls for engine starting or fuel adjustment, other than for selecting the fuel type for a dual-fuel vehicle.

*Durability:* A discussion of the durability of the alternative fuel system would be necessary to support a good engineering judgment determination. The conversion to a clean alternative fuel should not increase the deterioration rate of the exhaust or evaporative emission system components. Fueling system components whose material is known to prematurely deteriorate due to the alternative fuel's properties would need to be upgraded.

*OBD:* Good engineering judgment dictates that vehicles equipped with OBD systems produce no false MILs or diagnostic trouble codes during normal operation, nor may there be any modifications that prevent OBD readiness flags from being properly set while operating on the alternative fuel. The OBD system must properly detect and identify malfunctions in all monitored emission related powertrain systems or components including any new monitoring capability necessary to

identify potential emission problems associated with the alternative fuel.

#### *B. Option 2*

Manufacturers of conversion systems for outside useful life vehicles and engines would satisfy the demonstration requirement by conducting one of the following vehicle emissions testing protocols and submitting the results to EPA:

1. The manufacturer must submit data demonstrating that the vehicle or engine meets the exhaust and evaporative emissions standards that were applicable to the original vehicle within its defined useful life. This would be accomplished by following the demonstration requirements described for the intermediate age vehicle program (see Section IV.B).

2. The manufacturer must submit data from two sets of all the exhaust and evaporative/refueling testing applicable to alternative fueled vehicles and engines set forth in 40 CFR part 86 and part 1065, with the first test conducted before conversion and the second test after conversion. The data must demonstrate that emissions have not increased after conversion. The emission data vehicle(s) or engine(s) would need to be set to the manufacturer's tune up specification before the first test, and, apart from what is required of the normal conversion procedure, no additional adjustments to the vehicle would be allowed between the first and second set of tests.

The demonstration requirement under this option would also include a description of the OBD compliance strategy and a description of the good engineering judgment and technical information.

#### *C. Option 3*

Manufacturers of conversion systems for outside useful life vehicles and engines that were equipped with OBD systems in their OEM configuration would satisfy the demonstration requirement by submitting all materials required for the Option 1 demonstration requirement, along with a report containing OBD checks following conversion to the alternative fuel. This report must be based on the OBD information from the emission data vehicle or engine that is selected to represent the outside useful life program test group or engine family. Under EPA's proposed rule, conversion manufacturers must satisfy the good engineering judgment description in Section III.B of this proposal.

The OBD demonstration would involve using an OBD scan tool to clear

all readiness codes (set codes to "not ready"), driving the vehicle to trigger all codes to be set to ready, and then using an OBD scan tool to interrogate the OBD system.

Under Option 3, in addition to satisfying all requirements for good engineering judgment, clean alternative fuel converted vehicles and engines would be considered compliant if they pass the testing prescribed in 40 CFR 85.2222, except that § 85.2222 (c)(2) does not apply, and document this by means of a printable report from the OBD scan. If necessary, the evaporative emission readiness monitor may remain unset for conversions in which the original evaporative emissions system is no longer functionally necessary.

If not included in the OBD scan tool printout, the vehicle information number (VIN) would need to be provided with the scan tool report. 40 CFR 85.2222 provides for a test procedure which checks the status of OBD readiness monitors, checks to determine if the OBD MIL is functional (bulb check), checks for commanded-on MIL illumination, and if the MIL is commanded-on, the scan tool records all DTCs (diagnostic trouble codes). Any scan tool capable of collecting the information required by 40 CFR 85.2222 is considered acceptable under this option.

#### 4. Notification Process

Manufacturers of outside useful life conversion systems would use the same notification procedures to submit the required information as those proposed for the intermediate age vehicle and engine compliance program (see Section IV.B). The notification submission would include documentation of the required demonstration as well as labeling information and all appropriate attestation statements.<sup>76</sup>

#### *D. Alternate Registration Approach for Newer Outside Useful Life Vehicles and Engines*

EPA is requesting comment on an alternative approach that would be applicable to vehicles and engines that exceed the useful life threshold in mileage before they reach the threshold in years. An example of this type of vehicle would be a 2005 Dodge Caravan with 125,000 miles. Typically, an average 2005 model year Dodge Caravan would be driven 15,000 miles per year, and would have only 75,000 miles on the odometer in 2010, which would still

<sup>76</sup> The attestation statements to be reviewed and signed for the outside useful life program are identical to the attestation statements required for the intermediate age vehicle and engine compliance program. See Section IV.B.4.

be within useful life. These relatively new outside useful life (NOUL) vehicles and engines are distinguishable from those still within useful life only by checking the odometer. EPA is concerned that conversion system manufacturers might choose to forego the testing and compliance demonstrations required for the new and intermediate age vehicles and engines, and would instead register a conversion system for use on NOUL vehicles and engines only. However, EPA fears that conversion systems registered for NOUL vehicles and engines would be marketed to consumers of conversion systems for all vehicles of the same model year, regardless of their mileage. It would be difficult for EPA to monitor whether these conversion systems were ultimately installed only on outside useful life vehicles, and also difficult for conversion system installers and consumers to distinguish between conversion systems built for identical model year and model vehicles, where the only difference is that one conversion system is registered for use only on vehicles with mileage greater than useful life, and the other is registered for installation on all vehicles of the appropriate model year and model.

EPA is seeking comment on an approach under which the requirements for registration of conversion systems for NOUL vehicles and engines would be based on registration of intermediate age vehicles and engines of the same test group/engine family, or back-to-back testing. Under this approach for NOUL vehicles and engines, if the first option is taken, consumers and installers would be able to identify the appropriate registered conversion system by matching model year and model, without regard to the vehicle's mileage. We would expect the vast majority of conversion system manufacturers would take this option because they will wish to sell the same conversion system to intermediate age vehicle owners, and this one-size-fits all approach is cost-effective. We are providing the second option for conversion system manufacturers who may not be able to locate a suitable test vehicle that is still subject to the standards, or who plans to manufacture a conversion system for a targeted high mileage population. Under the second option, the conversion system supplier would need to perform back-to-back emission testing to demonstrate that the conversion does not degrade the performance of the emission control system. This approach is designed to be

efficient for the converter but would prevent the type of gaming described above, would provide a clearer choice for conversion system installers and consumers, and would make enforcement of these new requirements easier, benefitting responsible manufacturers and installers. This approach would not increase the burden on the vast majority of conversion system manufacturers because it is designed for testing efficiency, and EPA anticipates that most conversion system manufacturers would choose to find a test vehicle that is still within its useful life and go ahead with either the certification demonstration or the intermediate age demonstration option in order to maximize market coverage for products designed for a given model and model year of vehicle and engine.

#### 1. NOUL Vehicles and Engines Subcategory

##### a. Applicability

The NOUL approach would apply to vehicles and engines that exceed the useful life threshold in mileage before they reach the threshold in years.

##### b. Demonstration Requirements

Under the NOUL approach, manufacturers of conversion systems intended for NOUL vehicles or engines would be required to follow the same registration requirements and procedures that are established for intermediate age vehicles and engines in order to gain an exemption from the prohibitions in CAA section 203(a), or conduct back-to-back testing. In brief, the conversion system manufacturer would have two testing options for NOUL vehicles. Under the first option, the manufacturer would be required to locate a test vehicle that is still within useful life, in terms of both miles and years. The manufacturer would demonstrate that the inside-useful life test vehicle complies with applicable standards by using the same test procedures as those required of intermediate age conversion system manufacturers. The conversion system manufacturer would also perform the intermediate age vehicle and engine OBD compliance demonstration to prove continued compliance with OBD requirements and provide an attestation that the OBD system remains fully functional. All other requirements of the intermediate age vehicles and engines program would apply to this subcategory. Where a conversion system manufacturer has already registered a conversion system for intermediate age vehicles and engines for specific model years and models, that registration

would also apply to NOUL vehicles and engines. Under the second option, the conversion system manufacturer would perform two tests on a representative NOUL vehicle or engine using the Federal Test Procedure. The first test would be with the fuel for which the NOUL vehicle or engine was originally certified and prior to installation of the conversion system. The second test would be performed after the conversion system is installed and using the alternative fuel. The conversion system would qualify for the tampering exemption provided that the second test shows emissions that are equal to or less than the emissions from the first test, and all other registration requirements for the outside useful life program are met.

#### V. Technical Amendments

EPA is proposing several technical amendments to 40 CFR part 86, subpart S which are applicable to the exhaust and evaporative emission testing requirements for vehicles using gaseous alternative fuels. The purpose of these amendments is to allow flexibility in determining compliance with EPA non-methane organic material (NMOG) standards for vehicles, and also to allow statements of compliance in lieu of test data for meeting exhaust emission standards for formaldehyde (HCHO), and evaporative emissions. For purposes of this regulation, compressed natural gas (CNG) or liquefied natural gas (LNG), liquefied petroleum gas (LPG), or hydrogen fuels are eligible for the technical amendments described below.

EPA is seeking comment whether there are other test procedures in 40 CFR part 86 or part 1065 which should be updated to address concerns specific to certain alternative fuels.

##### A. Exhaust Emission Technical Amendments

NMHC Multiplicative Adjustment Factor—CFR section 86.1810–01(p) allows use of a multiplicative factor to convert non-methane hydrocarbon (NMHC) exhaust emissions to an equivalent NMOG result to demonstrate compliance with NMOG standards. Under current regulations, use of a multiplicative factor, such as the 1.04 value presented in 86.1810–01(p), is only applicable to gasoline fueled vehicles. At present, EPA regulations require hydrocarbon exhaust emission measurements from fuel types other than gasoline or diesel to use the California Air Resources Board NMOG speciation procedures. The speciation procedures are more expensive and

significantly more time consuming than a simple measurement of NMHC.

EPA proposes to amend 86.1810–01(p) to allow use of multiplicative factors that will permit a compliance demonstration with NMOG standards to be determined by measuring NMHC from vehicles fueled on CNG (or LNG), LPG, or hydrogen, and converting those measurements to an equivalent NMOG result by applying a multiplicative adjustment factor.

The multiplicative adjustment factors must be based on data and use of such factors must be approved in advance by EPA.

HCHO Compliance Statement—CFR section 86.1829–01(b)(1)(iii)(E) allows vehicle manufacturers to submit a statement of compliance in lieu of submitting HCHO test data to demonstrate compliance with HCHO exhaust standards for vehicles tested with gasoline or diesel. EPA proposes by technical amendment to allow such flexibility for CNG (or LNG), LPG, and hydrogen. Similar to what is currently required in 86.1829–01, manufacturers using CNG (or LNG), LPG, or hydrogen fuels may optionally make a statement of compliance for meeting HCHO standards if they have received approval to measure NHMC in lieu of actual NMOG.

### *B. Evaporative Emission Technical Amendments*

#### 1. Evaporative Emissions, Running Loss, Refueling Loss Compliance Statement

EPA is proposing to amend 40 CFR 86.1829–01(b)(2)(i) to allow waiver of evaporative emission reporting requirements, including running loss and refueling loss, and allow compliance with the requirements in 86.1811–04(e) for CNG (or LNG), LPG, or hydrogen fuels by making a compliance statement in the application for certification. 86.1829–01(b)(2)(i) already provides for allowing a compliance statement in lieu of submitting data to demonstrate compliance with evaporative emission standards in 86.1811–04(e). EPA has received inquiries about other types of gaseous fuels and this amendment simply clarifies that manufacturers using other hydrogen fuels may qualify for an evaporative emission statement of compliance. Compliance statements do not alleviate the OEM or aftermarket fuel converter from complying with evaporative emission, running loss and refueling standards in 86.1811–04(e). Compliance statements are expected to be supported by development testing data or other engineering data.

The rationale for allowing compliance statements for evaporative emission, running loss, or refueling emission requirements is based on the fact that gaseous fuel systems must be a closed fueling system, and therefore the expectation is that they have zero emissions. Allowing a statement of compliance for LPG refueling emissions is contingent that the LPG fuel tank has no open vent (sometimes referred to as an “outage” valve) during the refueling operation.

