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40 CFR Parts 85 and 86
Clean Alternative Fuel Vehicle and Engine Conversions; Final Rule

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 85 and 86

[EPA–HQ–OAR–2009–0299; FRL–9289–7]

RIN 2060–AP64

Clean Alternative Fuel Vehicle and Engine Conversions

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: EPA is streamlining the process by which manufacturers of clean alternative fuel conversion systems may demonstrate compliance with vehicle and engine emissions requirements. Specifically, EPA is revising 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. This final rule creates additional compliance options beyond certification that 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 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: The rule is effective April 8, 2011.

ADDRESSES: EPA has established a docket for this action under Docket ID No. EPA–HQ–OAR–2009–0299. 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*.

SUPPLEMENTARY INFORMATION:

Affected Entities

This action will affect companies and persons that manufacture, assemble, sell, import, 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 [1]	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**.

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[1] North American Industry Classification System (NAICS).

I. Introduction

With the vast majority of motor 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 clean alternative 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 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. EPA is streamlining the process by which manufacturers of clean alternative fuel conversion systems may demonstrate compliance with these vehicle and engine emissions requirements. The new options reduce some economic and procedural impediments to clean alternative fuel conversions while maintaining environmental safeguards to ensure that acceptable emission levels from converted vehicles and engines [2] 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. The 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.[3] Once certified, the vehicle or engine generally may not be altered from its certified configuration.[4] 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 and engine 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 help achieve 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. The previous compliance requirements provided adequate environmental oversight but were not optimal for the conversions industry, and especially not for conversion of older vehicles and engines. To address these concerns, EPA is updating the regulations with practical, streamlined testing and administrative requirements that ensure long-term compliance without imposing unnecessary burden on converters. This action is also consistent with the President's January 18, 2011 Executive Order (EO) 13563, "Improving Regulation and Regulatory Review." Specifically, this EO directs, under Section 4, Flexible Approaches, that "where relevant, feasible, and consistent with regulatory objectives, and to the extent permitted by law, each agency identify and consider regulatory approaches that reduce burdens and maintain flexibility and freedom of choice for the public."

On May 26, 2010, (75 FR 29606) EPA proposed rule changes to simplify and streamline the process [5] by which manufacturers of clean alternative fuel conversion systems may demonstrate compliance with emissions requirements. EPA held a public hearing on the proposal on June 23, 2010 and

[2] EPA's emission standards generally are associated with either vehicle (chassis) or engine test procedures, depending on the vehicle's gross vehicle weight rating and other factors. In this rulemaking, we may use the terms "vehicle/engine," "vehicle and engine," or "vehicle or engine," when referring to concepts that are applicable to either the vehicle or engine depending on the applicable standard.

[3] *See* CAA sections 202, 203, and 206.

[4] CAA section 203.

[5] These regulations were originally promulgated on September 21, 1994 (59 FR 48472) and located in 40 CFR part 85, subpart F.

accepted public comment through July 23, 2010. Comments generally supported the proposed rule changes. These comments are available for public viewing in Docket EPA–HQ–OAR–2009–02999. Docket content can be viewed and/or downloaded at *http://www.regulations.gov*. Our responses to these comments are detailed in the Response to Comments document, which is available in the public docket and on our Web site.[6] In this final rule we present background information and provide a description of the content, timing, and rationale for the final program. For background and details regarding the proposal, readers should consult the Notice of Proposed Rulemaking and related documents. EPA is finalizing the rule revisions largely as proposed. The revised program expands compliance options for conversion manufacturers and establishes less burdensome demonstration requirements that will nonetheless sustain EPA's oversight and longstanding commitment to the environmental integrity of clean alternative fuel conversions.

This new approach 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 also addresses the uncertainty some converters may previously have experienced in determining whether a conversion constitutes tampering that could result in liability. EPA is revising 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[7] differently based on vehicle or engine age. The new program facilitates 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),[8] (2) 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 engines), and (3) conversions of vehicles or engines that are outside EPA's definition of useful life ("outside useful life" vehicles and engines).

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 Original Equipment Manufacturer (OEM) certificate of conformity. Such vehicles/engines typically have the majority of their useful life remaining. In addition, the condition of a relatively new vehicle or engine is still likely to be representative of the OEM vehicle or engine used in certification testing. A certification requirement for new vehicle and engine conversion also eliminates any perceived incentive that might otherwise exist for OEMs to convert a certified traditional configuration rather than to certify an alternative fuel configuration in the first place. Thus, EPA is finalizing procedures that largely retain the current certification protocols for manufacturers of conversion systems for new vehicles and engines, while providing some new flexibility in grouping such vehicles or engines for certification purposes. For the second category, intermediate age vehicles and engines, EPA is finalizing demonstration protocols whereby fuel conversion manufacturers demonstrate through testing that the converted vehicle or engine still meets applicable CAA section 202 emission standards. For the third category, vehicles and engines outside their full useful life, there is no longer an applicable standard to serve as a benchmark, because the CAA section 202 emission standards apply only within the useful life. Therefore, EPA sought comment on three 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. EPA also offered an alternate approach for comment that would have created two subcategories of outside useful life vehicles/engines. EPA is finalizing the demonstration protocol described in the proposal as Option 3 and is adopting a single outside useful life category based on the current regulatory definition. Manufacturers of conversion systems designed for outside useful life vehicles and engines must submit detailed technical information describing the conversion system and a scan tool report showing that both vehicle/engine emission controls and the On-Board Diagnostic (OBD) system continue to work properly.

The purpose of the revised program is to expand compliance options for conversion manufacturers while sustaining EPA's oversight and longstanding commitment to the environmental integrity of clean alternative fuel conversions. Consistent with this intent and with the CAA, EPA requires any conversion to be technically sound, regardless of the vehicle or engine age category, and will continue to hold the conversion manufacturer accountable for acceptable emissions performance once the converted vehicle or engine is in customer service. EPA will employ compliance tools as appropriate, such as confirmatory testing and in-use vehicle/engine emissions monitoring to check fleet performance, as it does with OEM vehicles/engines.

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.[9] 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.[10] Each certificate is valid for up to one model year.[11]

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.[12] The full useful life

[6] *See* Response to Comments document at *http://www.regulations.gov* under docket id EPA–HQ–OAR–2009–0299 or at *http://www.epa.gov/otaq/consumer/fuels/altfuels/altfuels.htm.*

[7] The term "requirements" is often used in the preamble and regulatory text for this rulemaking to refer to the notification, demonstration, and other regulatory provisions that a conversion manufacturer must satisfy to qualify under this rule for an exemption from the CAA tampering prohibition. These requirements only apply to conversion manufacturers seeking an exemption under this rule. Any person who does not obtain an exemption and whose conduct constitutes tampering is liable under the CAA.

[8] *See* Section IV.A and Sections 85.505 and 85.510. Sections 85.505(b)(1) and 85.510 apply 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/engine. In this preamble, we refer to these "new and relatively-new" vehicles/engines as "new" only as a shorthand reference to the category of "new and relatively-new" engines/vehicles. This shorthand use of "new" is not intended to mean that these vehicles/engines are "new" under the Act or any EPA regulations.

[9] CAA section 203(a)(1).

[10] CAA sections 202 and 206.

[11] 40 CFR 86.1848–01.

[12] CAA section 202.

varies among pollutant standards and among vehicle or engine categories.[13] For example, recent model year light-duty vehicles (cars and small trucks) generally have a useful life of 10 years or 120,000 miles, whichever comes first;[14] recent model year heavy-duty chassis certified[15] vehicles and medium-duty passenger vehicles generally have a useful life of 11 years or 120,000 miles, whichever comes first;[16] and current Otto-cycle heavy-duty engines have a useful life of 110,000 miles or 10 years, whichever first occurs.[17] 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.[18]

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 and engines regardless of age or mileage accumulation.[19]

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."[20]

E. Authority for 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 40 CFR part 85, subpart F regulations ("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."[21]

Today's final rule 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 finalizing a program that requires a demonstration to satisfy both of these criteria for vehicles/engines that are still within their useful life. For vehicles/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/engines can be converted to use alternative fuels. Only clean alternative fuel conversion systems that comply with the regulations will qualify for the CAA section 203(a) exemption from the tampering prohibition for application to outside useful life vehicles and engines. Thus, EPA is finalizing 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 is required to demonstrate that emissions have not degraded as a result of the clean alternative fuel conversion. Such a demonstration serves 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 revised clean alternative fuel conversion program is designed to increase flexibility for conversion manufacturers while ensuring that converted vehicles/engines 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 fuel vehicles or engines, (2) those that result in dual-fuel vehicles or engines, and (3) those that result in mixed-fuel[22] (also known as bi-fuel and flexible-fuel) vehicles or engines.[23] The first type, dedicated alternative fuel vehicles or engines, are only capable of operating on one type of fuel. Dual-fuel vehicles or engines, the second type, can operate on two or more types of fuel, either the fuel(s) they were originally designed for or the new alternative fuel(s). Dual-fuel vehicles and engines can run on more than a single type of fuel but not on a mixture of the fuels. The third type, mixed-fuel vehicles or engines, are able to operate

[13] Regulations may also include optional standards such as in 40 CFR 86.1805–04(b) and (e).

[14] 40 CFR 86.1805–04.

[15] In this preamble we call heavy-duty vehicles that are currently regulated under 40 CFR subpart S "heavy-duty chassis certified vehicles". In the proposal we called this group of vehicles "heavy-duty complete vehicles".

[16] 40 CFR 86.1805–04. An optional useful life of 15 years or 150,000 miles, whichever comes first, may apply. 40 CFR 86.1860–04 (g).

[17] 40 CFR 86.004–2.

[18] 40 CFR 86.004–2.

[19] 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 an available exemption would be a violation of the CAA for which section 205 authorizes EPA to assess penalties. *See* 40 CFR part 19.

[20] CAA section 203(a).

[21] 59 FR 48477 (Sep. 21, 1994).

[22] The term "flex-fuel" was used in the proposal. Because there are multiple uses and definitions of flexible-fuel in 40 CFR part 86, in this rule we call this category of fuel conversion "mixed-fuel." This definition only applies to clean alternative fuel vehicle and engine conversions.

[23] Note that other Federal agencies may define terms such as dual-fuel and bi-fuel differently than EPA definitions.

on either the original fuel(s) or the alternative fuel(s), or on a mix of the fuels. Mixed-fuel vehicles/engines are capable of combusting the different fuel types together in the engine. For example, an ethanol flexible-fuel vehicle is a mixed-fuel vehicle that can operate on 100% gasoline, or on any combination of gasoline and ethanol up to a mixture of 85% ethanol and 15% gasoline (known as "E85"). Conversions that enable an OEM diesel configuration to operate on either diesel fuel or a diesel-gaseous fuel mixture represent another example of a mixed-fuel vehicle/engine conversion system.

EPA 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 will continue to regulate typical types of conversions, 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.[24]

A. Clean Alternative Fuel Conversions

Clean alternative fuel conversions for which the conversion manufacturer has complied with the revised subpart F regulations qualify for the CAA section 203(a) exemption from the tampering prohibition. EPA received comments suggesting that the definition of clean alternative fuel conversion should be limited to a group of fuels with proven emission benefits. EPA believes however that the public interest is better served by a broader definition that allows for future introduction of innovative and as-yet unknown fuel conversion systems. EPA is therefore finalizing the proposed definition of 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. EPA received comments expressing concern that a definition of conversion manufacturer that includes multiple parties potentially involved in a conversion process is too broad. EPA is finalizing the conversion manufacturer definition as proposed. The broad definition is intentional because any of the listed entities could potentially conduct the required compliance demonstration and thereby achieve eligibility for the tampering exemption. However, for any given test group or engine family, EPA expects that only one entity will function as the "clean alternative fuel conversion manufacturer." Should none of the listed entities satisfy the subpart F regulations for a covered fuel conversion, then all could potentially be liable for a tampering violation.

To demonstrate clean alternative fuel conversion compliance and gain exemption from the CAA tampering prohibition, conversion manufacturers are required to submit data and/or other information to EPA. For purposes of this preamble 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 depend on the age of vehicles or engines being converted, but the general demonstration and notification requirements 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 previous requirement that is not specifically addressed in this final rule will remain in place.

B. Good Engineering Judgment

A clean alternative fuel conversion manufacturer is 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 means 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 outside useful life. Such documentation must be submitted to EPA in writing before any conversion kit is distributed or installed. EPA will 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 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.[25] Good engineering judgment also dictates that any testing or data used to satisfy demonstration requirements must be generated at a quality laboratory that

[24] *See* 40 CFR 86.1840–01.