The flexibilities described above for evaporative emissions are consistent with EPA regulations published in the **Federal Register**, Volume 59, No. 182, September 21, 1994—Standards for Emissions From Natural Gas-Fueled and Liquefied Petroleum Gas-Fueled Motor Vehicles and Motor Vehicle Engines, and Certification Procedures for Aftermarket Conversions, but not explicitly incorporated in 40 CFR part 86, subpart S. Adding these technical amendments to section 86.1829–01(b)(2)(iv) will provide clarity to EPA regulations for OEM manufacturers and aftermarket fuel converters desiring to certify vehicles on gaseous fuels.

#### **VI. Environmental Effects**

As in the original subpart F rulemaking, 59 FR 48488 (September 21, 1994), the primary purpose of this proposal is to maintain emissions performance and air quality while removing a potential barrier to the commercial production of clean alternative fuel conversion systems. The Agency has not attempted to quantify the environmental effects of today’s proposal because the goal of this rulemaking is to preserve environmental benefits from existing EPA vehicle and engine standards by creating a clear, legal pathway for clean alternative fuel conversion while maintaining existing emissions control levels. Therefore the Agency’s best assessment of environmental impacts due to this rulemaking is that the environmental effects are at worst, neutral.

#### **VII. Associated Costs for Light-Duty and Heavy-Duty Complete Vehicles**

The cost associated with achieving a regulatory exemption from tampering for clean alternative fuel conversion under this proposal is expected to be less than the current cost of compliance. The amount of cost reduction will vary based on conversion technology, fuel type, vehicle or engine age, applicability, conversion manufacturer preference, and the manufacturer’s annual sales volume. The current baseline cost estimates are summarized in Section VII.A below. Additionally,

there are two vehicle-age dependent cost estimates summarized in Section VII.B and VII.C. for certified conversions (VII.B) and intermediate age vehicle conversions (VII.C).

The baseline and projected costs will also depend on the original vehicle or engine fuel and on the specific clean alternative fuel to which the vehicle is being converted. This cost analysis is intended to apply to conversions to any fuel. Some test procedures are not required for either dedicated CNG or LPG or dual-fuel gasoline/CNG or dual-fuel gasoline/LPG. Since more than 98% of the alternative fuel conversion certificates issued by EPA in 2007 and 2008 were for these types of conversions, EPA conversion requirements or testing exemptions which are specific to CNG and LPG are noted in a separate section. However, any description in this section which is not specified as applying to CNG or LPG specifically should be assumed to apply to all conversion fuels.

The current (baseline) and projected costs also depend upon the conversion manufacturer’s annual sales volume. Every current conversion manufacturer has sales volumes low enough to be eligible to use Small Volume Manufacturer certification procedures. EPA has no indication that manufacturers in this industry are approaching the eligibility limits of small volume status; therefore, this cost analysis will only describe baseline and projected costs for small volume.<sup>77</sup> If sales volumes were to increase such that manufacturer(s) surpassed small volume thresholds, EPA expects costs for large volume manufacturer fuel conversion compliance to remain unchanged or to decrease from the current (baseline) large volume manufacturer fuel conversion compliance costs.

In addition to testing costs and fees, cost estimates will include costs associated with creating applications for certification and submitting test data to EPA. EPA also analyzed the costs associated with confirmatory testing requirements at EPA. These costs include preparing a vehicle to test at the EPA, and shipping the vehicle to the EPA laboratory for testing. All hourly wage data for conversion manufacturer labor is based on the Bureau of Labor and Statistics.<sup>78</sup> All conversion manufacturers reported that a senior manager is conducting testing oversight and application preparation, so the labor rate for all conversion

<sup>77</sup> 40 CFR 86.1838–01.

<sup>78</sup> For electronic access to the Bureau of Labor and Statistics Data, see [http://www.bls.gov/oes/2008/may/oes\\_nat.htm#b11-0000](http://www.bls.gov/oes/2008/may/oes_nat.htm#b11-0000).

manufacturer labor is consistent across tasks. Engineering managers are reported to earn an average of \$57.97 per hour according to a May 2008 report by the Bureau of Labor and Statistics.<sup>79</sup> EPA has applied a suggested 100% labor overhead cost to all conversion manufacturer labor costs. In addition, EPA typically applies a 6.5% general and administrative overhead cost to all costs. Technology research and development costs were not considered in this analysis because these costs are not expected to change as a result of this rulemaking.

In general, conversion manufacturers try to apply one set of test data to as many vehicle makes and models as EPA will allow in order to minimize testing costs. Because costs can be scaled when certifying multiple test groups and/or multiple evaporative/refueling families, and conversion manufacturers each have different testing and compliance strategies and different target market plans, this analysis will derive the current cost of compliance (baseline costs) for converting vehicles based on the assumption that costs can be scaled when certifying multiple test groups and/or multiple evaporative/refueling families. The scaling factors were determined by the following applicable ratios: (1) Number of OEM exhaust test groups to number of OEM certificates and (2) number of OEM evaporative/refueling families to number of OEM certificates. This allowed EPA to create a scaled unit cost for each certificate which adequately represents that

manufacturers apply test data to multiple certificates. To create a real-world example, and allow a clear comparison of baseline versus projected costs of the proposed programs, this cost analysis ultimately compares the cost of fuel conversion for four OEM certificates after applying all appropriately scaled unit costs. This same logic was then used to derive the approximate cost of compliance for the vehicle fuel conversion of four OEM certificates under the proposed regulations, as described previously in this preamble.

*A. Baseline Costs (Cost of Current Compliance)*

Baseline costs will be derived by first determining the cost of one certificate without any scaled costs. These costs would be applicable if a conversion manufacturer chose to convert vehicles represented by only one OEM certificate. This is rarely done in practice because conversion manufacturers choose to take advantage of using one set of test data to apply to multiple certificates.

Next the baseline cost of one certificate will be calculated assuming the conversion manufacturers choose to take advantage of the application of data to multiple certificates. Average scaled costs are calculated on a unit basis of one certificate with scaled costs.

Lastly, EPA calculated the baseline cost of converting vehicles represented by four OEM certificates. This is done to create a real-world example which

allows a clear comparison for the cost reductions created by the changes proposed under this NPRM.

1. Costs of One Certificate Without Scaling Costs

Several aftermarket conversion manufacturers as well as an independent test lab were contacted to estimate the current aftermarket fuel conversion certification costs under 40 CFR, part 85 subpart F. The basic certification testing requirements included: (a) Demonstration of compliance with exhaust emissions on a test group basis: One FTP75 test and CO, NO<sub>x</sub>, and NMHC analysis; HCHO and NMOG speciation; one HFET NO<sub>x</sub> test; (b) Demonstration of compliance with evaporative/refueling emissions on an evaporative/refueling family basis: Hot soak, canister purge and 2 or 3 day evaporative emissions tests; and (c) Compliance with the Federal OBDII demonstration tests which is generally done at the Federal level on the same basis as the exhaust test group. Lodging, labor and general and administrative costs are appropriated to each requirement category in order to provide a clear examination of costs under the proposed programs.

a. Costs Associated With Exhaust Emission Testing (Test Group Basis)

All estimated independent test lab costs associated with exhaust emissions testing are listed in Table VII.A-1 and Table VII.A-2 below.

TABLE VII.A-1—EXHAUST EMISSIONS TESTING COSTS TYPICALLY INCURRED AT INDEPENDENT TEST LABS

	Average costs
Coast Down Coefficient Determination .....	\$360.00
One FTP75 Test and CO, NO <sub>x</sub> , NMHC Analysis .....	1,116.67
(NMOG Speciation)—Aldehydes and Ketones .....	1,500.00
(NMOG Speciation)—Alcohols .....	250.00
One HFET NO <sub>x</sub> Test .....	430.00
Exhaust Independent Test Lab Billable Labor Costs .....	702.50
<b>Total Exhaust Independent Test Lab Costs .....</b>	<b>4,359.17</b>

<sup>79</sup>For electronic access to the Bureau of Labor and Statistics Data, see [http://www.bls.gov/oes/2008/may/oes\\_nat.htm#b11-0000](http://www.bls.gov/oes/2008/may/oes_nat.htm#b11-0000).

TABLE VII.A-2—TOTAL ESTIMATED EXHAUST EMISSIONS TESTING COSTS FOR FUEL CONVERSION OF ONE OEM CERTIFICATE

[No scaling applied]

	Testing costs for one aftermarket fuel conversion certificate (no scaling for multiple certificates applied)
Total exhaust independent test lab costs .....	\$4,359.17
Total exhaust Mfr testing oversight labor costs (including 100% labor overhead) .....	1236.69
Lodging .....	280.00
Subtotal .....	5875.86
6.5% G & A .....	381.93
Total Cost for Exhaust Tests .....	6,257.79

b. Costs Associated With Evaporative/  
Refueling Emission Testing  
(Evaporative/Refueling Family Basis)

TABLE VII.A-3—TOTAL ESTIMATED EVAPORATIVE EMISSIONS TESTING COSTS FOR FUEL CONVERSION OF ONE OEM CERTIFICATE

[No scaling applied]

Total evap independent test lab costs .....	\$5,980.00
Total evap Mfr testing oversight labor costs (including 100% labor overhead) .....	
Lodging .....	
Subtotal .....	5,980.00
6.5% G & A .....	388.70
Total Cost for Evap Tests .....	6,368.70

c. Costs Associated With OBDII  
Demonstration Testing (Test Group  
Basis)

TABLE VII.A-4—TOTAL ESTIMATED OBD DEMONSTRATION TESTING COSTS FOR FUEL CONVERSION OF ONE OEM CERTIFICATE

[No scaling applied]

Total OBD independent test lab costs .....	\$16,325.00
Total OBD Mfr testing oversight labor costs (including 100% labor overhead) .....	7,265.57
Lodging .....	1,120.00
Subtotal .....	24,710.57
6.5% G & A .....	1,606.19
Total Cost for OBD Demo Tests .....	26,316.76

d. Other Certification Costs

TABLE VII.A-5—OTHER CERTIFICATION ESTIMATED COSTS FOR FUEL CONVERSION OF ONE OEM CERTIFICATE

[No scaling applied]

Travel to oversee testing at independent test lab .....	\$1,000.00
Shipment of vehicle to independent test lab .....	4,000.00
Prep and shipment of vehicle to EPA for confirmatory tests .....	6,200.00
Preparation of Application for certification labor costs (including 100% labor overhead) .....	4,637.60
Subtotal .....	15,837.60

TABLE VII.A-5—OTHER CERTIFICATION ESTIMATED COSTS FOR FUEL CONVERSION OF ONE OEM CERTIFICATE—  
Continued  
[No scaling applied]

6.5% G & A .....	1,029.44
Total Costs for Travel, Vehicle Shipments, and Application Preparation .....	16,867.04

e. Certification Fees

Full certification fees for highway vehicles are \$34,849 for 2009.<sup>80</sup> However, there is a reduced fee program which allows most conversion manufacturers to pay far less. The reduced fee is calculated based on sales volume and value added.<sup>81</sup> The formula can be described as 1% \* number of units \* retail value added. Because most conversion manufacturers sell less than 50 vehicle conversions per test group and conversion kits vary greatly in price, for purposes of this estimate, EPA is using 50 units and a retail value of \$8,000. Therefore, for this cost estimate the baseline certification fees are estimated at \$4,000.

The current base cost of compliance for one certificate, including all testing, associated labor, overhead, and general and administrative costs if costs are not scaled due to test group, OBD, or evaporative/refueling family combinations is about \$59,810.

Certification fees are not included in this total because they are variable by sales volume for manufacturers that are eligible for reduced fees.

2. Cost of One Certificate When Testing Costs Are Scaled for Multiple Certificate Groups

OEM test groups, evaporative/refueling families, and Federal OBD approvals are combined to form a unique certificate. These same test groups and evaporative/refueling families, when taken separately, can often apply to multiple certificates. Here, EPA examined 418 model year 2007 light-duty certificates to determine appropriate scaling factors for exhaust Test Groups, Evaporative/Refueling Families, and OBD demonstrations tests. EPA reviewed model year 2007 data because these data were complete, readily available, and deemed to be representative. Of those 418, there were 335 unique test groups each with

exhaust emission data, meaning the OEMs used 335 sets of exhaust test data to apply for 418 certificates. The ratio represented here (335/418 = 0.8) provides an approximate scaling factor which can be applied to the cost of one set of exhaust emissions data to determine the average unit cost per certificate for exhaust emission testing. Of those same 418 certificates there were only 189 evaporative/refueling families, therefore the average scaling factor for evaporative/refueling family testing costs (189/418 = 0.45) times the cost for one set of evaporative emissions testing represents the average unit cost per certificate for evaporative/refueling emissions testing. For the purposes of this cost estimate we assumed that all Federal OBD approvals for conversion manufacturers were done in parallel with exhaust test group testing and therefore applied the same scaling factor to OBD testing costs as determined for exhaust emissions testing.

TABLE VII.A-6—COST OF ONE CERTIFICATE WHEN TESTING COSTS ARE SCALED FOR MULTIPLE CERTIFICATE GROUPS

	Testing costs for one aftermarket fuel conversion certificate (no scaling for multiple certificates applied)	Scaling factor	Scaled testing costs for conversion of one OEM certificate
Total Cost for Exhaust Tests .....	\$6,257.79	0.80 .....	\$5,015.22
Total Cost for Evap Tests .....	6,368.70	0.45 .....	2,879.63
Total Cost for OBD Demo Tests .....	26,316.76	0.80 .....	21,091.18
Total Costs for Travel, Vehicle Shipments, and Application Preparation ..	16,867.04	Weighted appropriately to each task.	11,385.68
Certification Fees .....	4,000.00	1 .....	4,000.00
Total Cost for OEM Test Group(s) of Vehicles .....	59,810.30	.....	44,371.70

Thus, the current base cost of compliance for one certificate, including all testing, associated labor, and overhead and general and administrative costs if costs are scaled is about \$44,372.

3. Baseline Cost Analysis Based on Four OEM Certificates

EPA estimated the current baseline cost of conversion of four certificate groups of vehicles after applying

appropriately scaled testing costs, including all testing, confirmatory testing, associated labor, overhead, and general and administrative costs to be about \$177,487.

B. Certified Conversion Costs Under the Proposed Rule

Under this proposal the cost for a certified conversion will be similar to the current fuel conversion certification process, with three exceptions: (1) A

statement of compliance using good engineering judgment would be accepted in lieu of HCHO testing analysis for certain alternative fuels, and the use of conversion factors to calculate NMOG from NMHC would be accepted in lieu of speciation testing for some alternative fuels; (2) statements of compliance are accepted for sealed gaseous fuel systems in lieu of evaporative emissions test data and (3)

<sup>80</sup> For an electronic version of the current fee filing form, see <http://www.epa.gov/otaq/cert/documents/on-hwy2010feeform-01-07-10.pdf>.

<sup>81</sup> 40 CFR 1027.120.

test group combinations would allow one set of test data to apply to a broader range of vehicles. These changes all reduce costs associated with compliance testing.

1. HCHO and NMOG Cost Reductions for CNG (or LNG), LPG, and Hydrogen

In lieu of testing, this proposal would accept a statement of compliance for formaldehyde emissions for conversions to CNG (or LNG), LPG, or hydrogen fuels. In addition, conversions to CNG (or LNG), LPG, or hydrogen need only submit engineering data and analysis supportive of the usage of a conversion factor from NMHC to NMOG, in lieu of speciation testing. Testing for formaldehyde is generally done in conjunction with NMOG speciation, and the average cost for both tests is \$1,750 per test group, which would be scaled to an average of \$1,400 per certificate. Under this proposal, testing cost for HCHO and NMOG analysis for conversions to CNG (or LNG), LPG, or hydrogen would be \$0.

2. Evaporative Emissions Cost Reductions for Gaseous Fuels

The average cost for evaporative emissions hot soak, and diurnal SHED testing, including labor costs is \$6,369. After scaling the average is \$2,879 per certificate. The proposed amendment to 40 CFR 86.1811-04 would allow a manufacturer statement of compliance for evaporative testing for gaseous fuels. This would eliminate all evaporative emissions testing costs for gaseous fuels such as to CNG (or LNG), LPG, or hydrogen fuels.

3. Test Group Combination Cost Reductions for All Conversions to Clean Alternative Fuel

This proposal defines criteria which may allow the combination of several OEM test groups into a single aftermarket fuel conversion test group. This is a significant cost savings, the percentage of which is dependent upon the exact number of OEM test groups combined. For example: If two OEM test

groups are combined, the testing costs for exhaust emission testing are halved; if three test groups are combined, these testing costs are about 33% the current cost.

The quantity of OEM test groups which can be combined into a single clean alternative fuel conversion test group will vary depending on the available OEM vehicle individual certification compliance strategies. EPA examined the 2007 light-duty OEM test group data and has conservatively estimated that on average conversion manufacturers will be permitted to combine about 25% of the OEM exhaust test groups. Therefore, the cost reduction estimate for our comparative grouping, four test groups, would conservatively result in a 25% cost reduction in exhaust emissions and OBD testing which can be applied to the scaling factors for comparison simplicity.

4. Total Cost Reductions for Certification Under the Proposed Rule

TABLE VII.B-1—PROPOSAL COST FOR NEW VEHICLE CONVERSION FOR ONE CERTIFICATE WHEN TESTING COSTS ARE SCALED FOR MULTIPLE CERTIFICATE GROUPS

	Testing costs for one aftermarket fuel conversion certificate (no scaling for multiple certificates applied)	Scaling factor	Scaled testing costs for conversion of one OEM certificate	Scaled testing costs for conversion of 4 OEM certificates
Total Cost for Exhaust Tests .....	\$6,257.79	0.60 .....	\$3,761.41	\$15,045.65
Total Cost for Evap Tests .....	6,368.70	0.45 .....	2,879.63	11,518.51
Total Cost for OBD Demo Tests .....	26,316.76	0.60 .....	15,790.06	63,160.23
Total Costs for Travel, Vehicle Shipments, and Application Preparation.	16,867.04	Weighted appropriately to each task.	10,313.03	41,252.14
Certification Fees .....	4,000.00	1 .....	4,000.00	.....
Total Cost for OEM Test Groups(s) of Vehicles .....	59,810.30	.....	36,744.13	146,976.52

The total cost for the certification of the conversion of four OEM certificates to any clean alternative fuel under the proposed rule is \$146,977. This represents an estimate of a cost reduction of over \$30,000 in current fuel conversion certification testing costs for conversion of four OEM certificates. If the conversion certification is for conversions to CNG (or LNG), LPG, or hydrogen fuels, the costs may be further reduced due to the technical amendments described above.

C. Intermediate Age Vehicle Compliance Costs

The current fuel conversion process requires certification. Therefore the

baseline costs presented in Section VI.A also apply to intermediate age vehicles.

1. HCHO and NMOG Cost Reductions for CNG, LPG, and Hydrogen

In lieu of testing, this proposal would accept a statement of compliance for formaldehyde emissions for conversions to CNG (or LNG), LPG and hydrogen. In addition, conversions to CNG (or LNG), LPG, or hydrogen need only submit engineering data and analysis supportive of the usage of a conversion factor from NMHC to NMOG, in lieu of speciation testing. Testing for formaldehyde is generally done in conjunction with NMOG speciation, and the average cost for both tests is \$1,750 per test group, which would be scaled

to an average of \$1,400 per certificate. Under this proposal, testing cost for HCHO and NMOG analysis for conversions to CNG (or LNG), and LPG would be \$0.

2. Evaporative Emissions Cost Reductions for Gaseous Fuels

The average cost for evaporative emissions hot soak, and diurnal SHED testing, including labor costs is \$6,369. After scaling the average is \$2,879 per certificate. The proposed amendment to 40 CFR 86.1811-04 would allow a manufacturer statement of compliance for evaporative testing for gaseous fuels. This would eliminate all evaporative emissions testing costs for gaseous fuels.

3. Conversion Test Groups Cost Reduction

Under this proposal, conversion test groups are identical to the exhaust test groups for new, certified vehicles, except the exhaust conversion test groups do not require the same OEM OBD grouping. This provision is likely to result in a further reduction in testing costs due to further scaling. However, the scaling appropriate due to these combinations is variable from year to year and from OEM manufacturer to OEM manufacturer. Therefore, for the

purposes of this cost estimate, we will assume that the exhaust conversion test group costs for intermediate age vehicles are the same as the exhaust test group costs for certification vehicles under this proposal.

4. OBD Demonstration Testing Cost Reduction

Manufacturers of conversion systems for intermediate age vehicles would not be required to submit OBD test data as part of their demonstration. The conversion manufacturer must still

conduct any development and bear associated costs necessary to ensure that the post-conversion OBD system remains functional OBD and meets the EPA standards, but the costs associated with conducting tests for data submission to EPA would not be required. This is a significant cost reduction which would result in a cost savings of around \$26,000 per exhaust conversion test group.

5. Total Cost Reductions for Intermediate Age Vehicles Under The Proposed Rule

TABLE VII.C-1—PROPOSAL COST FOR INTERMEDIATE AGE VEHICLE CONVERSION WHEN TESTING COSTS ARE SCALED FOR MULTIPLE CONVERSION TEST GROUPS

	Testing costs for one aftermarket fuel conversion compliance unit (no scaling for multiple OEM certificates applied)	Scaling factor	Scaled testing costs for conversion of one OEM certificate	Scaled testing costs for conversion of 4 OEM certificates
Total Cost for Exhaust Tests .....	\$6,257.79	0.60 .....	\$3,761.41	\$15,045.65
Total Cost for Evap Tests .....	6,368.70	0.45 .....	2,879.63	11,518.51
Total Cost for OBD Demo Tests .....	0	0.60 .....	0	0
Total Costs for Travel, Vehicle Shipments, and Data Submission	12,915.81	Weighted appropriately to each task.	6,361.80	25,447.20
<b>Total Cost for Conversion of OEM Test Group(s) of Vehicles.</b>	<b>25,542.30</b>	.....	<b>13,002.84</b>	<b>52,011.35</b>

The total cost for the intermediate age compliance program for the conversion of vehicles represented by four OEM certificates to any clean alternative fuel under the proposed rule is \$52,011. This represents an estimate of a cost reduction of more than \$100,000 from the current estimated baseline cost of compliance for conversion of vehicles represented by four OEM certificates. If the conversion certification is for conversions to CNG, LPG or hydrogen, the costs may be further reduced due to the NMHC/NMOG technical amendment described under Section V.1.B.

D. Outside Useful Life Vehicle Compliance Costs

The testing that conversion manufacturers choose to undergo to demonstrate compliance for outside useful life vehicle applications will depend on which option is selected in the final rulemaking.

EPA would expect the maximum testing costs for Option #1 to be equivalent to those costs incurred for intermediate age vehicle compliance, since conducting all testing required for the intermediate age vehicle program would always be an acceptable

demonstration of good engineering judgment.

Maximum testing costs for Option #2 would be double that of the intermediate age vehicle program, since two sets of exhaust test data would be required. However, the costs would still be less than the baseline costs because no OBD demonstration testing would be required.

Maximum testing costs for Option #3 would be the sum of the cost for Option #1 and about \$300. An OBD scan tool with capabilities for printing via a computer and printer can be acquired for less than \$300.

VIII. Associated Costs for Heavy-Duty Engines

The costs associated with achieving compliance under this proposal are expected to be the same or less, on an engine family basis, than the current cost of compliance for clean alternative fuel conversion of heavy-duty engines. The amount of cost reduction will vary based on conversion technology, fuel type, age of engine, conversion manufacturer preference, and the manufacturer's annual sales volume.

EPA has analyzed the cost of obtaining a certificate of conformity

under current regulations and used that as a baseline cost. All costs analysis in this section are intended to apply to conversions to any fuel.