[25] For example, EPA received a comment suggesting that vehicle fuel converters might take advantage of the OBD system diagnostic capabilities by interrogating the system before and after conversion using an OBD scan tool. Monitors supported by the OBD system may include misfire, oxygen sensors, catalyst monitor, exhaust gas recirculation (EGR), and evaporative emission controls. The converter could examine exhaust emission controls by collecting and interrogating Mode $6 data. Fueling system control could be examined through interrogation of Mode $1 data using the same scan tool. By comparing the numerical values read from a scan tool against the OBD failure thresholds, the vehicle fuel converter would be able to understand the robustness of the OBD system when operating on the alternative fuel and make any necessary calibration changes to the vehicle. This type of OBD information would provide greater assurance that the conversion does not render the OBD system susceptible to producing false negative or false positive results. This type of procedure is not a substitute for any other OBD demonstration requirements, but would add value in demonstrating good engineering judgment. For further examples of good engineering judgment, *see* Section IV.C.3.

exercises good laboratory practices and is capable of performing emission tests that comply with EPA regulations.

C. Vehicle/Engine Groupings and Emission Data Vehicle/Engine 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 emission controls, evaporative emission controls, and 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 chassis certified 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.[26] Even though heavy-duty engine certificates are based on a different compliance 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. EPA proposed to slightly broaden grouping criteria for clean alternative fuel conversions and generally received favorable comment about the proposed flexibilities. EPA is adopting broader grouping criteria for both light-duty vehicles and heavy-duty engines.

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

OEMs have considerable ability to carryover test data between test groups/engine families and evaporative/refueling families of different model years. A manufacturer may use one set of data to support the certification application of a subsequent year's test group/engine family as long as the groups meet the regulatory grouping criteria and meet the same emission standards.[27] EPA is finalizing provisions that allow converters the same flexibility, that is, a converter is allowed to carryover data if the OEM did.

In addition to these data carryover provisions, EPA proposed to broaden the grouping criteria for clean alternative fuel conversions, but received comments requesting that the proposed criteria for designating test groups/engine families be broadened even further.[28]

Commenters especially sought the ability to combine vehicles/engines from multiple model years and/or multiple OEMs within a single conversion test group/engine family. EPA does not agree that the grouping flexibilities should be further expanded to allow conversion test groups/engine families to span multiple OEM model years or manufacturers. Emission control strategies may and often do differ in critical ways among manufacturers, or even among product lines of a single manufacturer. EPA did not receive any data or other evidence to alleviate concerns that these differences could result in variable emissions performance among vehicles/engines in a broader grouping, even if some features such as engine displacement are identical. For example, even in vehicles with the same engine displacement and cylinder configuration, other technical features are likely to be different enough to warrant concern that the emissions will be very different after the vehicles are converted. Different manufacturers rarely use identical emissions-related hardware and software. Furthermore, manufacturers often change components and strategies between model years as technology improves. The engine controller software will likely reflect these different strategies, so there is no assurance that a given conversion system will operate similarly or remain durable on one manufacturer's vehicle compared to another, or on different model year vehicles of an individual manufacturer. EPA does not have confidence that significant broadening of conversion test group/engine family criteria, or expansion of carryover/carry-backward/carry-across provisions can be allowed without compromising our assurance that the conversion system will achieve equivalent emission control across the full test group/engine family. EPA believes the criteria for conversion test group/engine family combinations, which were first presented in guidance on June 20, 2009 and which EPA is codifying in this final rule, represent an appropriate balance between reducing compliance burden for converters and fulfilling EPA's responsibilities to ensure that all vehicles/engines remain clean.

Because of the integral link between grouping criteria and selection of a worst case EDV/EDE to represent that group, EPA also requested comment on whether a worst case EDV/EDE would adequately represent test groups/engine families created under the proposed criteria. Most commenters stated that a worst case EDV/EDE is a reasonable approach. One commenter expressed concern about whether a worst case EDV/EDE would be sufficient to represent broader test groups. EPA will address this concern by retaining the ability to examine the conversion manufacturer's basis for EDV/EDE selection. Should EPA have concerns about whether the EDV/EDE adequately represents the grouping, EPA may request additional data from other

[26] Certain fuels such as diesel fuel do not have evaporative emissions standards.

[27] *See* 40 CFR 86.1827–01 and 40 CFR 86.001–24 for test group and engine family criteria. *See* 40 CFR 86.1839–01 for OEM carry-over provisions for light-duty and heavy duty chassis certified vehicles.

[28] EPA requested and received comment on the proposed test group/engine family grouping criteria, including the carryover of test data from one group to another, and on the related issue of EDV or EDE selection. The issues are interconnected because the narrower the grouping and carryover criteria, the less technical variability among vehicle or engine models within the group and the more likely that a single EDV or EDE will be representative.

vehicles or engines in the group. Please *see* the Response to Comments document for further discussion of this issue.

D. Mixed-Fuel and Dual-Fuel Conversions

EPA regulations require mixed-fuel and dual-fuel vehicles and engines to comply with all requirements established for each fuel or blend of fuels on which the system is capable of operating.[29] These requirements continue to apply to mixed- 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 mixed-fuel operation alters the OEM certified configuration in any way while operating on the original fuel, then EPA requires the conversion manufacturer to demonstrate compliance for each fuel with all applicable exhaust emission standards, evaporative/refueling emission standards and OBD demonstration and notification requirements, appropriate for the age of the vehicle/engine as described in Section IV.

EPA will 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/engine was originally certified. The conversion must also retain all the functionality of the OEM OBD system (if so equipped) when operating on the fuel with which the vehicle/engine was originally certified. The conversion manufacturer is required to submit data demonstrating compliance with the applicable requirements when the vehicle/engine is operating on the new alternative fuel.[30]

Because a mixed-fuel vehicle or engine operates on a fuel mixture, with the fuels combusted together at a variety of fuel blend ratios, mixed-fuel vehicles/engines are expected to demonstrate compliance when tested on any fuel blend ratio that is expected to occur during normal operation. EPA may require a mixed-fuel vehicle or engine conversion manufacturer to demonstrate compliance with applicable requirements on more than one fuel blend ratio.[31] For example, E–85 flexible-fuel vehicles would generally be tested on two fuel blend ratios—100% gasoline/0% ethanol and 85% ethanol/15% gasoline. Other types of mixed-fuel vehicles/engines would generally be tested on a fuel blend ratio that represents the worst case emission scenario. Conversion systems designed for a fluctuating fuel mix, such as a CNG/diesel fuel mixture, would generally be tested as they would normally operate rather than on a discrete mixed fuel blend ratio. Conversion manufacturers should work with EPA to make good engineering judgment decisions about the worst case EDV or EDE for mixed-fuel vehicles and engines.

EPA has specific concerns about canister purge in dual-fuel and mixed-fuel [32] 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 or mixed-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 and mixed-fuel conversions, EPA is requiring the conversion manufacturer 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 or mixed-fuel operation, the attestation must include statements that the evaporative emissions canister purge continues to operate as originally designed while operating on each fuel. EPA expects 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. Conversion manufacturers may submit a statement of attestation rather than test data only if the canister purge operation properly purges hydrocarbon vapor from the evaporative emission canister when the vehicle/engine is operating on the alternative fuel.

E. Vehicle/Engine Labels, Packaging Labels, and Marketing

EPA proposed to maintain existing labeling requirements and also proposed to require some additional content on the conversion label. Comments on the labeling proposal were mixed. Some commenters suggested additional labeling requirements beyond those that were proposed. Other commenters opposed any new labeling requirements beyond those required in the original subpart F regulations. One commenter suggested allowing conversion manufacturers to supply the new information in marketing material rather than on the underhood or engine label. Several commenters supported the new labeling mandates, expressing that the new information would help with proper identification and application. EPA is finalizing the labeling requirements as proposed. We acknowledge that it may be challenging to fit all the information on an underhood or engine label; however, EPA believes that the new label content is important, as is clear labeling in general, to reduce the potential for misapplication (*e.g.,* installing a conversion system on a vehicle/engine that is not covered by the manufacturer's demonstration and notification to EPA). To address concerns about space limitations, EPA will allow the label information to be logically split between two labels that are both placed as close as possible to the original Vehicle Emission Control Information (VECI) or engine label. The newly required content includes: (1) The conversion test group/engine family and evaporative/refueling family; (2) the OEM test group/engine family and evaporative/refueling family, plus the OEM vehicle/engine model year to which the conversion system is applicable; and (3) a description of the age-based demonstration through which the conversion system obtained its tampering exemption.

Conversion manufacturers are required to submit the vehicle/engine label information to EPA as part of the notification process. Failure to supply or install compliant labels leaves conversion manufacturers and installers subject to prosecution for tampering.

EPA sought comment about whether conversion manufacturers should be required to submit to EPA the Vehicle Identification Number (VIN) of any converted vehicle, in addition to vehicle label information. EPA received some comments stating that VIN tracking is not necessary and other comments

[29] *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 86.1814–02, 40 CFR 86.1815–02, 40 CFR 86.1816–08.

[30] Compliance testing and data submission requirements vary by vehicle age and mileage. *See* Section IV.

[31] *Id.*

[32] The proposal discussed dual-fuel vehicles/engine evaporative emissions concerns; however, these flexibilities and restrictions are also applicable to mixed-fuel vehicles/engines, since mixed-fuel vehicles/engines function similarly to dual-fuel vehicles/engines. Vehicles and engines converted to mixed-fuel operation can generally operate on the new alternative fuel(s), on the original fuel(s), or on a mixture of the fuels.

stating that VIN tracking could be useful. EPA has evaluated comments and is not adopting a VIN tracking requirement. It is neither practical for EPA to develop and maintain a VIN tracking system nor is it feasible for EPA to enforce against installers who may fail to report VINs. EPA believes that the required label is sufficient to inform concerned parties that a vehicle or engine has been converted.

EPA expects any marketing material associated with any aftermarket fuel conversion product to be consistent with and not contravene the information required on the vehicle/engine or packaging labels. In addition, the marketing material and label information for a given conversion system must always be consistent with the conversion manufacturer's demonstration and notification to EPA for that system.[33] Conversion manufacturers who market conversion systems for use on vehicles/engines other than the test group/engine families and evaporative/refueling families covered by the demonstration and notification may be liable for a tampering violation for each vehicle/engine to which conversion system is misapplied.

F. Compliance

Clean alternative fuel conversion manufacturers will continue to be subject to all certification requirements and warranty, defect, and recall requirements applicable to new vehicle/engine manufacturers in 40 CFR parts 85 and 86.[34]

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. OEM standards continue to apply for the required test cycles, including intermediate useful life standards and full useful life standards where applicable.[35] If a converter designates a conversion group that combines multiple OEM test groups/engine families, the most stringent OEM standards represented within that group 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 are subject to the more stringent Tier 2, Bin 4 standard.

All applicable OEM certification standards are also applicable to fuel conversions unless specifically exempted, including heavy-duty Family Emission Limits (FELs), light-duty 15 year/150,000 mile Tier 2 standards, and greenhouse gas standards. In addition, any newly-required test procedures or standards that apply to the certification of OEM alternative fuel vehicles/engines would also apply to fuel conversions.

EPA sought comment about whether to require a statement of compliance or exhaust demonstration requirement for light-duty vehicle US06 standards. Most commenters stated that EPA should not add the US06 drive cycle and standard to the demonstration requirements for alternative fuel vehicles. At this time, EPA is not adding a US06 standard for clean alternative fuel vehicle conversions, since US06 testing is not required for certification of OEM alternative fuel vehicles.

EPA received comment requesting clarification about whether a manufacturer may certify a clean alternative fuel conversion to a more stringent standard than the OEM did. EPA does allow fuel conversion manufacturers to certify to more stringent standards than the standards to which the OEM vehicle/engine was certified as long as the vehicles/engines in the test group/engine family demonstrate compliance with the standard in all modes of operation (*see* III.F.1.c).

a. Light-Duty and Heavy-Duty Chassis Certified Vehicle Gross Vehicle Weight Classes and Alternative Fuel Exceptions

Emission standards for light-duty passenger cars, light-duty trucks, medium-duty passenger vehicles, and Otto-cycle heavy-duty chassis certified vehicles less than 14,000 pound gross vehicle weight are codified in 40 CFR part 86, subpart S.[36] 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.[37] However, for dual-fuel and mixed-fuel light-duty vehicles, SFTP and cold CO standards do apply while the vehicle is operating on gasoline or diesel fuel.[38] At this time, EPA is not adopting SFTP standards and testing for alternative fueled light-duty vehicles for either OEM vehicles or clean alternative fuel conversions (*see* Section IV.A.3.a).[39] However, as stated in the proposed rule,[40] if future SFTP standards are amended to apply to vehicles operated on alternative fuels, those standards and test procedures would also be applicable to fuel conversions.