It is important to note that heavy-duty conversions have not received as much interest as LD conversions. As a result, EPA's experience with and data available on heavy-duty conversions is limited. For example, in model year (MY) 2008, EPA only received seven certification applications from four different converters. In 2009, the number dropped to three applications from three different manufacturers. Despite limited historical data on heavy-duty conversions, EPA has evaluated the cost a converter would incur to fully certify a heavy-duty engine that has been converted at each of three stages in the life of the engine: (1) Beginning of useful life, (2) mid-useful life, and (3) outside the useful life. These costs are then compared to a baseline—the current cost of certification.

The costs associated with obtaining an exemption from the tampering prohibition under this proposal are expected to be the same or less, on an engine family basis, than the current cost of obtaining an exemption from the tampering for prohibition for clean

alternative fuel conversion of heavy-duty engines. The amount of cost reduction will vary based on conversion technology, fuel type, age of engine, conversion manufacturer preference, and the manufacturer's annual sales volume.

EPA has analyzed the cost of obtaining a certificate of conformity under current regulations and used that as a baseline cost. The cost analysis in this section is intended to apply to conversions to any fuel.

It is important to note that heavy-duty engine conversions have not received as much interest as light-duty conversions. As a result, EPA has less experience with heavy-duty vehicle and engine conversions, and the available cost data are limited. For example, in model year 2008, EPA only received seven certification applications from four different converters. In 2009, the number dropped to three applications from three different manufacturers. Despite limited historical data on heavy-duty conversions, EPA has evaluated the cost a converter would incur to fully certify a heavy-duty engine that has been converted at each of three age categories: (1) New and nearly new engines, (2) intermediate age engines, and (3) outside useful life engines.

These costs are then compared to a baseline—the current cost of certification.

*A. Baseline Costs (Cost of Current Compliance)*

Baseline costs were derived by determining the cost of obtaining exhaust and evaporative emission certificates for a new engine family under current regulations and procedures. A new engine family is a family that has not been certified in previous years. After the first certification, the manufacturer may in some cases use the same test data to obtain certificates of conformity in subsequent years. Engine families certified this way are referred to as "carry-overs." The cost of a carry-over family is mostly limited to the certification fee and minor labor costs.

Converters who have obtained certificates in recent years will notice that the baseline used here is higher than the costs they may have incurred. This is due, in part, to a temporary provision which exempts small volume manufacturers and vehicles above 14,000 pounds from submitting actual OBD test data to demonstrate compliance with OBD requirements. This exemption is in place through 2013. All heavy-duty converters who

have certified with EPA have been able to claim this exemption. To represent the true future costs conversion manufacturers may incur, EPA has included costs for post-2013 OBD testing and evaporative emissions testing (for conversions to gaseous fuels) in the cost basis for heavy-duty conversions.

Estimated labor costs include the time engineering, managerial, legal and support staff spends performing the various activities associated with completing an application for certification and any necessary updates (running changes). These activities include data gathering and analysis, reviewing regulations, and recordkeeping. To estimate labor costs, EPA used the Bureau of Labor Statistics' (BLS) National Industry-specific Occupational Wage Estimates (May 2008) for the Motor Manufacturing Industry under the North American Industry Classification System (NAICS) Code 336100. Mean hourly rates were used and then increased by a factor of 2.1 to account for benefits and overhead. Table VIII.A-1 summarizes this information and presents the Standard Occupational Classification (SOC) code for each occupation used to estimate labor costs.

VIII.A-1—LABOR CATEGORIES AND COSTS USED TO CALCULATE HEAVY-DUTY COSTS BASIS

Occupation	SOC code No.	Mean hourly rate (BLS)	110%
Mechanical Engineers .....	17-2141	\$37.59	\$78.94
Engineering Managers .....	11-9041	54.56	114.58
Lawyers .....	23-1011	67.14	140.99
Secretaries, Except Legal, Medical and Executive .....	43-6014	19.76	41.50
Mechanical Engineering Technicians .....	17-3029	31.53	66.21
Engine and Other Machine Assemblers .....	51-2031	24.56	51.58
Truck Drivers, Heavy and Tractor-Trailer .....	53-3032	26.69	56.05

Manufacturers are also required to pay a certification fee under the authority of Section 217 of the CAA and the Independent Offices Appropriation Act (31 U.S.C. 9701). This fee is updated every calendar year to reflect changes on EPA labor costs and the number of certificates issued each year. The costs basis analysis includes the appropriate 2010 fee for exhaust (\$35,967) and evaporative (\$511) certification. However, it should be noted that the fees rule provides for a reduction in fee based on the "projected aggregate retail price of all vehicles or engines covered by that certificate" (69 FR 26226,

Section F). Despite the possibility of a reduction in fee, EPA has used the full fee for the cost basis of heavy-duty engines.

1. Costs of Certification for One Heavy-Duty Exhaust New Engine Family Under Current Regulations

Historically, all manufacturers who have certified converted heavy-duty engines are small manufacturers and thus, do not own testing facilities. They hire independent laboratories to test their engines. EPA does not expect that to change in the foreseeable future. EPA estimates that the cost of testing a heavy-duty engine for exhaust

emissions in an independent laboratory is approximately \$30,000. Other operation and maintenance costs include shipping engines to test sites, lodging for manufacturer employees to oversee testing, recordkeeping costs, and the cost of preparing and submitting the application for certification.

Since EPA does not expect manufacturers to build testing laboratories or facilities in response to the proposed rule, no capital costs have been added to the cost basis.

a. Current Costs Associated With Obtaining One Heavy-Duty Exhaust Certificate of Conformity

TABLE VIII.A-2—CURRENT COSTS ASSOCIATED WITH OBTAINING ONE HEAVY-DUTY EXHAUST CERTIFICATE

Item	Estimated cost
Exhaust Testing .....	\$30,000
Labor .....	9,495
Shipping Engines to Test Sites .....	2,500
Lodging .....	250
Other Operating and Maintenance Costs .....	15
Certification Fee for MY 2010 .....	35,967
<b>Total .....</b>	<b>78,227</b>

b. Current Costs Associated With Obtaining One Heavy-Duty Evaporative Certificate of Conformity

Most heavy-duty conversions certified by EPA are conversions to Otto-cycle engines. Manufacturers and converters of Otto-cycle engines are required to demonstrate compliance with

evaporative emissions requirements and obtain certificate of compliance with evaporative emissions. This certificate is in addition to the certificate of compliance with exhaust emission requirements. Manufacturers must combine engines into groups with similar evaporative emission characteristics or evaporative engine

families. Exhaust and evaporative families are not necessarily identical. Engines grouped into several exhaust engine families may belong to only one evaporative family, and vice versa. For the purpose of establishing a costs baseline, EPA has included the cost of evaporative certification in its estimates.

TABLE VIII.A-3—CURRENT COSTS ASSOCIATED WITH OBTAINING ONE HEAVY-DUTY EVAPORATIVE CERTIFICATE

Item	Estimated cost
Exhaust Testing .....	\$7,030
Labor .....	2,431
Other Operating and Maintenance Costs .....	524
Certification Fee for MY 2010 .....	511
<b>Total .....</b>	<b>10,496</b>

c. Costs Associated With OBDII Demonstration Testing (Engine Family Basis)

Currently, alternative fuel converters are required to submit test data to demonstrate compliance with OBD regulations. However, 40 CFR 86.010-18(o) provides exemptions for small volume and alternative fueled engines used in applications over 14,000 lbs. All heavy-duty converters who have sought EPA certification in recent years have been able to claim one of these exemptions.

In an effort to also reduce costs for those heavy-duty manufacturers who

are not able to claim this exemption, EPA is accepting through MY 2013 approval issued by either the California Air Resource Board or the EPA light-duty certification team as proof of compliance. Manufacturers must demonstrate how the OBD system they have designed to comply with California OBD requirements also complies with the intent of Federal requirements. So far, heavy-duty manufacturers have been able to either claim the exemption or submit approval from CARB or through the EPA light-duty process. Therefore, EPA does not have historical data to use as basis for OBD

demonstrations specifically related to heavy-duty conversions.

In interest of accounting for every possible cost a heavy-duty converter might incur to get a certificate, EPA considers it appropriate to adopt light-duty estimates to represent the heavy-duty basis. Light duty estimates are summarized in Section VII.A(1)(a)(c), Table VII.A-4. EPA estimates the cost of OBD compliance at \$26,317.

In summary, the base cost of fully certifying a heavy-duty engine family, including evaporative certification is \$115,041, as indicated in Table VIII.A-4.

TABLE VIII.A-4—COST OF FULL CERTIFICATION AT THE BEGINNING OF USEFUL LIFE

Item	Estimated cost
Exhaust Certification .....	\$42,260
Exhaust Certification Fee .....	35,967
Evaporative Certification .....	9,985
Evaporative Certification Fee .....	511
OBD Compliance Demonstration .....	26,317
<b>Total .....</b>	<b>115,041</b>

3. Baseline Cost Analysis Based on Four Exhaust Engine Families and Four Evaporative Families

Based on the cost of fully certifying one engine family for both exhaust and evaporative emissions, EPA has estimated the current baseline cost of

certifying four heavy-duty conversion families, including all testing, associated labor, overhead, and general and administrative costs. For the purpose of this estimate, EPA assumed that these four exhaust families will belong to two evaporative families. This assumption reflects the fact that

manufacturers tend to use the same evaporative system for multiple exhaust families. The estimated cost of four exhaust families and two evaporative families would be about \$439,170 (Table VIII.A-5). Please see the next section for an explanation of why EPA has chosen to estimate the cost on four families.

TABLE VIII.A-5—COST OF CERTIFYING FOUR EXHAUST ENGINE FAMILIES AND TWO EVAPORATIVE FAMILIES UNDER CURRENT REGULATIONS

Item	Estimated cost	Number of engine families	Total cost
Exhaust Certification .....	\$42,260	4	\$169,042
Exhaust Certification Fee .....	35,967	4	143,868
Evaporative Certification .....	9,985	2	19,971
Evaporative Certification Fee .....	511	2	1,022
OBD Compliance Demonstration .....	26,317	4	105,268
<b>Total .....</b>	<b>111,424</b>	<b>4</b>	<b>439,170</b>

B. Certified Conversion Costs Under the Proposed Rule

As mentioned above, interest in heavy-duty conversions has been low in the past. In model year 2008, EPA received only seven applications for certification from a total of four converters. In 2009, only three of those converters submitted one application each. EPA understands that this is in part due to converters not submitting an application until they find a market for the engines. Light-duty vehicles are typically sold in higher volumes than heavy duty engines. Since the cost of certification is spread over a smaller pool of engines, it is typically more expensive to certify a heavy-duty family on a per engine basis.

After reviewing available information, EPA determined that the current data are not sufficient to develop a scaling factor that could be applied in order to calculate an estimated cost of

certification under the proposed rule. Instead, EPA believes it is more appropriate to illustrate how the proposed regulations would affect a converter seeking certification. This hypothetical scenario is partly based on the actual case of a converter who certified four families in 2008. The scenario is also used for mid-useful-life and end-of-useful-life estimates.

1. Base Scenario

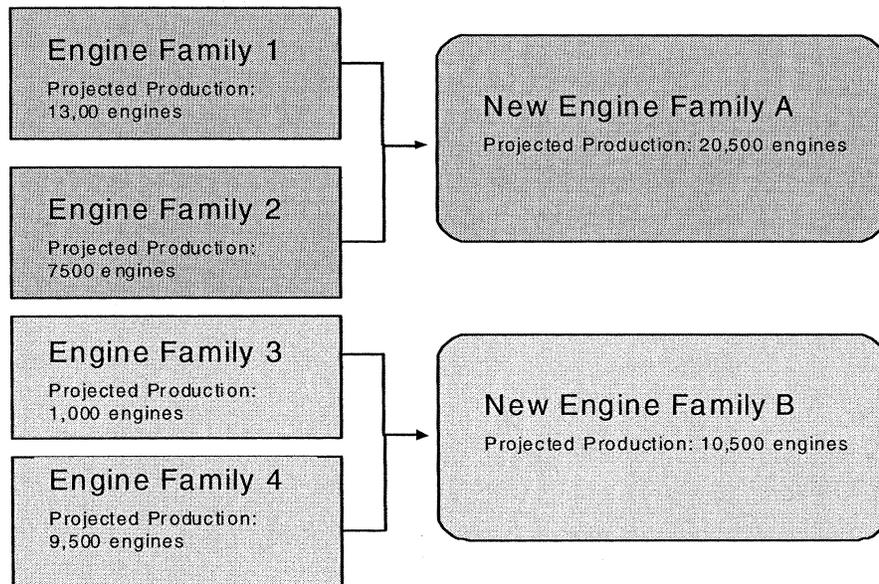
In MY 2008, Converter X obtained certificates of conformity with heavy-duty exhaust emission regulations for four engine families. Converter X used current regulations found at 40 CFR 86.000-24 to determine how many exhaust engine families, and therefore, how many certificates it needed. For the purpose of this demonstration, EPA will assume that Converter X submitted one test data set and paid one full fee for each exhaust certificate. If Converter X

also pursues evaporative certification for two families separately, it would have to pay for two evaporative tests and two evaporative fees. In addition OBD approval was obtained. As shown in Table VIII.A-5 in the previous section, the cost for this scenario is \$439,170.