A commenter questioned whether light-duty vehicle conversions are subject to greenhouse gas standards. Conversions are subject to the same standards that applied to the OEM vehicle. Thus vehicle conversions are subject to greenhouse gas standards if the OEM vehicle was subject to greenhouse gas standards, unless the conversion manufacturer qualifies for exemption as a small business.[41] There are also conditional exemptions for light-duty greenhouse gas requirements available to low volume manufacturers. *See* 40 CFR 86.1801–12(k) for more information. *See* Section V for technical amendments relating to light-duty greenhouse gas compliance.

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

Heavy-duty engine standards are categorized in several ways. There are

[33] 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/engine.

[34] The OEM certification requirements and warranty, defect, and recall requirements apply even if they are moved to other locations in the CFR.

[35] In almost all cases the standards in place for an OEM vehicle or engine 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 will be held to the evaporative emission standards that would have applied to an OEM vehicle certified operating on that fuel.

[36] For purposes of this preamble, this group of vehicles will be described as light-duty and heavy-duty chassis certified vehicles from this point forward.

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

[38] 40 CFR 86.1810–01(i)(4) and 40 CFR 86.1811–04(g).

[39] 40 CFR 86.1811–04(f).

[40] 75 FR 29613 (May 26, 2010).

[41] *See* 40 CFR 86.1801–12(j).

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 set forth in 40 CFR part 86, subpart A. Generally, heavy-duty engine standards apply to engines installed in vehicles with a gross vehicle weight rating (GVWR) greater than 8,500 pounds. OEM manufacturers 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. EPA proposed to require conversion manufacturers to meet the same standards that applied to the OEM. Thus converters of engine certified heavy-duty vehicles between 8,500 and 14,000 pounds would have been required to meet engine standards, even if chassis certification test procedures were available to the OEM. EPA received numerous comments requesting relief from this proposed requirement. EPA evaluated these comments and has determined that it is appropriate to allow conversion manufacturers to use chassis test procedures that were available to the OEM, even if the OEM chose to engine certify. Thus EPA is adopting provisions whereby manufacturers of conversion systems for engines that would have qualified for chassis certification at the time of OEM certification may use those procedures, even if the OEM did not.[42] Conversion manufacturers choosing this option must designate test groups using the appropriate criteria as prescribed in this rule and meet all vehicle chassis certification requirements set forth in 40 CFR part 86, subpart S.

c. Dual-Fuel and Mixed-Fuel Standards

EPA as a matter of policy requires dual-fuel and mixed-fuel[43] vehicles and engines to certify operation on all fuel types to the same emission standards. A dual-fuel natural gas-gasoline vehicle, for example, must 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 or mixed-fuel systems must certify to the OEM standard, even if test data demonstrate that the converted vehicle or engine is able to meet a more stringent standard while operating on the alternative fuel. If a conversion manufacturer wishes to certify to a lower standard on all fuels, a demonstration showing compliance with the lower standard is required on all fuels.[44] This policy will continue to apply to all vehicle/engine fuel conversions, regardless of age or compliance program. The notification process for a dual-fuel or mixed-fuel vehicle/engine will require separate submissions for groups of vehicles/engines with different standards, unless testing is conducted which demonstrates compliance on all fuels with the most stringent standards in the group. 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 test groups and engine families, described in Sections IV.A.2 and IV.B.2.

2. Useful Life

In the rulemaking that established the original 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.[45] EPA's revised program leaves this determination unchanged such that the applicable useful life of a converted vehicle or engine does not extend beyond the useful life of the original vehicle or engine. Thus, the useful life of the conversion will continue to end at the same time as the useful life of the original vehicle/engine, including any optional useful life standards to which the OEM certified the original vehicle/engine.[46]

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 are required to have properly functioning OBD systems once converted.[47] 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 that may require repair. OBD systems are also designed to store diagnostic information in the vehicle's/engine's computer to assist technicians in diagnosing and repairing the problem. The conversion OBD system is part of the emission control system and must include any new monitoring capability necessary to identify potential emission problems associated with the new fuel. In addition, consistent with other EPA regulations, this regulation requires that any dual-fuel or mixed-fuel clean alternative fuel conversion OBD system remain fully functional on the original fuel and function properly on the conversion fuel.[48]

4. Durability Testing

Conversion 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 chassis certified 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, 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 and qualified small volume test groups/engine families may be eligible to use EPA assigned deterioration factors to predict the emission rates at the end of a vehicle's or engine's useful life. *See* Section IV.B.3.c for more information.

EPA requested comment as to whether the proposed durability procedures were appropriate for small

[42] These provisions (and available options) apply to 8,500 to 14,000 GVWR Otto-cycle complete and incomplete heavy-duty vehicles for model year 2001 and forward, and for 8,500 to 14,000 GVWR compression ignition engines in complete and incomplete heavy-duty vehicles for model year 2007 and forward. *See* 40 CFR 86.1801–01, 86.1816–05, and 86.1863–07.

[43] The proposed rule referred to dual-fuel vehicles/engine standards; however, the flexibilities and restrictions applicable to dual-fuel vehicles/engines are also applicable to mixed-fuel vehicles/engines, since mixed-fuel vehicles/engines function similarly to dual-fuel vehicles/engines. Vehicles and engines converted to mixed-fuel operation can generally operate on the new alternative fuel(s), on the original fuel(s), or on a mixture of the fuels.

[44] For mixed-fuel vehicles, a demonstration may be required on the new fuel(s), on the original fuel(s), and on a worst-case mixture of the fuels.

[45] 59 FR 48488 (Sep. 21, 1994).

[46] Examples of optional useful life include those described in 40 CFR 86.1805–04(b) and (e).

[47] OBD systems were phased in for light-duty and heavy-duty complete vehicles beginning in model year 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 model year 2004. *See* 40 CFR 86.005–17. OBD requirements for heavy-duty engines for vehicles over 14,000 pounds began phase-in in model year 2010. *See* 40 CFR 86.010–18. 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.

[48] Multi-fueled vehicles, such as dual-fuel and mixed-fuel vehicles must be compliant on both fuels. *See,* for example, 40 CFR 86.1811–01.

and large volume conversion manufacturers. EPA also requested comment on whether the proposed procedures provided adequate assurance that the emission control systems in converted vehicles and engines would continue to function properly over time. Comments ranged from requests for small volume conversion manufacturer relief from the stringency of the EPA assigned deterioration factors to comments that the regulations should require more durability assurance from conversion manufacturers. EPA is adopting the durability procedures largely as proposed. *See* the assigned deterioration factors discussion in Section III.G.2 and the Response to Comments document for a more detailed discussion.

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.[49] For light-duty vehicles, this defect warranty is applicable through two years or 24,000 miles of use (whichever first occurs).[50] Specified major emission control components, including catalysts, engine control units (ECUs), and OBD are warranted for eight years or 80,000 miles of use (whichever first occurs).[51] 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 OEM provides.[52] Under EPA's previous aftermarket conversions program, conversion manufacturers had to accept in-use liability for warranty and recall as a condition for gaining exemption from tampering.

EPA will continue to apply this approach to in-use liability for warranty for all clean alternative fuel conversions. 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/engine. 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/engines are experiencing the problem, it would be appropriate to trace the problem to the conversion and to hold the converter responsible for warranty repairs.

EPA sought 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. EPA received mixed comment on this issue. OEMs stated that EPA should require information on the underhood and other vehicle labels to indicate that conversion might void the OEM warranty. Alternative fuels advocates stated that EPA should mandate label statements that conversion does not void the OEM warranty. For practical reasons involving space restrictions on the underhood/engine label, EPA is not finalizing any additional labeling requirements with regard to warranty. However, EPA recognizes that consumers need to understand the warranty implications of conversions and plans to convey this information to the public through outreach materials, Web site postings, and other communication channels.

6. Other Provisions Applicable to Conversion Manufacturers

As stated above, all clean alternative fuel conversion manufacturers continue to be subject to labeling, warranty, and certification requirements applicable to new vehicle and engine manufacturers in 40 CFR parts 85 and 86.[53] [54] Conversion manufacturers will also continue to be exempt from fleet averaging and the averaging, banking, and trading credit programs available to OEMs as well as from the fuel economy labeling program in 40 CFR part 600.

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 conversion manufacturer to recall and fix affected vehicles/engines.[55] All conversion 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. These emission testing programs cover clean alternative fuel conversions as well as OEM vehicles/engines.

7. Misapplication

EPA may revisit the age-based approach 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/engines 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.

G. Regulatory Procedures for Small Volume Manufacturers and Small Volume Test Groups, and Small Volume Engine Families

EPA regulations afford certain flexibilities to small volume manufacturers in recognition of special compliance challenges they may face. The clean alternative fuels conversion industry has historically been comprised of companies that qualify for small volume manufacturer status. Eligibility criteria and special procedures available to small volume

[49] 42 U.S.C. 7541.

[50] CAA section 207(i)(1).

[51] CAA section 207(i)(2).

[52] 40 CFR 86.004–2.

[53] The labeling, warranty and certification requirements apply even if they are moved to other locations in the CFR.

[54] The 1994 rulemaking did not require fuel economy labeling to qualify for an exemption from the tampering prohibition. Similarly, this rule does not add a fuel economy labeling requirement or ABT provisions.

[55] CAA section 207(c).

conversion manufacturers and small volume test groups and engine families are discussed below.

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

a. Light-Duty and Heavy-Duty Chassis Certified Vehicles

EPA regulatory procedures specific to light-duty and heavy-duty chassis certified vehicle small volume manufacturers and small volume test groups are set forth in 40 CFR 86.1838–01. A conversion manufacturer is eligible for small volume manufacturer status for most light-duty and heavy-duty chassis certified vehicle procedures if the conversion 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 relationship) is less than 15,000 units.[56] (For sales aggregation rules for related manufacturers, refer to 40 CFR 86.1838–01(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 under certain circumstances. 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 Engines

The EPA regulatory provisions for small volume heavy-duty engines and qualified small volume engine families are promulgated in 40 CFR 86.094–14, 86.095–14, 86.098–14, and 86–096–24(e)(2). 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). For small volume engine family eligibility criteria for large volume manufacturers, refer to 40 CFR 86–096–24(e)(2) for more details.

2. Assigned Deterioration Factors

All light-duty and heavy-duty chassis certified vehicle small volume manufacturers or qualified small volume test groups are eligible to use assigned deterioration factors in lieu of durability testing to predict emission rates at the end of a vehicle's useful life.[57] EPA assigned deterioration factors for light-duty and heavy-duty chassis certified vehicles are authorized in 40 CFR 86.1826–01 and are periodically updated by EPA via manufacturer guidance letters.[58]

Heavy-duty engine small volume manufacturers and qualified small volume engine families may also be eligible for assigned deterioration factors instead of conducting durability demonstrations.[59] Under the current regulations, heavy-duty manufacturers with sales volumes of less than 10,000 units may be eligible to use assigned deterioration factors determined by EPA.

Because assigned deterioration factors are determined assuming the vehicle or engine is new, EPA is adopting an allowance for small volume conversion manufacturers and qualified small volume conversion test groups/engine families to use deterioration factors, proportionate to the vehicle or engine age under certain conditions. This will help create a level playing field for older vehicles and engines that have already experienced some of their expected emissions degradation. Conversion manufacturers are eligible to use scaled deterioration factors for vehicles or engines that have accumulated more than 10,000 miles. Scaled deterioration factors 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.

EPA received several comments about the use of assigned deterioration factors for conversion manufacturers. One commenter suggested that EPA should require converters who use assigned deterioration factors to submit a statement confirming conversion system durability and explaining why the system will not harm the emission control system or degrade the emissions. EPA agrees with this comment. Assigned deterioration factors, whether scaled or not, are intended to provide small volume manufacturers with a streamlined pathway for demonstrating that the vehicle or engine will meet full useful life standards. However, fuel conversion presents new challenges to assessing whether the engine and emission components will remain durable for the full useful life of the vehicle/engine. Therefore, EPA is adopting a requirement that conversion manufacturers using assigned deterioration factors must present detailed information to confirm the durability of all relevant new and existing components and to explain why the conversion system will not harm the emission control system or degrade the emissions.