2. Scenario Under Proposed Regulations

After reviewing the characteristics of each engine family as reported in the applications for certification, EPA applied the criteria for combining multiple engine families contained in the proposed rule. For a list of this criteria, see Section IV.B. Had the proposed regulations been available to Converter X, Converter X would have been able to combine two of its engine families into engine family A, and the remaining two engine families into engine family B. Figure VIII.B-1 illustrates this combination.

Figure VIII.B-1 Possible Engine Family Combinations for Converter X



By submitting only two exhaust certificate applications, Converter X would only need to perform two tests

and pay two fees instead of four tests and fees, thus cutting the cost of

certifying its exhaust engine families in half. (Table VIII.B-1).

TABLE VIII.B-1—COST OF CERTIFYING TWO EXHAUST ENGINE FAMILIES AND TWO EVAPORATIVE FAMILIES UNDER PROPOSED RULE

Item	Estimated cost	Number of engine families	Total cost
Exhaust Certification .....	\$42,260	2	\$ 84,521
Exhaust Certification Fee .....	35,967	2	71,934
Evaporative Certification .....	9,985	2	19,971
Evaporative Certification Fee .....	511	2	1,022
OBD Compliance Demonstration .....	26,317	2	52,634
<b>Total .....</b>	<b>111,424</b>	<b>2</b>	<b>230,082</b>

The total cost of certifying the same engines under the proposed rule is \$230,082, representing 48% savings for Converter X over the base costs under the current regulations. The cost of certification is spread over a larger pool of engines, lowering the cost per unit, as Figure VIII.B-1 shows. The new engine family combination criteria may create this type of cost-cutting scenario.

*C. Intermediate Age Engine Compliance Costs*

The current fuel conversion process requires certification regardless of the

age of the engine being converted. Therefore the baseline costs presented in Section VIII.A also apply to intermediate age heavy-duty engines. Under the proposed rule, converters of intermediate age engines will be required to gather and submit all required data, including test data. Engine families will be grouped in larger families as described in Section VIII.B. However, the proposed rule does not require EPA to issue a certificate of conformity for intermediate age engines. Instead, manufacturers will be required to submit data to show that converted

engines meet applicable standards. In addition, OBD testing will not be required for intermediate conversions.

If the engine families Converter X certified in our previous scenario were intermediate age engines, Converter X would have savings due to both (1) engine family groupings, and (2) the lack of a certification fee. As shown in Table VIII.B-2, the cost to Converter X would be about \$97,259. This represents savings of about \$341,912 or 78% when compared to the baseline.

TABLE VIII.B-2—COST OF INTERMEDIATE AGE CONVERSIONS CERTIFICATION UNDER PROPOSED RULE

Item	Baseline cost for four exhaust and two evap families (current regulations)	Cost for two exhaust and two evap families (new and nearly new engines—proposed rule)	Cost for two exhaust and two evap families (intermediate age—proposed rule)
Exhaust Certification .....	\$169,042	\$84,521	\$84,521
Exhaust Certification Fee .....	143,868	71,934	.....
Evaporative Certification .....	19,971	19,971	12,738
Evaporative Certification Fee .....	1,022	1,022	.....
OBD Compliance Demonstration .....	105,268	52,634	.....
Total .....	439,170	230,082	97,259

#### D. Outside Useful Life Engine Compliance Costs

The demonstration and associated compliance costs required of outside useful life conversion manufacturers will depend on which option is selected in the final rulemaking.

EPA would expect the maximum testing costs for Option #1 to be equivalent to those costs incurred for intermediate age engine compliance, since conducting all testing required for the intermediate age engine program would always be an acceptable demonstration of good engineering judgment.

Maximum testing costs for Option #2 would be double that of the intermediate age engine program, since two sets of emissions test data would be required. However, the costs would still be less than the baseline costs because no OBD demonstration testing would be required.

Maximum testing costs for Option #3 would be sum of the cost for Option #1 and about \$300. An OBD scan tool with capabilities for printing via a computer and printer can be acquired for less than \$300.

#### IX. Statutory and Executive Order Reviews

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

This action is not a “significant regulatory action” under the terms of Executive Order (EO) 12866 (58 FR 51735, October 4, 1993) and is therefore not subject to review under the EO. OMB confirmed this proposal was non-significant on October 9, 2009 and waived review.

EPA prepared an analysis of the potential costs and benefits associated with this action. Cost analyses are

summarized in Sections VII and VIII of this preamble.

##### B. Paperwork Reduction Act

The information collection requirements in this proposed rule have been submitted for approval to the Office of Management and Budget (OMB) under the *Paperwork Reduction Act*, 44 U.S.C. 3501 *et seq.* The Information Collection Request (ICR) documents prepared by EPA have been assigned EPA ICR numbers 0783.55 and 1684.15.

The Agency proposes to collect information to ensure compliance with the provisions in this rule. This includes a variety of requirements for alternative fuel vehicle converters. Under Title II of the Clean Air Act (42 U.S.C. 7521 *et seq.*) EPA is required to establish motor vehicle emission standards that apply throughout useful life, and to verify through issuance of a certificate of conformity that any vehicle or engine entered into commerce complies with the established emission standards. Under Section 203 of the Air Act, once certified, the vehicle or engine generally may not be altered from its certified configuration. EPA has established policies through which conversion manufacturers can demonstrate that the conversion does not compromise emissions compliance. The current regulations are located in 40 CFR part 85, subpart F and the proposal would amend these regulations. Section 208(a) of the Act requires that vehicle manufacturers and others subject to the Act provide information the Administrator may reasonably require to determine compliance with the regulations; submission of the information is therefore mandatory for securing the regulatory exemption from the tampering prohibition set forth in 40

CFR part 85, subpart F. We will consider confidential all information meeting the requirements of section 208(c) of the Clean Air Act.

As described in Sections VII and VIII of this preamble, compliance costs per test group or engine family are expected to decrease overall.

As shown in Table IX-1, the total annual industry burden associated with this proposal is about 7,247 hours and \$1,186,726 in annual capital and operations and maintenance costs based on a projection of 13 respondents. The estimated burden for converters is a total estimate for both new and existing reporting requirements. This represents an estimated reduction in burden from previous requirements of 7,361 hours and \$132,981 in non-labor costs for light-duty converters. The total heavy-duty conversion industry is expected to grow as a result of this rule, therefore increasing industry-wide costs. However, costs per respondent are likely to decrease, by as much as 48 percent. Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information.

TABLE IX-1—ESTIMATED BURDEN FOR REPORTING AND RECORDKEEPING REQUIREMENTS

Industry sector	Number of respondents	Annual burden (hours)	Estimated annual capital and O&M costs	Estimated annual labor cost	Estimated total costs
Light Duty Vehicles (IRC 0783.55) .....	5	6,068	\$103,160	\$352,495	\$455,655
Heavy Duty Vehicles (ICR 1684.15) .....	8	1,179	1,083,566	182,876	1,266,442
Total .....	13	7,247	1,186,726	535,371	1,722,097

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

To comment on the Agency’s need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, EPA has established a public docket for this rule, which includes these ICRs, under Docket ID number [EPA–HQ–OAR–2009–0299]. Submit any comments related to the ICR to EPA and OMB. See ADDRESSES section at the beginning of this notice for where to submit comments to EPA. Send comments to OMB at the Office of Information and Regulatory Affairs, Office of Management and Budget, 725 17th Street, NW., Washington, DC 20503, Attention: Desk Office for EPA. Since OMB is required to make a decision concerning the ICR between 30 and 60 days after May 26, 2010, a comment to OMB is best assured of having its full effect if OMB receives it by June 25, 2010. The final rule will respond to any OMB or public comments on the information collection requirements contained in this proposal.

C. Regulatory Flexibility Act (RFA)

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

For purposes of assessing the impacts of today’s proposal on small entities, small entity is defined as: (1) Small businesses that are primarily engaged in engine and motor vehicle parts manufacturing, specifically aftermarket fuel conversion systems for vehicles and engines as included in the definitions by NAICS, codes 336312 and 336399

with fewer than 750 employees (based on Small Business Administration size standards at 13 CFR 121.201); (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.

After considering the economic impacts of today’s proposed rule on small entities, I certify that this action will not have a significant economic impact on a substantial number of small entities. In determining whether a rule has a significant economic impact on a substantial number of small entities, the impact of concern is any significant adverse economic impact on small entities, since the primary purpose of the regulatory flexibility analyses is to identify and address regulatory alternatives “which minimize any significant economic impact of the rule on small entities.” 5 U.S.C. 603 and 604. Thus, an agency may certify that a rule will not have a significant economic impact on a substantial number of small entities if the rule relieves regulatory burden, or otherwise has a positive economic effect on all of the small entities subject to the rule.

To qualify for an exemption from the prohibition on tampering, existing alternative fuel conversion regulations require converters to complete vehicle and engine certification testing, data submittal and compliance procedures much like OEM new vehicle certification procedures. The current certification process for conversion of vehicles and engines that are two years old or newer largely will be retained, with a few amendments which may reduce the testing burden. The amendments include provisions such as (1) a statement of compliance using good engineering judgment in lieu of HCHO testing analysis for certain alternative fuels, (2) the use of conversion factors to calculate NMOG from NMHC in lieu of speciation testing for some alternative fuels, and (3) allowing the combination of OEM test

groups into larger testing combinations for aftermarket fuel conversion.

In addition, this proposed rule creates an intermediate age and outside useful life compliance program as an alternative to vehicle and engine certification of fuel conversion of older vehicles and engines. The notification program will allow conversion manufacturers to conduct fewer tests and will provide a streamlined data-submittal process. The notification program may also allow for one set of test data to apply to a broader set of OEM vehicles.

We have therefore concluded that today’s proposed rule will generally relieve or not increase regulatory burden for each affected small entity. The number of potentially affected small entities subject to this rule is projected to be less than 15 per year. The degree of cost reduction for each entity will vary based on conversion technology, fuel type, vehicle or engine age, applicability, conversion manufacturer preference, and the manufacturer’s annual sales volume. See Sections VII and VIII of this preamble for further details. We continue to be interested in the potential impacts of the proposed rule on small entities and welcome comments on issues related to such impacts.

D. Unfunded Mandates Reform Act

This proposal contains no Federal mandates (under the regulatory provisions of Title II of the UMRA) for State, local, or tribal governments. The rule imposes no enforceable duty on any state, local or tribal governments. EPA has determined that this proposal does not contain a Federal mandate that may result in expenditures of \$100 million or more for the private sector in any one year. Thus, this rule is not subject to the requirements of sections 202 or 205 of UMRA. EPA has determined that this rule is also not subject to the requirements of section 203 of UMRA because it contains no regulatory requirements that might significantly or uniquely affect small governments.

*E. Executive Order 13132: Federalism*

Executive Order 13132, entitled “Federalism” (64 FR 43255, August 10, 1999), requires EPA to develop an accountable process to ensure “meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications.” “Policies that have federalism implications” is defined in the Executive Order to include regulations that have “substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.”