3. Changes in Small Volume Status

If a conversion manufacturer's annual sales volume may surpass the threshold for small volume manufacturer or qualified test group/engine family status for a given model year,[60] the conversion manufacturer must satisfy the regulatory requirements required for large volume manufacturers, 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 is requiring 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 has changed volume status and is therefore required to recertify a vehicle or engine as a large volume manufacturer, all large volume test procedures and requirements would need to be conducted prior to the issuance of the new certificate. Second,

[56] 40 CFR 86.1838–01. Because conversion manufacturers, unlike OEMs, can sell their products for multiple model years, to determine small volume status, the number of conversions is the sum of the calendar year intermediate age conversions, outside useful life conversions, and the same conversion 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 86.098–14 as appropriate to determine small volume status.

[57] *See* 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.

[58] The current 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*. 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*.

[59] *See* 40 CFR 86.094–14, 40 CFR 86.095–14, 40 CFR 86.096–14, 49 CFR 86.098–14, 40 CFR 86–096–24(e)(2).

[60] To determine small volume manufacturer status the number of conversions is the sum of the calendar year intermediate age conversions, outside useful life conversions, and the same conversion 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 86.098–14 as appropriate to determine small volume manufacturer status.

if a small volume conversion manufacturer crosses the annual sales volume threshold and becomes a large volume conversion manufacturer, the conversion manufacturer must update the 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 small volume test group/engine family.

EPA received comment asking for compliance lead-time for conversion manufacturers that have outgrown small volume status and have become a large volume conversion manufacturer. EPA does not agree that a defined lead-time is necessary, since conversion manufacturers should be able to predict in advance and plan for changes in small volume status.

IV. Clean Alternative Fuel Conversion Program Details

As summarized earlier in this preamble EPA is revising 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 are required to demonstrate to EPA that the conversion satisfies technical criteria to qualify as a clean alternative fuel conversion, but demonstration and notification requirements are 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 stem from both legal and practical considerations. The distinctions between the demonstration required for new, intermediate age, and outside useful life vehicles/engines address the issues posed by the absence of applicable emission standards for converted vehicles/engines that have exceeded full useful life. This approach also recognizes that new vehicles/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/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/engines.

As with demonstration protocols, EPA believes different notification protocols are appropriate for the three age classes. The 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 age-based notification system should streamline the notification process and create a simple system that both small and large conversion manufacturers can easily understand and follow.

TABLE IV–1—OVERVIEW OF PROGRAM ELEMENTS [61]

Vehicle/engine age			Conversion manufacturer requirement		Certificate of conformity	Compliance detail preamble section
Category	Applicability	Example for 2011 [62]	Demonstration	Notification		
New	MY > or = current calendar year—1.	MY 2010, 2011, 2012 and < useful life mileage.	Exhaust, evap, and OBD testing [63].	Certification application.	Yes	IV.A
Intermediate age	MY < or = current calendar year—2 and within useful life.	MY 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009 and < useful life mileage.	Exhaust and evap testing [63] + OBD scan tool test and attestation.	Compliance submission [64].	No	IV.B
Outside useful life	Exceeds useful life.	MY 2001 and older or > full useful life mileage.	Technical justification [65] and OBD scan tool test and attestation.	Compliance submission [64].	No	IV.C

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

EPA is requiring that conversions of new vehicles/engines (as defined for purposes of this preamble) [66] be covered by a certificate of conformity in order to qualify for an exemption from the tampering prohibition. EPA will also 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 satisfies 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." [67]

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.

[61] *See* Section X of this preamble for more compliance details.

[62] This example is for Light-duty Tier 2 vehicles operating in the 2011 calendar year which have a useful life of 10 years or 120,000 miles.

[63] Exhaust and evap refers to all exhaust emission testing and all evaporative emission and refueling emission testing required for OEM vehicle/engine certification, unless otherwise excepted. OBD testing refers to all OBD demonstration testing as required for OEM vehicle/engine certification. OBD scan tool test refers to the procedure described in section IV.B.3.d.

[64] The compliance notification process for intermediate age and outside useful life conversions will be electronic submission of data and supporting documents.

[65] The technical justification may include data from exhaust and evaporative emissions testing.

[66] *See* footnote 8.

[67] CAA 203(a)(3).

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. The certification requirement for new vehicle and engine conversions reduces any incentive that might otherwise exist for OEMs to circumvent requirements by certifying a traditional configuration and then converting it, rather than certifying the 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 will continue to cover most newly developed clean alternative fuel conversion systems and therefore will preserve existing EPA control over their technical viability and environmental performance. While new vehicle and engine clean alternative fuel conversion manufacturers will continue to be subject to certification requirements, they will benefit from reduced burden because the tampering exemption conferred by certification is generally retained as the conversion test group/engine family covered by the exemption ages. This allows conversion manufacturers to continue to sell their products as vehicles and engines age without renewing certificates and paying further certification fees.[68]

This final rule retains existing regulatory procedures for demonstration, notification, and compliance documents for clean alternative fuel conversion of new vehicles and engines. The demonstration of compliance with applicable standards will continue to use the same certification procedures previously applicable to conversion manufacturers with a few technical amendments and other allowances.[69] The notification process will also remain unchanged for conversion of new vehicles and engines. Conversion manufacturers will continue to submit applications, including test data, certification fees, and other required information to EPA. The compliance document, a certificate of conformity, will also remain unchanged for conversion of new vehicles and engines.

1. Applicability

a. New Vehicles and Engines

EPA defines "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.[70] For example, in calendar year 2011, certified conversion systems are required for MY 2010, MY 2011, and MY 2012 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/engine'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 is required for vehicles or engines that are less than about two years old.

EPA received a few comments concerning the certification age threshold. Some comments suggested that the certification age threshold be shortened to one year, while other comments suggested that the certification provisions in the 1994 rulemaking be retained to keep the certification requirement for fuel conversion of all vehicles or engines within their useful life.

When developing the proposed and final rules, EPA considered many options for the age threshold between the new and intermediate age programs. The decision to finalize a threshold of about two years reflects several factors. These include the interest described previously in maintaining consistency with OEM requirements; the need for an OEM-like demonstration when converting vehicles and engines that still resemble the technical condition of the original product; and the fact that most conversions under the previous subpart F regulations took place within the first two years of a vehicle's or engine's regulatory useful life. We chose two years as the cut-off point for the "new" program to cover the vehicles and engines which are most likely to be converted, and which, because most of their useful life still remains, should be subject to the most rigorous demonstration requirement. No commenters provided data or technical justification to support a different age threshold than the one EPA proposed. Absent substantive evidence to support a different approach, EPA is finalizing the certification age threshold in the definition of "new and relatively-new" as proposed.

b. Older Vehicles and Engines

Manufacturers of clean alternative fuel 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 program described in Section IV.B.

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

a. Test Groups for Light-Duty and Heavy-Duty Chassis Certified Vehicles

i. Small Volume Manufacturers and Small Volume Test Groups

EPA will 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.[71] However, all clean alternative fuel conversion manufacturers who meet the small volume manufacturer or small volume test group criteria in 40 CFR 86.1838–01 are eligible to use EPA assigned deterioration factors.[72] By default the assigned deterioration factors define the durability group. Therefore, 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 allow OEM test groups to be combined into a single clean alternative fuel conversion test group.

Vehicles may be placed into the same clean alternative fuel conversion test

[68] The exemption from tampering conferred by certification continues even after the certificate has expired. *See* Section IV.A.4.a.

[69] Technical amendments are described in Section V. *See* section IV.B.3.c.i for a description of the scaling of assigned deterioration factors for small volume manufacturers who conduct demonstration testing on a vehicle/engine with over 10,000 miles.

[70] OEM model years are often introduced ahead of the calendar year. Thus, to calculate which conversions must be certified, subtract the original vehicle/engine 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.

[71] 40 CFR 86.1827–01.

[72] 40 CFR 86.1826–01.

group using good engineering judgment if they satisfy the following: [73]

(1) Same OEM and OEM model year [74]
(2) Same OBD group [75]
(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 flexible-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 received many comments requesting broader test group criteria and one comment suggesting that EPA retain the narrower OEM test group criteria. No data were provided to support either position, and EPA is finalizing the criteria as proposed. *See* the Response to Comments document for further discussion of this issue.

a. Dual-Fuel and Mixed-Fuel Vehicle Carry-Across Procedures for Small Volume Manufacturers and Small Volume Test Groups

As described in Section III.F.1.c, dual-fuel and mixed-fuel vehicles cannot be certified to different standards for each fuel. Conversion test groups for dual-fuel and mixed-fuel vehicles cannot include vehicles subject to different OEM emission standards unless applicable exhaust and OBD demonstrations are also conducted for the original fuel(s) demonstrating compliance with the most stringent standard represented in the test group. However, if the vehicles otherwise meet the test group criteria described above, the exhaust emissions test data for the new alternative fuel from dual-fueled or mixed-fuel EDVs may 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 they are being applied. This means that for dual-fuel or mixed-fuel conversions a conversion manufacturer must 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 clean alternative fuel conversion manufacturers must create test groups according to the regulations in 40 CFR 86.1827–01. As required by these regulations, the conversion 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 and Small Volume Engine Families

This final rule allows 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: [76]

(1) Same OEM
(2) Same OBD group after 2013
(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 engines 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 and Mixed-Fuel Engine Carry-Across for Small Volume Manufacturers and Small Volume Engine Families

Heavy-duty dual-fuel and mixed-fuel engines cannot be certified to different standards for each fuel.[77] Conversion engine families for dual-fuel and mixed-fuel engines cannot include engines subject to different OEM emission standards unless applicable exhaust and OBD demonstrations are also conducted for the original fuel(s) demonstrating compliance with the most stringent standard represented in the engine family. 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-fuel or mixed-fuel test engines may be carried across to engines which otherwise meet the engine family criteria above. Test data can only be carried across if the data demonstrate compliance with the most stringent standard among the engines to which they are being applied. This means that for dual-fuel and mixed-fuel conversions, a conversion manufacturer must 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 demonstrate that the most stringent standard within the conversion engine family is met.

ii. Large Volume Manufacturers

All large volume heavy-duty engine conversion manufacturers must create

[73] Of the criteria listed, 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, these criteria do not include the precious metal composition and catalyst grouping statistic criteria in 40 CFR 86.1820–01.

[74] Fuel conversion manufacturers will 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.

[75] On rare occasions, an OEM test group contains multiple OBD groups. When this occurs, EPA will allow the conversion test group to include the multiple OBD groups that are covered by the OEM test group.

[76] These 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.* This guidance letter was amended in October 2010 as CISD 10–24. CISD 10–24 can be accessed electronically at *http://iaspub.epa.gov/otaqpub/display_file.jsp?docid=23319&flag=1.*

[77] *See* Section III.F.1.c.

engine families as set forth in 40 CFR 86.001–24.

c. Evaporative/Refueling Families

Conversion manufacturers are 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 chassis certified 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 its original configuration, the conversion evaporative/refueling family will remain identical to the OEM evaporative/refueling family. If, however, the conversion requires an alternative 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 conversion 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 and mixed fuel vehicles and engines must not include vehicles and engines that were originally certified to different evaporative emission standards. Conversion evaporative/refueling families for dual-fuel and mixed-fuel vehicles/engines cannot include vehicles/engines subject to different OEM evaporative/refueling standards unless evaporative/refueling demonstrations are also conducted for the original fuel(s) demonstrating compliance with the most stringent standard represented in the evaporative/refueling family.

3. Certification Demonstration Requirements

Certification for clean alternative fuel conversions will follow the certification procedures, such as those 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.F.1.a and Section V, if applicable.

a. Exhaust Emissions

i. Light-Duty and Heavy-Duty Chassis Certified Vehicles

The exhaust emissions testing demonstration for light-duty and heavy-duty chassis certified vehicles must be conducted on a test group basis. The worst-case EDV from each test group must be used to demonstrate compliance with the most stringent standards represented among the OEM vehicles when they were originally certified. All applicable exhaust certification requirements and test procedures which are required in regulations for OEM certification are required for fuel conversion certification. Test procedures and certification requirements are currently located in 40 CFR part 86 and 40 CFR part 1065.

ii. Heavy-Duty Engines

The exhaust emissions testing demonstration for heavy-duty engines must be conducted on an engine family basis. The worst-case EDE from each engine family must 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 that are required in regulations for OEM certification are 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 will 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 alternative 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 Manufacturers and Small Volume Test Groups/Engine Families

a. Light-Duty and Heavy-Duty Chassis Certified Vehicles

As noted in Section III.G.2 above, small volume light-duty and heavy-duty chassis certified vehicle conversion manufacturers and eligible small volume test groups are permitted to use EPA assigned deterioration factors in lieu of exhaust and evaporative/refueling durability demonstrations. If the EDV has accrued more than 10,000 miles, the conversion manufacturer may use scaled assigned deterioration factors described in Section IV.B.3.c below.[78]

[78] This is due in part to the Fuel Economy testing requirements which effectively limit the testing of vehicles with more than 10,000 miles.

b. Heavy-Duty Engines

For consistency with light-duty vehicles, EPA also will allow heavy-duty engine conversion manufacturers who are eligible to use EPA assigned deterioration factors to use scaled assigned deterioration factors when the EDE has accrued more than 10,000 miles.

ii. Large Volume Manufacturers

Large volume conversion manufacturers are 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 the same OBD requirements that apply to OEMs continue to apply to clean alternative fuel conversion systems. The certification demonstration requires 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 chassis certified vehicles. If an OEM heavy-duty engine was certified with an OBD requirement, the conversion must also meet the applicable OBD 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. In addition to conducting OBD testing as required for certification, conversion manufacturers must submit the following statement of compliance, if the OEM vehicles/engines are OBD equipped. "The test group/engine family converted to an alternative fuel has fully functional OBD systems and therefore meets the OBD requirements such as those specified in 40 CFR 86, subparts A and S when operating on the alternative fuel."[79]

4. Certification Notification Process

The conversion certification notification process is based on the OEM certification procedures, such as those specified in 40 CFR part 86 and part 1065, as applicable. The notification requirement continues to incorporate the entire OEM certification process. If the OEM certification process

[79] This statement was described in the proposal under statements of compliance that may be permitted; however, EPA believes that it is important to ask each conversion manufacturer to attest to this statement, even if OBD testing is conducted.

is amended in the future, the fuel conversion certification procedures will also change, unless otherwise specified at that time.

In addition, an OBD attestation is required as described in section IV.A.3.d and small volume conversion manufacturers and qualified small volume test groups/engine families using EPA assigned deterioration factors must present detailed information to confirm the durability of all relevant new and existing components and to explain why the conversion system will not harm the emission control system or degrade the emissions.

The certification process may permit several statements of compliance or attestations in lieu of test data in the application for certification. Some of these are found in the OEM certification regulations, such as 40 CFR part 86, subparts A, B, and S and 40 CFR part 1065. In addition, the following statements specific to dual-fuel and mixed-fuel clean alternative fuel conversion may be permitted in lieu of test data, if appropriate:

1. "The test group/engine family converted to dual-fuel or mixed-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."

2. "The test group/engine family converted to dual-fuel or mixed-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."

3. "The test group/engine family converted to dual-fuel or mixed-fuel operation properly purges hydrocarbon vapor from the evaporative emission canister when the vehicle/engine is operating on the alternative fuel."

a. Certificate Expiration and Re-Certification

Conversion certificates expire on December 31 of the conversion model year for which they are issued. 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.[80]

EPA received numerous comments about recertification. Many comments requested that EPA issue non-expiring certificates to spare manufacturers from the burden of re-certifying an already-certified test group or engine family. Manufacturers stated that they must re-certify to retain eligibility for various tax credits and other incentives that require a valid certificate, as well as to retain protection from a tampering violation.

EPA agrees with commenters who note that annual certificate renewal confers little benefit when there are no changes to the manufacturer, conversion technology, or vehicles/engines to which the technology will be applied. However, EPA believes these concerns can be better addressed by clarifying that a certified conversion system does not lose its tampering exemption when the certificate expires, rather than by creating a new type of non-expiring certificate. Thus, the program EPA is finalizing provides compliance options for conversion manufacturers who wish to retain protection against a tampering violation but who do not wish to recertify. First, EPA has determined that an exemption from the CAA tampering prohibition secured through certification does not expire with the certificate, as long as the conditions under which the certificate was issued remain unchanged. If conditions change, the exemption would not remain valid and the manufacturer would need to re-certify or apply for the intermediate age or outside useful life programs, if applicable, to retain protection against a tampering violation. A change from small to large volume manufacturer status, for example, would necessitate a new demonstration and notification since large volume conversion manufacturers have different requirements than small volume conversion manufacturers. Second, manufacturers who obtained a clean alternative fuel conversion certificate under the previous subpart F regulations retain the tampering exemption conferred by certification, as long as conditions have not changed.[81] Third, EPA will consider the tampering exemption conferred by certification to remain with the test group/engine family as it gets older, extending protection through intermediate age and outside useful life status. This allows conversion manufacturers to continue to sell their products without renewing the certificate and paying further certification fees, again assuming no change to conditions under which the certificate was issued.[82] This means that conversion manufacturers only need to interact with EPA once as long as the conditions under which the certificate was issued remain unchanged.[83] Fourth, EPA will clarify with State, Federal, and other organizations offering alternative fuel incentives that EPA considers a certified conversion system to retain its tampering exemption, even after the certificate has expired.

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 Clean Alternative Fuel Conversion Program

EPA is adopting 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. The intermediate age vehicle and engine compliance program (intermediate age program) requires 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 from the tampering prohibition, manufacturers may opt to certify conversion systems for intermediate age vehicles and engines as if they were new vehicles and engines. *See* Section IV.A.

The establishment of 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

[80] If a conversion manufacturer projects sales in the following calendar year, EPA will issue the certificate of conformity for the later model year, so that fees are paid based on sales that include the first full year of sales.

[81] This exemption is only permitted if all program requirements continue to be met and no new testing is required, such as new testing required for conversion manufacturers who change from small to large volume manufacturer status. The exemption from tampering is valid only if the conversion is installed on the OEM test groups/engine families and/or evaporative emissions/refueling families listed on the notification.

[82] The exemption from tampering conferred by certification continues even after the date of expiration on the certificate has passed causing it to expire.

[83] Alternatively, conversion manufacturers may choose to re-certify, as described above, or they may submit data and other notification requirements for inclusion in the intermediate age and outside useful life programs at any time concurrent with or subsequent to certification. This can occur even if the test group or engine family includes vehicles/engines that would otherwise not have reached the intermediate age threshold.

of intermediate age vehicles and engines is necessary because they are generally no longer representative of certification vehicles/engines. 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.[84]

The program for intermediate age vehicles and engines maintains many of the existing certification test procedures, but departs from new and relatively-new vehicle or engine certification requirements in several notable areas. The demonstration of compliance with applicable standards employs the same procedures required of certified conversion manufacturers for exhaust and evaporative emissions testing.[85] However, the OBD demonstration requirement is different. Instead of conducting OBD demonstration testing as required for certification, conversion manufacturers may be able to meet the intermediate age OBD demonstration requirement by attesting that the OBD system is fully functional and by submitting an OBD scan tool report.[86] The notification process is also different for intermediate age vehicles and engines. Conversion manufacturers submit test data, attestations, and other required information to EPA using an electronic submission process. The application process is streamlined and conversion manufacturers participating in the intermediate age program are not required to pay certification fees. Conversion manufacturers participating in the intermediate age program will not receive a certificate of conformity. Rather, EPA will maintain a publicly available list identifying conversion systems that have satisfied the intermediate age demonstration and notification requirements.

1. Applicability

Vehicles and engines 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 2011, model year 2009 and earlier vehicles and engines are eligible for the intermediate age program.

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 must demonstrate compliance with the full useful life standards, even if the vehicle or engine has surpassed its useful life in age or mileage. Outside useful life converters who choose to seek exemption from tampering through the intermediate age program will 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 Chassis Certified Vehicles

i. Small Volume Manufacturers and Small Volume Test Groups

Small volume conversion manufacturers and qualified small volume test groups of conversion systems for intermediate age vehicles are permitted some additional flexibility in creating test groups to which the conversion is applicable. The primary difference between 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[87]
(2) OBD still functional[88]
(3) Same vehicle classification (*e.g.,* light-duty vehicle, heavy-duty vehicle)
(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 flexible-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

ii. Large Volume Manufacturers

Large volume manufacturers may use 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 and Mixed-Fuel Vehicle Carry-Across

Dual-fuel and mixed-fuel vehicles which have different standards must create a separate submission to EPA for each OEM test group with different standards. Conversion test groups for dual-fuel and mixed-fuel vehicles cannot include vehicles subject to different OEM emission standards unless applicable exhaust and OBD demonstrations are also conducted for the original fuel(s) demonstrating compliance with the most stringent standard represented in the test group. However, as is described above in Section IV.A.2.a.i.a, test data from an EDV 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 and Small Volume Engine Families

The same engine family combination criteria that are described in Section IV.A.2.b.i are permitted for clean alternative fuel conversion of intermediate age engines, except that

[84] 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).

[85] The technical amendments described in Section V and the scaling of assigned deterioration factors described in section IV.B.3.c.i are available for the intermediate age program.

[86] *See* Section IV.B.4 for more information about the required OBD attestations. *See* section IV.B.3.d for a description of the OBD scan tool procedure.

[87] 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.

[88] Note that a functional OBD system means that it must function properly, must not be disabled, there are no MILS, no false MILs or false Diagnostic Trouble Codes, and all readiness flags must be set.

the same OBD grouping is not a criterion.

ii. Large Volume Manufacturers

Large volume manufacturers are permitted to use 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 and Mixed-Fuel Engine Carry-Across

Data carry-across procedures for dual-fuel and mixed-fuel new engines described in Section IV.A.2.b.i.a are also applicable for dual-fuel and mixed-fuel intermediate age engines.

c. Evaporative/Refueling Families

The 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 chassis certified vehicles and 40 CFR 86.096–24(a)(12)–(13) for heavy-duty engines. Clean alternative fuel conversion evaporative/refueling families for dual-fueled or mixed-fuel vehicles/engines cannot include vehicles/engines that were originally certified to different evaporative emission standards. Conversion evaporative/refueling families for dual-fuel and mixed-fuel vehicles/engines cannot include vehicles/engines subject to different evaporative emission standards unless evaporative/refueling demonstrations are also conducted for the original fuel(s) demonstrating compliance with the most stringent standard represented in the evaporative/refueling family.

3. Demonstration Requirements

The demonstration requirements for clean alternative fuel conversions are based on the certification procedures, such as those 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.F.1.a and Section V, if applicable.

a. Exhaust Emissions

The exhaust emissions demonstration is conducted on a test group (light-duty) or engine family (heavy-duty) basis. The worst-case EDV or EDE from each test group or engine family must be used to demonstrate compliance with the most stringent standards represented among the OEM vehicles or engines when they were originally certified. All exhaust demonstration requirements and test procedures which are required in regulations for OEM certification are required for fuel conversion compliance. Test procedures and other requirements are currently located in 40 CFR part 86 and 40 CFR part 1065.

b. Evaporative/Refueling Emissions

The test procedures to demonstrate that a vehicle or engine will meet evaporative standards during normal vehicle operation, including refueling, are currently specified in 40 CFR part 86 and part 1065. 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 and Small Volume Test Groups/Engine Families

As noted in Section III.G.2 above, small volume manufacturers and eligible small volume test groups/engine families are permitted to use EPA assigned deterioration factors in lieu of exhaust and evaporative/refueling durability demonstrations. EPA is retaining this option for purposes of evaluating conversion systems that will be applied to intermediate age vehicles and engines. In addition, EPA is finalizing a new concept which is applicable to EDVs and EDEs with more than 10,000 miles. EPA will allow small volume manufacturers to use "scaled deterioration factors." Scaled deterioration factors are 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.[89] 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 assumed 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 issue guidance to 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:

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

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 will use these two definitions:

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

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

Where:

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

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

[89] Intermediate standards only apply to those vehicles originally certified with intermediate standards.

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 deterioration factor.
MGgpm is the grams per mile of pollutant at the actual mileage of EDV or EDE.

Based on the assumption in equation 1:

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

Where:
FULMG is the appropriate full useful life mileage.
MG is the actual mileage of the EDV/EVE.
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 deterioration factor can be calculated using the emissions data vehicle or engine mileage and the assigned full useful life multiplicative deterioration factor.

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

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

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

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

Only the full useful life scaled additive deterioration factor equation is presented here. However, the intermediate useful life scaled additive deterioration factor equation follows the same syntax except that the intermediate useful life additive deterioration factor is substituted in Equation 6 for ODF, and the intermediate age useful life is substituted for FULMG.