This proposed rule does not have federalism implications. It will not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132. EPA and the States will maintain the current distribution of power and responsibility. Thus, Executive Order 13132 does not apply to this rule.

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

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

This action does not have tribal implications, as specified in Executive Order 13175 (65 FR 67249, November 9, 2000). Thus, Executive Order 13175 does not apply to this action. EPA specifically solicits additional comment on this proposed action from tribal officials.

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

EPA interprets EO 13045 (62 FR 19885, April 23, 1997) as applying only to those regulatory actions that concern health or safety risks, such that the analysis required under section 5–501 of the EO has the potential to influence the regulation. This action is not subject to EO 13045 because it does not establish an environmental standard intended to mitigate health or safety risks.

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

This action is not subject to Executive Order 13211 (66 FR 28355 (May 22,

2001)), because it is not a significant regulatory action under Executive Order 12866.

*I. National Technology Transfer Advancement Act*

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

This proposed rulemaking does not involve technical standards. Therefore, EPA is not considering the use of any voluntary consensus standards.

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

Executive Order (EO) 12898 (59 FR 7629 (Feb. 16, 1994)) establishes Federal executive policy on environmental justice. Its main provision directs Federal agencies, to the greatest extent practicable and permitted by law, to make environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations in the United States.

EPA has determined that this proposed rule will not have disproportionately high and adverse human health or environmental effects on minority or low-income populations because it does not affect the level of protection provided to human health or the environment. The proposed rule changes some required procedures but does not relax the control measures on sources regulated by the rule and therefore will not cause emissions increases from these sources.

**X. Statutory Provisions and Legal Authority**

Statutory authority for the regulation of clean alternative fuel conversion can be found in 42 U.S.C. 7401–7617q. The Administrator has determined that this

action is subject to the provisions of the Clean Air Act (CAA) section 307(d).<sup>82</sup>

**List of Subjects in 40 CFR Parts 85 and 86**

Environmental protection, Administrative practice and procedure, Alternative fuel conversion, Confidential business information, Incorporation by reference, Motor vehicle pollution, Reporting and recordkeeping requirements.

Dated: May 5, 2010.

**Lisa P. Jackson,**  
Administrator.

For the reasons set forth in the preamble title 40, Chapter 1 of the Code of Federal Regulations is proposed to be amended as follows:

**PART 85—CONTROL OF AIR POLLUTION FROM MOBILE SOURCES**

1. The authority citation for part 85 continues to read as follows:

**Authority:** 42 U.S.C. 7401–7671q.

2. Subpart F of part 85 is revised to read as follows:

**Subpart F—Exemption of Clean Alternative Fuel Conversions From Tampering Prohibition**

Sec.

85.501 General applicability.

85.502 Definitions.

85.505 Overview.

85.510 Exemption provisions for new and relatively new vehicles/engines.

85.515 Exemption provisions for intermediate age vehicles/engines.

85.520 Exemption provisions for outside useful life vehicles/engines.

85.525 Applicable standards.

85.530 Vehicle and commercial packaging labeling.

85.535 Liability, recordkeeping and end of year reporting.

**Subpart F—Exemption of Clean Alternative Fuel Conversions From Tampering Prohibition****§ 85.501 General applicability.**

(a) This subpart describes the provisions related to an exemption from the tampering prohibition in Clean Air Act section 203(a) (42 U.S.C. 7522(a)) for light-duty vehicles, light-duty trucks, heavy-duty vehicles, and heavy-duty engines. This subpart F does not apply for highway motorcycles or for nonroad or stationary engines or equipment.

(b) For purposes of this subpart, the term “you” generally means a clean alternative fuel conversion manufacturer, which may also be called “conversion manufacturer” or “converter”.

<sup>82</sup> See CAA section 307(d)(1)(V).

**§ 85.502 Definitions.**

The definitions in this section apply to this subpart. All terms that are not defined in this subpart have the meaning given in 40 CFR part 86. All terms that are not defined in this subpart or in 40 CFR part 86 have the meaning given in the Clean Air Act. The definitions follow:

*Clean alternative fuel conversion* (or “fuel conversion” or “conversion system”) means any alteration of a motor vehicle or engine, its fueling system, or the integration of these systems, that allows the vehicle or engine to operate on a fuel or power source different from the fuel or power source for which the vehicle or engine was originally certified; and that is designed, constructed, and applied consistent with good engineering judgment and in accordance with all applicable regulations. A clean alternative fuel conversion also means the components, design and instructions to perform this alteration.

*Clean alternative fuel conversion manufacturer* (or “conversion manufacturer” or “converter”) means any person that manufactures, assembles, sells, imports, or installs a motor vehicle or engine fuel conversion for the purpose of use of a clean alternative fuel.

*Conversion model year* means the clean alternative fuel conversion manufacturer’s annual production period which includes January 1 of such calendar year. A specific model year may not include January 1 from the previous year or the following year. The term conversion model year means the calendar year if the converter has no different annual production period.

*Date of conversion* means the date on which the clean alternative fuel conversion system is fully installed and operable.

*Dedicated vehicle/engine* means any vehicle/engine engineered and designed to be operated using a single fuel.

*Dual-fuel vehicle/engine* means any vehicle/engine engineered and designed to be operated on two different fuels, but not on a mixture of the fuels.

*Flex-fuel vehicle/engine* means any vehicle/engine engineered and designed to be operated on a mixture of two fuels.

*Heavy-duty engines* describes all engines covered under the applicability of 40 CFR part 86, subpart A and part 1065.

*Light-duty and heavy-duty complete vehicles* describes all vehicles covered under the applicability of 40 CFR part 86, subpart S.

*Original equipment manufacturer (OEM)* means the original manufacturer of the new vehicle/engine or relating to

the vehicle/engine in its original certified configuration.

*Original model year* means the model year in which a vehicle/engine was originally certified by the original equipment manufacturer, as noted on the emission control information label.

*We (us, our)* means the Administrator of the Environmental Protection Agency or any authorized representative.

**§ 85.505 Overview.**

(a) You are exempted from the tampering prohibition in Clean Air Act section 203(a)(3) (42 U.S.C. 7522)(a)(3) (“tampering”) if you satisfy all the provisions of this subpart.

(b) The tampering exemption provisions described in this subpart are differentiated based on the age of the vehicle/engine at the point of conversion as follows:

(1) “New and relatively new” refers to a vehicle/engine where the date of conversion is in a calendar year that is not more than one year after the original model year. See § 85.510 for provisions that apply specifically to new and relatively new vehicles and engines.

(2) “Intermediate age” refers to a vehicle/engine that has not exceeded the useful life (in years, miles, or hours of operation) applicable to the vehicle or engine as originally certified, excluding new and relatively new vehicles/engines. See § 85.515 for provisions that apply specifically to intermediate-age vehicles and engines.

(3) “Outside useful life” refers to any vehicle/engine that has exceeded the useful life (in years, miles, or hours of operation) applicable to the vehicle/engine as originally certified. See § 85.520 for provisions that apply specifically to outside useful life vehicles/engines.

(c) If the converted vehicle/engine is a dual-fuel vehicle/engine, you must submit test data using each type of fuel, except that you may omit testing for the fuel originally used to certify the vehicle/engine if you comply with § 85.510(b)(7)(ii), (iii), and (v), § 85.515(b)(9)(iii)(B), (C), and (E), or § 85.520(b)(4)(ii), (iii) and (v) as applicable.

(d) This subpart specifies certain reporting requirements. We may ask you to give us more information than we specify in this subpart to determine whether your vehicles/engines conform with the requirements of this subpart. We may ask you to give us less information or do less testing than we specify in this subpart.

**§ 85.510 Exemption provisions for new and relatively new vehicles/engines.**

(a) You are exempted from the tampering prohibition with respect to

new and relatively new vehicles/engines if you certify the conversion systems to the emission standards specified in § 85.525 as described in this section; you meet the labeling and packaging requirements in § 85.530 before you sell, import or otherwise facilitate the use of a clean alternative fuel conversion system; and you meet the liability, recordkeeping, and end of year reporting requirements in § 85.535.

(b) Certification under this section must be based on the certification procedures specified in 40 CFR part 86, subpart A or S or 40 CFR part 1065, as applicable, subject to the following exceptions and special provisions:

(1) Test groups, engine families and evaporative/refueling families for light-duty and heavy-duty complete vehicles.

(i) Small volume manufacturers and small volume test groups.

(A) If criteria for small volume manufacturer or small volume test groups are met as defined in 40 CFR 86.1838–01, you may combine light-duty vehicles or heavy-duty vehicles which can be chassis certified under 40 CFR part 86, subpart S using good engineering judgment into conversion test groups if the following criteria are satisfied instead of those specified in 40 CFR 86.1827–01.

(1) Same OEM and OEM model year.

(2) Same OBD group.

(3) Same vehicle classification (e.g. light-duty vehicle, heavy-duty vehicle).

(4) Engine displacement is within 15% of largest displacement or 50 CID, whichever is larger.

(5) Same number of cylinders or combustion chambers.

(6) Same arrangement of cylinders or combustion chambers (e.g. in-line, v-shaped).

(7) Same combustion cycle (e.g., two stroke, four stroke, Otto-cycle, diesel-cycle).

(8) Same engine type (e.g. piston, rotary, turbine, air cooled vs. water cooled).

(9) Same OEM fuel type (except otherwise similar gasoline and E85 flex-fuel vehicles may be combined into dedicated alternative fuel vehicles).

(10) Same fuel metering system (e.g. throttle body injection vs. port injection).

(11) Same catalyst construction (e.g. metal vs. ceramic substrate).

(12) All converted vehicles are subject to the most stringent emission standards used in certifying the OEM test groups within the conversion test group.

(B) EPA-established scaled assigned deterioration factors for both exhaust and evaporative emissions may be used for vehicles with over 10,000 miles if the criteria for small volume

manufacturer or small volume test groups are met as defined in 40 CFR 86.1838–01. This deterioration factor will be adjusted according to vehicle or engine miles of operation. The deterioration factor is intended to predict the vehicle's emission levels at the end of the useful life. EPA may adjust these scaled assigned deterioration factors if we find the rate of deterioration non-constant or the rate differs by fuel type, if necessary.

(ii) Conversion evaporative/refueling families are identical to the OEM evaporative/refueling families unless the OEM evaporative emission system is no longer functionally necessary. You must create any new evaporative families according to 40 CFR 86.18321–01.

(2) Engine families and evaporative/refueling families for heavy-duty engines.

(i) Small volume heavy-duty engine families.

(A) If criteria for small volume is met as defined in 40 CFR 86.098–14 you may combine heavy-duty engines using good engineering judgment into conversion engine families if the following criteria are satisfied instead of those specified in 40 CFR part 86, subpart A.

(1) Same OEM.

(2) Same OBD group after MY 2013.

(3) Same service class (*e.g.* light heavy-duty diesel engines, medium heavy-duty diesel engines, heavy heavy-duty diesel engines).

(4) Engine displacement is within 15% of largest displacement or 50 CID, whichever is larger.

(5) Same number of cylinders.

(6) Same arrangement of cylinders.

(7) Same combustion cycle.

(8) Same method of air aspiration.

(9) Same fuel type (*e.g.* diesel/gasoline).

(10) Same fuel metering system (*e.g.* mechanical direct or electronic direct injection).

(11) Same catalyst/filter construction (*e.g.* metal vs. ceramic substrate).

(12) All converted vehicles are subject to the most stringent emission standards. For example, 2005 and 2007 heavy-duty diesel engines may be in the same family if they meet the most stringent (2007) standards.

(13) Same emission control technology (*e.g.*, internal or external EGR).

(B) EPA-established scaled assigned deterioration factors for both exhaust and evaporative emissions may be used for engines with over 10,000 miles if the criteria for small volume manufacturer are met as defined in 40 CFR 86.1838–01 and 40 CFR 86.098–14. This

deterioration factor will be adjusted according to vehicle or engine miles of operation. The deterioration factor is intended to predict the engine's emission levels at the end of the useful life. EPA may adjust these scaled assigned deterioration factors if we find the rate of deterioration non-constant or the rate differs by fuel type, if necessary.