Equations 4, 5 and 6 are used 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. EPA may issue guidance to update or adjust these equations.

ii. Large Volume Manufacturers

a. Light-Duty and Heavy-Duty Chassis Certified Vehicles

Durability testing is required for large volume manufacturers of clean alternative fuel conversions of intermediate age vehicles. Durability groups for intermediate age vehicles shall 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 is required for large volume manufacturers of clean alternative fuel conversions for intermediate age engines.

d. On-Board Diagnostics

EPA believes a properly functioning OBD system is essential to maintaining emissions compliance in aging vehicles and engines. However, EPA believes that the OBD demonstration for intermediate age vehicles and engines can be streamlined relative to the current certification requirements. In lieu of submitting OBD test data as is required for certification, manufacturers of intermediate age clean alternative fuel conversion systems may be able to submit an OBD scan tool report showing results of an OBD scan tool test procedure and attest that the OBD

system remains fully functional in the converted vehicle/engine. The attestation must state that the test group/engine family converted to an alternative fuel has fully functional OBD systems and therefore meets the OBD requirements such as those specified in 40 CFR part 86, subparts A and S when operating on the alternative fuel. This includes any new monitoring capability necessary to identify potential emission problems associated with the new fuel. Typical OBD monitors include but are not limited to: Fuel trim lean and rich, catalyst deterioration, engine misfire, oxygen sensor deterioration, EGR system (if applicable), and vapor leak (if applicable). Conversion manufacturers are not allowed to alias, remove, bypass, or turn off any applicable original OBD system monitor. Furthermore the MIL is required to continue to function properly and not illuminate unless system indicators or emission thresholds are truly being exceeded. EPA also requires readiness flags to be properly set for all monitors that identify any malfunction for all monitored components.

EPA requested comment as to whether the scan tool procedure proposed as "Option 3" for outside useful life vehicles/engines would also be appropriate for the intermediate age program. Comments stated that this demonstration would provide additional assurance that the OBD system remains fully functional. EPA agrees and is including use of this procedure in the OBD demonstration requirement for intermediate age vehicles. The procedure involves: using an OBD scan tool to clear all readiness codes (set codes to "not ready"); driving the vehicle/operating the engine until it triggers all codes to be set to ready; and then using an OBD scan tool to interrogate the OBD system.

Intermediate age converters may satisfy the OBD demonstration requirement either by completing the OBD demonstration described in new vehicle certification (Section IV.A.4) or by following the procedures described in the preceding paragraph.

EPA proposed using the procedures described in 40 CFR 85.2222 to satisfy the OBD demonstration requirements for the intermediate age conversions. These regulations establish 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 records all diagnostic trouble codes if the MIL is illuminated. However, these regulations reference Society of Automotive Engineers (SAE) OBD diagnostic mode assignments that are specific to light-duty vehicles and light-duty trucks. In order to be clear that the OBD scan tool procedure described above applies to all vehicles and engines that are required to comply with OBD regulations, we are adding the process described in 40 CFR 85.2222 to the new subpart F regulations, without the specific references to the light-duty vehicle OBD procedures. Any scan tool that displays the supported monitors, lists their corresponding readiness status, and reports all emission related pending and confirmed diagnostic trouble codes is considered acceptable.

An acceptable OBD demonstration under the intermediate age vehicle and engine program must include a printout of scan tool results following the fuel conversion showing that all supported monitors have been set to ready and there are no pending or confirmed diagnostic trouble codes. The vehicle/engine information number (VIN/EIN) must be provided with the scan tool report. Given the changes to the vehicle/engine resulting from the fuel conversion process, some monitors in the OEM OBD system may no longer be supported. For example, the evaporative emissions readiness monitor may need to remain unset for conversions in which the original evaporative emissions system is no longer functionally necessary.

EPA received comments that expressed concerns about the adequacy of a scan tool test. Although EPA believes the scan tool test will be sufficient in most cases, EPA may require OBD testing as described for certification in Section IV.A.3.d if the OBD scan tool report is not sufficient to demonstrate proper OBD operation.

4. Notification Process

Intermediate age clean alternative fuel conversion manufacturers must complete and submit EDV/EDE information, test data, compliance statements and all other appropriate information electronically. EPA intends to provide information about the notification process through its Web site and other information dissemination mechanisms.

The conversion manufacturer must enter information about the EDV or EDE, emission results from the exhaust and evaporative emissions testing, including any permissible carry-over data, applicable exhaust and evaporative emission 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, the conversion manufacturers may 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/engine meets the same standards to which the OEM vehicle or engine was certified. In addition, small volume conversion manufacturers and qualified small volume test groups/engine families using EPA assigned deterioration factors must present detailed information to confirm the durability of all relevant new and existing components and to explain why the conversion system will not harm the emission control system or degrade the emissions.

The conversion manufacturer must submit the scan tool demonstration data resulting from an interrogation of the OBD system as described in Section IV.B.3.d and submit the OBD statement of attestation as described in that section.

The intermediate age program notification requirements 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 will permit 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, such as in 40 CFR part 86, subparts A, B, and S and 40 CFR part 1065. In addition, the following statements specific to dual-fuel and mixed-fuel clean alternative fuel conversion may be permitted in lieu of test data, if appropriate:

1. "The test group/engine family converted to dual-fuel or mixed-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."

2. "The test group/engine family converted to dual-fuel or mixed 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."

3. "The test group/engine family converted to dual-fuel or mixed-fuel operation properly purges hydrocarbon

vapor from the evaporative emission canister when the vehicle/engine is operating on the alternative fuel."

EPA also proposed a statement of compliance that would have required the conversion manufacturer to attest that the test group/engine family converted to an alternative fuel uses fueling systems, evaporative emission control systems, and engine powertrain components that are compatible with the alternative fuel and designed with the principles of good engineering judgment. This attestation is still relevant, and is explicitly required for an outside useful life notification. However, the statement has been adjusted for the new and intermediate age programs to tie this requirement to a description and statement of attestation for the durability program. *See* Section IV.C.4.

This information must 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 are appropriate for installation on intermediate age vehicle/engine test groups/engine families and evaporative/refueling families. The exemption from the tampering prohibition may be 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 will allow the tampering exemption conferred by certification to continue to apply to the test group/engine family as it reaches intermediate age and outside useful life status. The conversion manufacturer does not need to generate new data or reapply to the intermediate age or outside useful life programs to retain the exemption, as long as the conditions under which the certificate was issued remain unchanged. The exemption from tampering is valid only if the conversion is installed on the OEM test groups/engine families and/or evaporative emissions/refueling families listed on the certificate. EPA will make publicly available the list of certified conversion systems which may be used on intermediate age and outside useful life vehicles and engines.

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 Vehicle and Engine Clean Alternative Fuel Conversion 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 described in section II.B. 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, EPA is finalizing a program that enables converters of outside useful life vehicles and engines to qualify for an exemption from 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 finalizing for conversion of vehicles and engines still within their useful life. EPA considered and sought comment on 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. The approaches differed in the method by which manufacturers would demonstrate the emissions integrity of the conversion. EPA is adopting the approach described as "Option 3" in the proposal. This approach requires manufacturers to submit a technical description of the conversion that provides sufficient detail for EPA to evaluate emissions performance and durability. EPA may require that the technical description include emission test data if the description alone does not provide adequate assurance that the conversion system will not degrade emission control system performance or durability. Conversion manufacturers must also submit an OBD scan tool report. *See* Section IV.C.3 for a detailed explanation of the outside useful life demonstration requirement. A variation of this approach, described as "Option 1" in the proposal, would have required the technical description but not the OBD scan tool report. A different approach, Option 2 in the proposal, would have applied a testing requirement similar to the inside useful life demonstration requirement. Manufacturers would satisfy the Option 2 demonstration in one of two ways, either by submitting data to show that the converted configuration would meet inside useful life standards for the OEM vehicle/engine, or by submitting data to show that there was no deterioration in emissions before and after conversion.

EPA received comments in support of all the outside useful life options presented in the proposal. However, the comments favoring Option 2 did not provide data or other substantive evidence sufficient for EPA to conclude that the additional cost and burden associated with testing outside useful life vehicles/engines would be justified relative to the environmental impact of these conversions. EPA believes that the good engineering judgment demonstration requirement, which could include testing, in combination with the OBD scan tool report, will provide a sufficient basis for assessing the technical viability and emission control system integrity of conversion systems intended for older vehicles/engines. This demonstration must include sufficient evidence to show that the conversion system will maintain or improve upon emissions of the unconverted vehicle/engine, and to explain why emissions will not increase as a result of the conversion. *See* the Response to Comments document for further discussion of this issue.

The notification process for outside useful life vehicles/engines will be similar to the notification process for intermediate age conversion systems, as will the public listing of conversion systems that have satisfied EPA demonstration and notification requirements. Also, the exemption from the tampering prohibition may be 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

Vehicles and engines are eligible for the outside useful life program once they have exceeded their useful life. 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/engines may also qualify for exemption from the tampering prohibition through the intermediate age vehicle and engine compliance program. *See* Section IV.B.

EPA sought 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). EPA received several comments opposing this subcategory approach on technical grounds. EPA has no data or other information to suggest that a different outside useful life definition should be applied for clean alternative fuel conversions than for other vehicle/engine emission standards. In addition, EPA believes that creating a separate subcategory of outside useful life vehicles may create unnecessary confusion and has therefore decided not to finalize a separate subcategory of outside useful life vehicles/engines.

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

EPA is finalizing the same requirements and criteria for test groups/engine families and evaporative/refueling family designations as for intermediate age vehicles and engines. *See* Section IV.B.2.

3. Demonstration Requirements

Manufacturers of conversion systems for outside useful life vehicles and engines may satisfy the demonstration requirement by submitting to EPA 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 maintain or improve on emission levels in the intended vehicle or engine. The technical information should include, but is not limited to, a complete characterization of exhaust and evaporative emissions control strategies, and specifications related to OBD system functionality. EPA may audit the submission and may require the conversion manufacturer to supply additional information, including test data, to support the claim that the technology was developed using good engineering judgment and is being applied for purposes of conversion to a clean alternative fuel.

EPA would expect an outside useful life demonstration to include information such as data from before and after conversion FTP testing, 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. Some examples of good engineering judgment are provided below. This list is not comprehensive. It is not intended to exclude other approaches to the demonstration or to imply that a demonstration involving these features will be satisfactory in all cases:

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

Evaporative Control System: The alternative fuel system is leak free and uses materials compatible with the alternative fuel. Dual-fuel and mixed-fuel vehicles/engines retain the components and the functionality of the OEM evaporative emission control system. For dual-fuel and mixed-fuel systems the evaporative emission control system purges the evaporative emission canister in a manner identical to the OEM designed purge system when the vehicle/engine is operating on the alternative fuel.

Fuel Delivery System: The alternative fuel delivery system employs technology that is at least equivalent in sophistication to the OEM fuel delivery system. For example, conversions of vehicles/engines with multiple port injectors employ alternative fuel systems with multiple port injectors; engines with throttle injection use alternative fuel systems with throttle injection; OEM carbureted vehicles/engines are able to use alternative fuel systems with central air mixers. Conversions of OEM vehicles/engines with closed loop feedback fuel control systems are expected to have similar closed loop control systems to maintain stoichiometric air/fuel control. Acceptable fuel control may 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 precludes the use of driver actuated controls for engine starting or fuel adjustment, other than for selecting the fuel type for a dual-fuel vehicle/engine. EPA received comment from some conversion manufacturers concerned that their approach, while not equivalent in sophistication to the OEM technology, would still be sufficiently robust to meet applicable standards and/or prevent emissions deterioration. Certain aspects of good engineering judgment described in the exhaust control system, evaporative control system, and fuel delivery control system sections may be approached differently than described above, but EPA expects that test data demonstrating compliance is required rather than optional in such cases.

Durability: A discussion of the durability of the alternative fuel system is necessary to support a good engineering judgment determination. The conversion to a clean alternative fuel must 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 must be upgraded.

OBD: Good engineering judgment dictates that vehicles/engines 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.

In addition to satisfying the good engineering judgment requirement, manufacturers of conversion systems for outside useful life vehicles/engines that were equipped with OBD systems in their OEM configuration must also submit a report containing OBD checks following conversion to the alternative fuel. This report must be based on the OBD information from the EDV/EDE that is selected to represent the outside useful life program test group or engine family. *See* Section IV.B.3.d for a further description of the OBD scan tool procedure and demonstration requirements.

Additional OBD emission test data, such as from the OBD testing procedures described in Section IV.A.3.d, may be required if the OBD scan tool report is not sufficient to demonstrate proper OBD operation.

4. Notification Process

Manufacturers of outside useful life conversion systems must use the same notification procedures to submit the required information as those for the intermediate age vehicle and engine compliance program (*see* Section IV.B). The notification submission must include documentation of the required demonstration as well as labeling

information and all appropriate attestation statements.[90]

EPA will periodically update its list of conversion systems that are appropriate for installation on outside useful life vehicle/engine test groups/engine families and evaporative/refueling families. The exemption from the tampering prohibition may be 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.

5. In-Use Compliance

EPA may test vehicles and engines that have been converted under the outside useful life program to assess their performance in actual customer use. EPA may test such vehicles in their original and converted configurations, and revoke the tampering exemption for conversion systems that fail to demonstrate acceptable emissions performance.

V. Technical Amendments

EPA is finalizing several technical amendments to 40 CFR part 86, subpart S. Several of the amendments 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.

Other technical amendments provide clarity and consistency to regulatory references for clean alternative fuel conversion and technical corrections and clarifications for the light-duty greenhouse gas clean alternative fuel conversion procedures.

A. Exhaust Emission Technical Amendments

1. NMHC Multiplicative Adjustment Factor

Prior to this rulemaking, 40 CFR 86.1810–01(p) allowed manufacturers of gasoline- and diesel-fueled vehicles to use a multiplicative adjustment factor to convert non-methane hydrocarbon (NMHC) exhaust emissions to an equivalent NMOG result to demonstrate compliance with NMOG standards. EPA is expanding the provision in 40 CFR 86.1810–01(p) to also allow manufacturers of CNG, LNG, LPG, and hydrogen-fueled vehicles to demonstrate compliance through use of a multiplicative adjustment factor. Manufacturers may optionally determine compliance with NMOG standards by measuring NMHC and then applying a manufacturer-provided multiplicative adjustment factor to convert the NMHC results to an equivalent NMOG value. The multiplicative adjustment factors must be based on fuel specific data and must be approved in advance by EPA.

2. HCHO Compliance Statement

Prior to this rulemaking, 40 CFR 86.1829–01(b)(1)(iii)(E) and (F) allowed 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 is finalizing the same flexibility for vehicles operating on CNG, LNG, LPG, or hydrogen.

B. Evaporative Emissions Technical Amendments

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

EPA is finalizing a technical amendment to 40 CFR 86.1829–01(b)(2)(i) to allow waiver of evaporative emissions reporting requirements, including running loss and refueling loss, and to allow compliance with the requirements in 40 CFR 86.1811–04(e) for CNG, LNG, LPG, or hydrogen fuels by making a compliance statement in the application for certification. 40 CFR 86.1829–01(b)(2)(i) previously allowed a compliance statement for CNG-, LNG,- or LPG-fueled vehicles in lieu of submitting data to demonstrate compliance with evaporative emission standards in 40 CFR 86.1811–04(e). This amendment simply clarifies that manufacturers using hydrogen fuels, for example blends of hydrogen and methane, may use an evaporative emissions statement of compliance. Compliance statements do not alleviate the OEM or aftermarket fuel converter from complying with evaporative emissions, 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 in lieu of test data for evaporative emissions, running loss, and refueling emissions requirements is based on the expectation that fueling systems for gaseous-fueled vehicles will have a closed-system design with zero evaporative emissions. For LPG-fueled vehicles, a refueling statement of compliance is only allowed for systems in which 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 the original subpart F rulemaking.[91] Adding these technical amendments to section 86.1829–01(b)(2)(i) will provide clarity to EPA regulations for OEM manufacturers and clean alternative fuel conversion manufacturers desiring to certify vehicles on gaseous fuels.

C. Additional Technical Amendments

There are several regulatory terms and references in 40 CFR part 86 that link to the previous subpart F regulations. These are being updated to the appropriate terms and references for the new subpart F regulations. In addition, this rule is clarifying other 40 CFR part 86 statements referencing clean alternative fuel conversion to ensure that the references are consistent with the clean alternative fuel conversion program.

Specifically, EPA is removing and revising language found in 40 CFR 86.1818–12, 40 CFR 86.1864–10 and 86.1865–12 that could be read to imply that clean alternative fuel conversions are subject to OEM fleet average standards. These provisions are being revised to eliminate potential confusion about applicability of fleet average standards to conversions. Fleet average standards are not generally appropriate for clean alternative fuel conversion manufacturers because the "fleet" of vehicles/engines to which a conversion system may be applied has already been accounted for under the OEM's fleet average standard. The OEM fleet average is derived from the production- or sales-weighted average of individual test group/engine family certification levels

[90] 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) with one addition. The outside useful life program requires that the conversion manufacturer attest to the following statement: "The test group/engine family converted to an alternative fuel uses fueling systems, evaporative emission control systems, and engine powertrain components that are compatible with the alternative fuel and designed with the principles of good engineering judgment."

[91] 59 FR 48472 (September 21, 1994).

in a given model year. Under the clean alternative fuel conversion program, conversion manufacturers will comply with the certification standard applicable to OEM vehicles or engines, if the vehicle/engine is within its useful life, or will demonstrate that emissions are not degraded after conversion, if the converted vehicle/engine is outside useful life. Accordingly, clean alternative fuel conversions will be consistent with the applicable OEM standard and will not affect the OEM fleet average standard. Therefore it is not necessary to require compliance with an additional clean alternative fuel conversion fleet average standard.

D. Light-Duty Vehicle Greenhouse Gas Compliance for Clean Alternative Fuel Conversion

EPA's greenhouse gas regulations require that all alternative fuel conversion manufacturers comply with greenhouse gas standards for light-duty vehicles and light-duty trucks beginning in model year 2012 (unless exempted under the provisions of 40 CFR 86.1801–12).[92] EPA is clarifying how alternative fuel conversion manufacturers demonstrate compliance with the applicable greenhouse gas emission standards.

OEMs are subject to two types of light-duty greenhouse gas standards: a fleet-average standard and an in-use standard for the full useful life of the vehicle.[93] The light-duty greenhouse gas regulations require that test groups remain the OEM basis for certification, however carbon-related exhaust emissions (CREE) are reported to EPA by OEMs at the model type and subconfiguration levels (smaller units than test groups), and production-weighting of those values determines compliance with the fleet average standard. Consistent with current EPA policy under the Tier 2 program, the conversion manufacturer is not subject to the fleet average standard, but each converted vehicle must meet the vehicle-specific standards that the original OEM vehicle was certified to meet. This ensures that the in-use fleet of vehicles will sustain the OEM fleet average levels, or even improve upon overall fleet emission levels.

To demonstrate clean alternative fuel conversion compliance with light-duty greenhouse gas standards, EPA considered asking the conversion manufacturers to submit test data for every subconfiguration within a test group to demonstrate that the fuel converted vehicle meets the applicable greenhouse gas emission standards. However, testing at this granularity (as is currently done for fuel economy labeling and the CAFE program) would be especially burdensome for an industry that is not subject to fuel economy labeling and to which the CAFE program does not apply. Instead, EPA believes it is reasonable to require emissions data on the typical light-duty vehicle compliance basis, the test group. However, any subconfiguration within the test group—if selected for testing by EPA—must meet the applicable N_2O, CH_4, and CO_2 subconfiguration standards that apply to the OEM vehicles as set forth in 40 CFR 86.1818–12(d) and 40 CFR 86.1818–12(f).[94] The CREE standard contains a 10% adjustment factor applied to the initial OEM test results to account for test-to-test variability and OEM production margin.[95]

The clean alternative conversion manufacturer must submit CREE, N_2O and CH_4 data from the same EDV that is used to support criteria pollutant testing and standards, and the results must demonstrate that the converted vehicle meets the OEM N_2O and CH_4 standards set forth in 40 CFR 86.1818–12(f) and the OEM subconfiguration CO_2 standard set forth in 40 CFR 86.1818–12(d)[96] for the OEM subconfiguration that matches the conversion EDV. In addition, EPA may test or request the conversion manufacturer to test other sub-configurations within the conversion test group, and those results must also demonstrate compliance with the appropriate sub-configuration standard in 40 CFR 86.1818–12(d).

40 CFR 86.1818–12(f)(2) sets forth an alternative to meeting the N_2O and CH_4 exhaust emission standards in 40 CFR 86.1818–12(f)(1). However, 40 CFR 86.1818–12(f)(2) is not available to fuel conversion manufacturers, since there is no greenhouse gas fleet average standard for fuel converted vehicles. Therefore, EPA is adding a third option, specific to fuel conversion manufacturers, that allows the same process set forth in 40 CFR 86.1818–12(f)(2) but is adapted for the unique situation of clean alternative fuel conversion manufacturers. This alternative requires that the fuel conversion manufacturer determine a CREE value (including N_2O and CH_4) specific to the fuel conversion EDV, even if the OEM did not use N_2O and CH_4 in the CREE calculation. This value must meet the sub-configuration-specific in-use CO_2 exhaust emission standard, set forth in 40 CFR 86.1818–12(d) and determined by the OEM.

VI. Environmental Effects

As in the original subpart F rulemaking,[97] the primary purpose of this revised rulemaking 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 this regulation 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 Chassis Certified Vehicles

The cost associated with achieving a regulatory exemption from tampering for clean alternative fuel conversions under this amended regulation is expected to be less than the previous cost of compliance. The amount of cost reduction will vary based on conversion technology, fuel type, vehicle age, applicability, conversion manufacturer preference, and the conversion manufacturer's annual sales volume. The baseline cost estimates are summarized in Section VII.A below and are based on the regulatory program in place before this amended regulation. 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 fuel and on the specific 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 recent years were for these types of conversions, EPA conversion requirements or testing exemptions

[92] *See* preamble discussion at 75 FR 25484 (May 7, 2010) and regulations at 40 CFR 86.1801–12(b).

[93] 75 FR 25472 (May 7, 2010).

[94] 75 FR 25474 (May 7, 2010). If the OEM complied using the light-duty greenhouse gas fleet averaging option for nitrous oxide (N_2O) and methane (CH_4), as allowed under 40 CFR 86.1818–12(f)(2), the calculations of the carbon-related exhaust emissions require the input of grams/mile values for N_2O and CH_4.

[95] 75 FR 25473 (May 7, 2010).

[96] *See* footnote 94.

[97] 59 FR 48472 (September 21, 1994).

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 baseline and projected costs also depend upon the conversion manufacturer's annual sales volume. Since almost all current conversion manufacturers have sales volumes low enough to be eligible to use Small Volume Manufacturer certification procedures, this cost analysis only describes baseline and projected costs for small volume conversion manufacturers.[98] 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 baseline costs for large volume manufacturer fuel conversion compliance.

This cost estimate does not consider expenses converters may incur to develop and design their conversion system. Typical product development costs include research, expert consultation, preliminary or shakedown testing, and other expenses associated with perfecting system functionality. Rather, this analysis estimates the expected cost of satisfying the EPA testing and/or demonstration requirement. The estimate includes the cost of creating a certification application, submitting test data to EPA, confirmatory testing, and certification fees. Costs associated with confirmatory testing requirements include preparing a vehicle and shipping it to the EPA laboratory for testing. All hourly wage data for conversion manufacturer labor is based on the Bureau of Labor and Statistics.

All conversion manufacturers reported that a senior manager is conducting testing oversight and application preparation, so this estimate applies the same labor rate for conversion manufacturer labor 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.[99] 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.

Conversion manufacturers generally try to apply one set of test data to as many vehicle makes and models as EPA will allow 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 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 revised 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 amended regulations, as described previously in this preamble.

A. Baseline Costs

Baseline costs are 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 is calculated assuming the conversion manufacturer chooses 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 under the revised regulatory program.

1. Costs of One Certificate Without Scaling Costs

During development of this regulation, EPA contacted several aftermarket conversion manufacturers and an independent test laboratory to estimate the 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_X, and NMHC analysis; HCHO and NMOG speciation; one HFET NO_X 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 new programs.

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

All estimated independent test laboratory 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 LABORATORY

	Average costs
Coast Down Coefficient Determination	$360.00
One FTP75 Test and CO, NO_X, NMHC Analysis	1,116.67
(NMOG Speciation)—Aldehydes and Ketones	1,500.00
(NMOG Speciation)—Alcohols	250.00

[98] 40 CFR 86.1838–01.