(ii) Conversion evaporative/refueling families are identical to the OEM evaporative/refueling families unless the OEM evaporative emission system is no longer functionally necessary. You must create any new evaporative families according to 40 CFR 86.096–24(a).

(3) Conversion test groups/engine families may include vehicles/engines that are subject to different OEM emission standards; however, all the vehicles/engines certified under this subpart in a single conversion test group/engine family are subject to the most stringent standards that apply for vehicles or engines included in the conversion test group or engine family. For example, if OEM vehicle test groups originally certified to Tier 2, Bin 4 and Bin 5 standards are in the same conversion test group for purposes of fuel conversion, all the vehicles certified in the conversion test group under this subpart are subject to the Tier 2, Bin 4 standards.

(4) Conversion test groups/engine families for conversions to dual fueled vehicles/engines cannot include vehicles subject to different emission standards; however the data generated from exhaust emission testing on the new fuel for dual fueled test vehicles/engines may be carried over to vehicles/engines which otherwise meet the test group or engine family criteria and for which the test vehicle/engine data demonstrate compliance with the application vehicle or engine standard. Clean alternative fuel conversion evaporative families for dual fueled vehicles may not include vehicles/engines which were originally certified to different evaporative emissions standards.

(5) The vehicle/engine selected for testing must qualify as a worst-case vehicle/engine under 40 CFR 86.1828–01 or 40 CFR 86.096–24(b)(3), as applicable.

(6) A certificate issued under this section is valid starting with the indicated effective date but it is not valid for any clean alternative fuel conversion systems you manufacture after December 31 of the conversion model year for which it is issued. You may apply for a certificate of conformity for the next conversion model year

using the applicable provisions for carryover certification.

(7) In lieu of specific certification test data, you may be eligible to submit the following attestations for the appropriate statements of compliance.

(i) The test group/engine family converted to an alternative fuel has properly exercised the optional and applicable statements of compliance or waivers in the certification regulations in 40 CFR part 86, subparts A, B, and S and 40 CFR part 1065.

(ii) The test group/engine family converted to dual fuel operation retains all the OEM fuel system, engine calibration, and emission control system functionality when operating on the fuel with which the vehicle/engine was originally certified.

(iii) The test group/engine family converted to dual fuel operation retains all the functionality of the OEM OBD system (if so equipped) when operating on the fuel with which the vehicle/engine was originally certified.

(iv) The test group/engine family converted to an alternative fuel has fully functional OBD systems (if the OEM vehicles are OBD equipped) and therefore meets the OBD requirements in 40 CFR 86, subparts A and S when operating on the alternative fuel.

(v) The test group/engine family converted to dual fuel operation properly purges hydrocarbon vapor from the evaporative emission canister when the vehicles/engines are operating on the alternative fuel.

(8) Certification fees apply per 40 CFR 1027.101.

(9) Conversion systems must be properly installed and adjusted such that the vehicle/engine operates consistent with the principles of good engineering judgment and in accordance with all applicable regulations.

#### **§ 85.515 Exemption provisions for intermediate age vehicles/engines.**

(a) You are exempted from the tampering prohibition with respect to intermediate age vehicles/engines if you properly test, document and notify EPA that the conversion system complies with the emission standards specified in § 85.525 as described in paragraph (b) of this section; you meet the labeling requirements in § 85.530 before you sell, import or otherwise facilitate the use of a clean alternative fuel conversion system; and you meet the liability, recordkeeping, and end of year reporting requirements in § 85.535. You may also meet the requirements under this section by complying with the requirements in § 85.510.

(b) Documenting and notifying EPA under this section includes following all

the provisions described in § 85.510 for new and relatively new vehicles/engines with the following exceptions and special provisions:

(1) You may notify us as described in this section instead of certifying the aftermarket conversion system.

(2) Conversion test groups for light-duty and heavy-duty complete vehicles may be grouped together into an exhaust conversion test group using the criteria described in § 85.510(b)(1)(i)(A), except that the same OBD group is not a criterion.

(3) Conversion engine families for heavy-duty engines may be grouped together into an exhaust conversion engine family using the criteria described in § 85.510(b)(2)(i)(A), except that the same OBD group is not a criterion.

(4) EPA-established scaled assigned deterioration factors for both exhaust and evaporative emissions may be used for vehicles/engines with over 10,000 miles if the criteria for small volume manufacturer or small volume test groups are met as defined in 40 CFR 86.1838–01 or 40 CFR 86.096–14, as appropriate. This deterioration factor will be adjusted according to vehicle/engine miles or hours of operation. The deterioration factor is intended to predict the vehicle/engine's emission level at the end of the useful life. EPA may adjust these scaled assigned deterioration factors if we find the rate of deterioration non-constant or the rate differs by fuel type, if necessary.

(5) Conduct all exhaust and all evaporative and refueling emissions testing with a worst-case vehicle/engine to show that the conversion test group/engine family complies with exhaust and evaporative/refueling emission standards, as specified in 40 CFR part 86, subparts A, B, and S and 40 CFR part 1065.

(6) The OBD system must properly detect and identify malfunctions in all monitored emission-related powertrain systems or components including any new monitoring capability necessary to identify potential emission problems associated with the new fuel. These include but are not limited to: Fuel trim lean and rich monitors, catalyst deterioration monitors, engine misfire monitors, oxygen sensor deterioration monitors, EGR system monitors, if applicable, and vapor leak monitors, if applicable. No original OBD system monitor which is still applicable to the vehicle/engine may be aliased, removed, bypassed, or turned-off. No MILs shall be illuminated after the conversion. Readiness flags must be properly set for all monitors that identify any

malfunction for all monitored components.

(7) Conversion test groups and conversion engine families for conversions to dual fueled vehicles/engines may not include vehicles/engines subject to different emissions standards. However the data generated from testing on the new fuel for dual fueled test vehicles/engines may be carried over to vehicles/engines which otherwise meet the conversion test group/engine family criteria and for which the test vehicle/engine data demonstrate compliance with the applicable vehicle/engine standard. Clean alternative fuel conversion evaporative families for dual fueled vehicles/engines cannot include vehicles/engines which were originally certified to different evaporative emissions standards.

(8) Durability procedures for large volume manufacturers of intermediate age light-duty vehicles, light-duty trucks and heavy-duty complete vehicles that follow provisions in 40 CFR 86.1820–01 may eliminate precious metal composition and catalyst grouping statistic when creating clean alternative fuel durability groupings.

(9) Notify us by electronic submission in a format specified by the Administrator with all required documentation. The following must be submitted:

(i) Describe how your conversion system qualifies as a clean alternative fuel conversion. You must include emission test results from the required exhaust and evaporative emissions testing, applicable exhaust and evaporative emissions standards and deterioration factors. You must also include a description of how the test vehicle/engine selected qualifies as a worst-case vehicle/engine under 40 CFR 86.1828–01 or 40 CFR 86.096–24(b)(3) as applicable.

(ii) Describe the group of vehicles/engines (conversion test group/conversion engine family) that are covered by your notification based on the criteria specified in paragraph (b)(2) or (b)(3) of this section.

(iii) In lieu of specific test data, the clean alternative fuel conversion manufacturer may be eligible to submit attestations for the appropriate statements of compliance.

(A) The test group/engine family converted to an alternative fuel has properly exercised the optional and applicable statements of compliance or waivers in the certification regulations in 40 CFR part 86, subparts A and S and 40 CFR part 1065.

(B) The test group/engine family converted to dual fuel operation retains

all the OEM fuel system, engine calibration, and emission control system functionality when operating on the fuel with which the vehicle was originally certified.

(C) The test group/engine family converted to dual fuel operation retains all the functionality of the OEM OBD system (if the OEM vehicles/engines are OBD equipped) when operating on the fuel with which the vehicle was originally certified.

(D) The test group/engine family converted to an alternative fuel has fully functional OBD systems (if the OEM vehicles/engines are OBD equipped) and therefore meets the OBD requirements in 40 CFR 86 subparts A and S when operating on the alternative fuel.

(E) The test group/engine family converted to dual fuel operation properly purges hydrocarbon vapor from the evaporative emission canister when the vehicles/engines are operating on the alternative fuel.

(F) The test group/engine family converted to an alternative fuel use fueling systems, evaporative emission control systems, and engine powertrain components which are compatible with the alternative fuel and designed with the principles of good engineering judgment.

(iv) Include any other information as the Administrator may deem appropriate to establish the conversion system is for the purpose of conversion to a clean alternative fuel.

(10) Conversion systems must be properly installed and adjusted such that the vehicle/engine operates consistent with the principles of good engineering judgment and in accordance with all applicable regulations.

(c) Documentation under this section may use the same test data used to certify conversion systems under § 85.510, subject to the applicable provisions for differentiating test groups/engine families.

#### **§ 85.520 Exemption provisions for outside useful life vehicles/engines.**

(a) You are exempted from the tampering prohibition with respect to outside useful life vehicles/engines if you properly document and notify EPA that the conversion system satisfies all the provisions in this section; you meet the labeling requirements in § 85.530 before you sell, import or otherwise facilitate the use of a clean alternative fuel conversion system; and you meet the applicable requirements in § 85.535. You may also meet the requirements under this section by complying with the provisions in § 85.515.

(b) Documenting and notifying EPA under this section includes the following provisions:

(1) You may notify us as described in this section instead of certifying the conversion system.

(2) Conversion test groups, evaporative/refueling families, and conversion engine families may be the same as those allowed for the intermediate age vehicle and engine program in § 85.515(b)(2) and (3), and the new and relatively new vehicle and engine program in § 85.510(b)(1)(ii) and § 85.510(b)(2)(ii), as applicable.

(3) Use good engineering judgment to specify, use, and assemble fuel-system components and other hardware and software that are properly designed and matched for the vehicles or engines in which they will be installed. You must submit a detailed description of the conversion system. The submission must provide a level of technical detail sufficient for EPA to confirm the conversion system's ability to sustain acceptable emission levels in a worst case vehicle/engine. Required technical information must include a complete characterization of exhaust and evaporative emissions control strategies, the fuel delivery system, durability, and specifications related to OBD system functionality. Good engineering judgment also dictates that any testing or data used to satisfy demonstration requirements be generated at a quality laboratory that is capable of performing official EPA emission tests and follows good laboratory practices.

(4) Notify us by electronic submission in a format specified by the Administrator with all required documentation. The following must be submitted, where applicable:

(i) The test group/engine family converted to an alternative fuel has properly exercised the optional and applicable statements of compliance or waivers in the certification regulations in 40 CFR part 86, subparts A and S and 40 CFR part 1065.

(ii) The test group/engine family converted to dual fuel operation retains all the OEM fuel system, engine calibration, and emission control system functionality when operating on the fuel with which the vehicle was originally certified.

(iii) The test group/engine family converted to dual fuel operation retains all the functionality of the OEM OBD system (if the OEM vehicles/engines are OBD equipped) when operating on the fuel with which the vehicle was originally certified.

(iv) The test group/engine family converted to an alternative fuel has fully functional OBD systems (if the OEM

vehicles/engines are OBD equipped) and therefore meets the OBD requirements in 40 CFR Part 86, subpart S when operating on the alternative fuel.

(v) The test group/engine family converted to dual fuel operation properly purges hydrocarbon vapor from the evaporative emission canister when the vehicle is operating on the alternative fuel.

(vi) The test group/engine family converted to an alternative fuel use fueling systems, evaporative emission control systems, and engine powertrain components which are compatible with the alternative fuel and designed with the principles of good engineering judgment.

(vii) Include any other information as the Administrator may deem appropriate to establish that the conversion system is for the purpose of conversion to a clean alternative fuel.

*Option 1 for paragraph (b)(5):*

(5) Notify us by electronic submission in a format specified by the Administrator with all required documentation. The following must be submitted, where applicable:

(i) Describe how your conversion system complies with the good engineering judgment criteria in § 85.520(b)(3) and/or other requirements under this subpart or other applicable subparts such that the conversion system qualifies as a clean alternative fuel conversion. The submission must provide a level of technical detail sufficient for EPA to confirm the conversion system's ability to sustain acceptable emission levels in a worst case vehicle/engine. Required technical information must include a complete characterization of exhaust and evaporative emissions control strategies, the fuel delivery system, durability, and specifications related to OBD system functionality. EPA may ask you to supply additional information, including test data, to support the claim that the conversion system does not increase emissions and involves good engineering judgment that is being applied for purposes of conversion to a clean alternative fuel.

(ii) Describe the group of vehicles or engines that are covered by your notification based on the criteria specified in paragraph (b)(2) of this section.

(iii) Include any other information as the Administrator may deem appropriate to establish the conversion system is for the purpose of conversion to a clean alternative fuel.

*Option 2 for paragraph (b)(5):*

(5) Notify us by electronic submission in a format specified by the

Administrator with all required documentation. The following must be submitted, where applicable:

(i) Describe how your conversion system complies with the good engineering judgment criteria in § 85.520(b)(3) and/or other requirements under this subpart or other applicable subparts such that the conversion system qualifies as a clean alternative fuel conversion.

(ii) Additionally, a clean alternative fuel conversion manufacturer must either

(A) Submit data demonstrating that the vehicle or engine would meet the applicable exhaust and evaporative emissions standards as if it were within its defined useful life, or

(B) Submit comparative emission test data to verify that emissions do not increase as a result of the fuel conversion. Submit data from two sets of the applicable exhaust and evaporative/refueling testing described in 40 CFR part 86 and part 1065, with the first test conducted before conversion and the second test after conversion. The data must demonstrate that emissions do not increase after conversion. The test vehicle(s)/engine(s) must be set to the manufacturer's tune up specification before the first test, and, apart from what is required of the normal conversion procedure, no additional adjustments to the vehicle/engine may occur between the first and second tests.

(iii) Describe the group of vehicles or engines that are covered by your notification based on the criteria specified in paragraph (b)(2) of this section.

(iv) Include any other information as the Administrator may deem appropriate to establish the conversion system is for the purpose of conversion to a clean alternative fuel.

*Option 3 for paragraph (b)(5):*

(5) Notify us by electronic submission in a format specified by the Administrator with all required documentation. The following must be submitted, where applicable:

(i) Describe how your conversion system complies with the good engineering judgment criteria in § 85.520(b)(3) and/or other requirements under this subpart or other applicable subparts such that the conversion system qualifies as a clean alternative fuel conversion. The submission must provide a level of technical detail sufficient for EPA to confirm the conversion system's ability to sustain acceptable emission levels in a worst case vehicle/engine. Required technical information must include a complete characterization of exhaust and

evaporative emissions control strategies, the fuel delivery system, durability, and specifications related to OBD system functionality. EPA may ask you to supply additional information, including test data, to support the claim that the conversion system does not increase emissions and involves good engineering judgment that is being applied for purposes of conversion to a clean alternative fuel.

(ii) Submit a printed version of results from an OBD scan tool following test procedures in 40 CFR 85.2222, with the exception that paragraph (c)(2) of this section does not apply. If necessary, the evaporative emission readiness monitor may remain unset for conversions to dedicated alternative gaseous fuels. The results may not demonstrate a failed test.

(iii) Describe the group of vehicles/engines that are covered by your notification based on the criteria specified in paragraph (b)(2) of this section.

(iv) Include any other information as the Administrator may deem appropriate, which may include test data, to establish the conversion system is for the purpose of conversion to a clean alternative fuel.

(6) Conversion systems must be properly installed and adjusted such that the vehicle or engine operates consistent with the principles of good engineering judgment and in accordance with all applicable regulations.

(c) You must keep records as described in § 85.535(e). EPA may ask for any documentation and/or conduct emission testing to demonstrate the conversion is for the purpose of a clean alternative fuel.

#### § 85.525 Applicable standards.

Vehicles and engines that have been converted to operate on a different fuel must meet emission standards and related requirements as follows:

(a) The following emission standards and related requirements apply for conversions of vehicles and engines with an original model year of 1992 or earlier:

(1) *Exhaust hydrocarbons.* Light-duty vehicles must meet the Tier 0 hydrocarbon standard specified in 40 CFR 86.094–8. Light-duty trucks must meet the Tier 0 hydrocarbon standard specified in 40 CFR 86.094–9. Otto-cycle heavy-duty engines must meet the hydrocarbon standard specified in 40 CFR 86.096–10. Diesel heavy-duty engines must meet the hydrocarbon standard in 40 CFR 86.096–11.

(2) *CO, NO<sub>x</sub> and particulate matter.* Vehicles and engines must meet the CO, NO<sub>x</sub>, and particulate matter emission

standards that applied for the vehicle or engine's original model year. If the engine was certified with a Family Emission Limit, as noted on the emission control information label, the modified engine may not exceed this Family Emission Limit.

(3) *Evaporative hydrocarbons.* Vehicles and engines must meet the evaporative hydrocarbon emission standards that applied for the vehicle or engine's original model year.

(b) For vehicles/engines with an original model year of 1993 or later, the modified vehicle or engine must meet the requirements that applied for the OEM vehicle/engine, or the most stringent OEM vehicle/engine standards in any allowable grouping. If the engine was certified with a Family Emission Limit for NO<sub>x</sub>, NO<sub>x</sub>+HC, or particulate matter, as noted on the vehicle emission control information label, the modified vehicle/engine may not exceed this Family Emission Limit.

#### § 85.530 Vehicle and commercial packaging labeling.

(a) The following labeling requirements apply for clean alternative fuel conversion manufacturers:

(1) You must make a supplemental emission control information label for each clean alternative fuel conversion system.

(2) On the supplemental label identify the OEM vehicles/engines for which you authorize the use of your clean alternative fuel conversion system, consistent with the requirements of this subpart. You may do this by identifying the OEM vehicle test group/engine family names and OEM model year as described in § 85.510(c) or § 85.515(c) to which your conversion is applicable. Your commercial packaging materials must also clearly describe this information.

(3) Include the following on the supplemental label:

(i) State that the vehicle/engine has been equipped with a clean alternative fuel conversion system designed to allow it to operate on a fuel other than the fuel it was originally manufactured to operate on. Identify the fuel or fuels the vehicle/engine is designed to use and provide a unique conversion test group/conversion engine family name and conversion evaporative/refueling emissions family name.

(ii) Identify your corporate name, address, and telephone number.

(iii) Include one of the following statements that describes how you comply under this subpart and any applicable mileage or age restrictions due to compliance demonstration pathway:

(A) "This clean alternative fuel conversion system has been certified to meet EPA emission standards."

(B) "Testing has shown that this clean alternative fuel conversion system meets EPA emission standards under the intermediate age vehicle program."

(C) "This conversion system is for the purpose of use of a clean alternative fuel in accordance with EPA regulations and is applicable only to vehicles and engines that are older than 11 years or 120,000 miles." (Values must be adjusted to reflect OEM useful life and useful life in hours should be added, if appropriate.)

(iv) State the following: "This conversion was manufactured and installed consistent with the principles of good engineering judgment and all U.S. Environmental Protection Agency regulations."

(4) On the supplemental label, identify any original parts that will be removed for the conversion and any associated changes in maintenance specifications.

(5) On the supplemental label, include the date of conversion and the mileage of the vehicle or engine (or hours of operation for the engine) at the time of conversion.

(b) The supplemental emission control information label shall be placed in a permanent manner adjacent to the vehicle or engine's original emission control information label if possible. If it is impractical to place the supplemental label adjacent to the original label, it must be placed where it will be seen by a person viewing the original label on a part that is needed for normal operation and does not normally need replacement.

(c) All information provided on clean alternative fuel conversion system packaging must be consistent with the required vehicle labeling information.

#### § 85.535 Liability, recordkeeping, and end of year reporting.

(a) Clean alternative fuel conversion manufacturers are liable for in-use performance of their conversion systems as outlined in this part.

(b) We may conduct or require testing on any vehicles or engines as allowed under the Clean Air Act. This may involve confirmatory testing or selective enforcement audits for clean alternative fuel conversion systems. Dual-fuel vehicles/engines may be tested when operating on either fuel type.

(c) Except for an application for certification, your actions to document compliance and notify us under this subpart are not a request for our approval. We generally do not give any formal approval short of issuing a

certificate of conformity. However, if we learn that your actions fall short of full compliance with applicable requirements we may notify you that you have not met applicable requirements or that we need more information to make that determination. The exemption from the tampering prohibition is void ab initio if the conversion manufacturer has not satisfied all of the applicable provisions of this subpart even if a submission to EPA has been made and the conversion system appears on EPA's publicly available list of compliant systems.

(d) Clean alternative fuel conversion manufacturers must accept in-use liability for warranty and recall for any parts or systems for which the failure can be traced to the conversion, regardless of whether application was proper or improper. The original equipment manufacturer shall remain liable for the performance of any parts or systems which retain their original function following conversion and are unaffected by the conversion. The applicable useful life of a clean alternative fuel converted vehicle/engine shall end at the same time of the useful life of the original vehicle.

(e) Clean alternative fuel conversion manufacturers must keep sufficient records for five years to show that they meet applicable requirements.

(f) Clean alternative fuel conversion manufacturers must submit an end of the year sales report to EPA describing the number of conversions. The number of conversions is the sum of the calendar year intermediate age and outside useful life conversions and the same model year certified clean alternative fuel conversions. The number of conversions will be added to any other vehicle and engine sales

accounted for using 40 CFR 86.1838-01 or 40 CFR 86.096-14 as appropriate to determine small volume manufacturer status.

**PART 86—CONTROL OF EMISSIONS FROM NEW AND IN-USE HIGHWAY VEHICLES AND ENGINES**

3. The authority citation for 40 CFR part 86 continues to read as follows:

**Authority:** 42 U.S.C. 7401-7671q.

**Subpart S—[Amended]**

4. Section 86.1810-01 is amended by revising paragraph (p) to read as follows:

**§ 86.1810-01 General standards; increase in emissions; unsafe conditions; waivers.**

(p) For Tier 2 and interim non-Tier 2 vehicles fueled by gasoline, diesel, natural gas, liquefied petroleum gas, or hydrogen manufacturers may measure non-methane hydrocarbons (NMHC) in lieu of NMOG. Manufacturers must multiply NMHC measurements from gasoline vehicles by an adjustment factor of 1.04 before comparing with the NMOG standard to determine compliance with that standard. Manufacturers may use other factors to adjust NMHC results to more properly represent NMOG results. Such factors must be based upon comparative testing of NMOG and NMHC emissions and be approved in advance by the Administrator.

5. Section 86.1829-01 is amended by revising paragraphs (b)(1)(iii)(E) and (F), and by revising the last sentence of paragraph (b)(2)(i) to read as follows:

**§ 86.1829-01 Durability and emission testing requirements; waivers.**

- (b) \* \* \*
- (1) \* \* \*
- (iii) \* \* \*

(E) In lieu of testing a gasoline or diesel fueled, natural gas, liquefied petroleum gas, or hydrogen fueled Tier 2 or interim non-Tier 2 vehicle for formaldehyde emissions when such vehicles are certified based upon NMHC emissions, a manufacturer may provide a statement in its application for certification that such vehicles comply with the applicable standards. Such a statement must be based on previous emission tests, development tests, or other appropriate information.

(F) In lieu of testing a petroleum-fueled, natural gas, liquefied petroleum gas, or hydrogen fueled heavy-duty vehicle for formaldehyde emissions for certification, a manufacturer may provide a statement in its application for certification that such vehicles comply with the applicable standards. Such a statement must be based on previous emission tests, development tests, or other appropriate information.

- (2) \* \* \*

(i) \* \* \* In lieu of testing natural gas, liquefied petroleum gas, or hydrogen fueled vehicles to demonstrate compliance with the evaporative emission standards specified in § 86.1811-04(e), a manufacturer may provide a statement in its application for certification that, based on the manufacturer's engineering evaluation of appropriate testing and/or design parameters, all light-duty vehicles, light-duty trucks, and complete heavy-duty vehicles comply with applicable emission standards.

\* \* \* \* \*

[FR Doc. 2010-11149 Filed 5-25-10; 8:45 am]

**BILLING CODE 6560-50-P**