[99] For electronic access to the Bureau of Labor and Statistics Data, *see http://www.bls.gov/oes/2008/may/oes_nat.htm#b11-;0000.*

TABLE VII.A–1—EXHAUST EMISSIONS TESTING COSTS TYPICALLY INCURRED AT INDEPENDENT TEST LABORATORY—Continued

	Average costs
One HFET NO_X Test	430.00
Exhaust Independent Test Lab Billable Labor Costs	702.50
Total Exhaust Independent Test Lab Costs	4,359.17

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 testing oversight labor costs (including 100% labor overhead)	1236.69
Lodging	280.00
Subtotal	5,875.86
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 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 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

TABLE VII.A–5—OTHER CERTIFICATION ESTIMATED COSTS FOR FUEL CONVERSION OF ONE OEM CERTIFICATE (NO SCALING APPLIED)—Continued

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

e. Certification Fees

The certification fee for a light-duty vehicle certificate issued in 2010 was $34,849.[100] 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.[101] 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 baseline 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

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 the 418 certificates, 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 of Vehicles	59,810.30		44,371.70

Thus, the baseline 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 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 Revised Regulation

Under this revised regulation the projected cost for a certified conversion will be similar to the previously applicable fuel conversion certification process, with three exceptions: (1) A statement of compliance using good engineering judgment will be accepted in lieu of HCHO testing analysis for

[100] For an electronic version of the current fee filing form, *see http://www.epa.gov/otaq/cert/documents/on-hwy2010feeform-01-07-10.pdf.*

[101] 40 CFR 1027.120.

certain alternative fuels, and the use of conversion factors to calculate NMOG from NMHC will 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) test group combinations will 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, EPA will accept a statement of compliance for HCHO 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 HCHO 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 revised regulation, 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 revisions to 40 CFR 86.1811–04 allow a manufacturer statement of compliance for evaporative testing for gaseous fuels. This eliminates all evaporative emissions testing costs for gaseous fuels such as CNG (or LNG), LPG, or hydrogen fuels.

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

This revised regulation defines criteria which may allow the combination of several OEM test groups into a single clean alternative fuel conversion test group. Cost savings associated with combining test groups will be significant, depending 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 one-third.

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 Amended Regulation

TABLE VII.B–1—ESTIMATED 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 four 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	16,000.00
Total Cost for OEM Test Group(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 final rule is $146,977. This represents an estimated cost reduction of more than $30,000 compared to previous 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 previous fuel conversion compliance process required 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 revised regulation permits a statement of compliance for HCHO 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 HCHO 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 new rule, testing cost for HCHO and NMOG analysis for conversions to CNG (or LNG), and LPG is $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 amendment to 40 CFR 86.1811–04 allows a manufacturer statement of compliance for evaporative testing for gaseous fuels. This will eliminate evaporative emissions compliance testing costs for gaseous fuels.

3. Conversion Test Groups Cost Reduction

Under this revised regulation, intermediate age conversion test groups share the same grouping criteria as the conversion test groups for new vehicles, except the intermediate age 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 test group costs for certification of new vehicles under this regulation.

4. OBD Demonstration Testing Cost Reduction

The OBD demonstration requirement for intermediate age vehicles is different than the new vehicle OBD demonstration requirement. Intermediate age conversions do not necessarily require the OBD demonstration tests that are required for certification. Instead the intermediate age conversion manufacturer must attest that the OBD system works properly and submit an OBD scan tool report. The conversion manufacturer must still conduct any development and bear associated costs necessary to ensure that the post-conversion OBD system remains functional and meets the EPA standards, but the costs associated with conducting certification OBD demonstration testing for data submission to EPA may not be required for the intermediate age vehicle program. Since a scan tool is a one-time cost of around $300–$400 and we estimate labor at less than two hours, EPA estimated the scan tool testing costs at about $287 per scan tool test.[102] The intermediate age cost reduction from the OBD certification demonstration testing cost baseline could result in a cost savings up to $26,000 per conversion test group.

5. Total Cost Reductions for Intermediate Age Vehicles Under the Revised Regulation

TABLE VII.C–1—REVISED REGULATION 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 four 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 Scan Tool Demo Tests	286.95	0.60	172.17	688.69
Total Costs for Travel, Vehicle Shipments, and Data Submission.	12,915.81	Weighted appropriately to each task.	6,361.80	25,447.20
Total Cost for per Conversion of OEM Test Group(s) of Vehicles.	25,829.25		13,175.01	52,700.04

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 amended rule is estimated to be $52,700. This represents an estimated cost reduction of more than $100,000 from the 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

EPA examined the potential costs for the three outside useful life demonstration options [103] presented in the proposal for comment. We estimated that the cost for the outside useful life program could vary significantly based on the finalized option and the technology employed by the converter. As described above for the new and intermediate age categories, the costs converters might incur for technology research and development are not considered in the cost analysis because they are not expected to change as a result of this rulemaking.

The first outside useful life demonstration option in the proposal ("Option 1") would have required converters to submit sufficient information about the conversion technology for EPA to determine that emissions would not increase. For purposes of this cost estimate, we assumed that testing, as is required for the intermediate age program, would sufficiently satisfy the Option 1 good engineering judgment demonstration requirement. *See* Section VII.C references to total costs for exhaust and evaporative emissions testing.

The second outside useful life option, ("Option 2") would have required outside useful life converters to submit test data showing compliance with the numerical inside useful life standard, or Federal test procedure data from before and after testing showing that emissions did not increase after conversion. The potential need for two sets of tests, before and after conversion, means that the testing costs for exhaust and evaporative emissions tests under Option 2 could range from the same as Option 1 to double what they would be under Option 1. *See* Section VII.C for references to total costs for exhaust and evaporative emissions testing.

EPA is finalizing the third option ("Option 3"), which adds the intermediate age OBD scan tool test procedure to the Option 1 good engineering judgment demonstration requirement. Thus the estimated compliance cost for outside useful life conversions would be similar to the intermediate age compliance cost. Testing costs may be higher should a

[102] Because this analysis assumes that capital and development costs are unchanged by this rulemaking, we have chosen to amortize the cost of a scan tool over 10 conversion test groups, attributing $40 per required data submission. In addition, two hours labor cost at $57.97 per hour + two hours overhead + 6.5%.general and administrative are also attributed to this test. This results in a total of about $287 per OBD scan tool test.

[103] 75 FR 29624 (May 26, 2010).

conversion manufacturer perform pre-conversion and post-conversion testing to demonstrate that the conversion system maintains the performance of the emission control system.

VIII. Associated Costs for Heavy-Duty Engines

The costs associated with achieving compliance under this final rule 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 specific circumstances such as conversion technology, fuel type, engine age and model year, conversion manufacturer sales volume, and the gross vehicle weight rating (GVWR) of the application on which the converted engine is intended to be used. The costs converters might incur for technology research and development are not considered in the cost analysis because they are not expected to change as a result of this rulemaking.

EPA analyzed the cost of obtaining a certificate of conformity under previous fuel conversion regulations and used those estimates as a baseline cost. All cost analyses in this section are intended to apply to conversions to any fuel.

The information available to EPA about heavy-duty conversion costs is limited. For example, EPA received seven MY 2008 certification applications from four conversion manufacturers and only three MY 2009 applications from three different manufacturers. Based on the limited historical data on heavy-duty conversions, EPA has estimated the cost a converter would incur to satisfy the demonstration requirements under these revised regulations compared to the baseline certification costs.

A. Baseline Costs

Baseline costs were derived by determining the cost of obtaining exhaust and evaporative emission certificates for a new engine family under previous regulations and procedures. A new engine family is a family that has not been previously certified as an alternative fuel conversion. After the first certification, the manufacturer may use the same test data to obtain certificates of conformity in subsequent years, if desired. 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.

Some converters who have obtained certificates in recent years may notice that the estimated baseline cost is higher than the costs they actually incurred. This is because EPA's baseline cost analysis includes expenses for evaporative emissions and OBD testing. Many heavy-duty engine converters to date have been exempt from these testing requirements.[104] However, it is important to include these testing costs in the baseline estimate because engine converters will be subject to OBD testing in the future, and evaporative emissions testing is required for all fuel types to which an evaporative emissions standard applies.

This cost estimate does not consider expenses converters may incur to develop and design their conversion system. Typical product development costs include research, expert consultation, preliminary or shakedown testing, and other expenses associated with perfecting system functionality. Rather, this analysis estimates the expected cost of satisfying the EPA testing and/or demonstration requirement.

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.

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

Occupation	SOC code No.	Mean hourly rate (BLS)	210%
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

Conversion 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 in 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. The fees rule allows 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). Converters have historically been able to take advantage of the reduced fee provision; however, EPA has used the full fee for the cost basis in this analysis.

1. Baseline Costs of Certification for One Heavy-Duty Exhaust Engine

Historically, all conversion manufacturers who have certified converted heavy-duty engines are small manufacturers that 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

[104] *See* for example, 40 CFR 86.010–18(o)(1)(v).

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 this rule, no capital costs have been added to the cost basis.

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

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

Item	Estimated cost
Exhaust Testing	$30,000
Labor	9,653
Shipping Engines to Test Site	2,500
Lodging	250
Other Operating and Maintenance Costs	19
Exhaust Certification Subtotal	42,422
Certification Fee for 2010	35,967
Total	78,389

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

Manufacturers and converters of Otto-cycle engines are required to demonstrate compliance with evaporative emissions requirements and obtain an evaporative emissions as well as an exhaust emissions certificate of conformity. EPA is including the costs for both evaporative and exhaust certificates in the baseline estimate. As with exhaust certificates, the unit of certification for evaporative emissions is a group of engines with similar evaporative emission characteristics known as an evaporative engine family. 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.

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

Item	Estimated cost
Evaporative Testing	$7,030
Labor	2,431
Other Operating and Maintenance Costs	13
Evaporative Certification Subtotal	9,474
Certification Fee for 2010	511
Total	9,985

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

To date, heavy-duty engine converters have either been exempt from OBD testing requirements, or have been able to satisfy requirements by providing EPA with light-duty carry-across data, or with a record of California Air Resources Board approval of the OBD system.[105] Therefore EPA does not have any information about the cost of conducting heavy-duty engine OBD demonstration testing.

Therefore, EPA is adopting the $26,317 estimate developed for light-duty OBD to also estimate heavy-duty OBD certification costs. *See* Section VII.A(1)(a)(c), Table VII.A–4.

In summary, the baseline cost of fully certifying a HD engine family, including evaporative and OBD certification is $114,692, as indicated in Table VIII.A–4.

TABLE VIII.A–4—BASELINE COST OF CERTIFICATION FOR ENGINE FUEL CONVERSION

Item	Estimated cost
Exhaust Certification	$42,422
Exhaust Certification Fee	35,967
Evaporative Certification	9,474
Evaporative Certification Fee	511
OBD Compliance Demonstration	26,317
Total	114,692

[105] *See* 40 CFR 86.005–17 and 40 CFR 86.007–17.

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 engine 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 engine families and two evaporative families would be about $438,796 (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—BASELINE COST OF CERTIFYING FOUR EXHAUST ENGINE FAMILIES AND TWO EVAPORATIVE FAMILIES

Item	Estimated cost (one engine family)	Number of engine families	Total cost
Exhaust Certification	$42,422	4	$169,689
Exhaust Certification Fee	35,967	4	143,868
Evaporative Certification	9,474	2	18,949
Evaporative Certification Fee	511	2	1,022
OBD Compliance Demonstration	26,317	4	105,268
Total	114,692	.....	438,796

B. Certified Conversion Costs Under the Revised Rule

The number of engines in a typical heavy-duty engine family has historically been lower than the number of vehicles in a light-duty test group. Since the cost of certification is spread over a smaller pool of engines, it is more expensive to certify a heavy-duty family on a per engine basis.

EPA determined that the current data are not sufficient to develop a scaling factor that could be applied to calculate the cost of certification under the new rule. Instead, EPA believes it is more appropriate to illustrate how the 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 intermediate age and outside useful life estimates. As mentioned previously, the costs converters might incur for technology research and development are not considered in the cost analysis because they are not expected to change as a result of this rulemaking.

1. Baseline Scenario

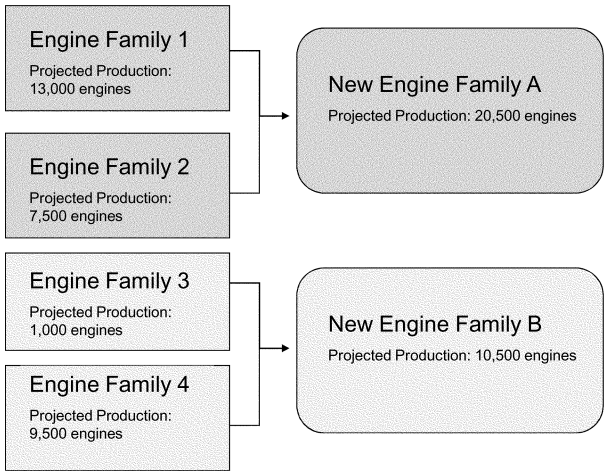
In MY 2008, Converter X obtained certificates of conformity with heavy-duty exhaust emission regulations for four OEM engine families. Converter X used regulations found at 40 CFR 86.000–24 to determine how many exhaust engine families, and therefore, how many conversion certificates it needed. For the purpose of this demonstration, EPA will assume that Converter X submitted one set of test data set and paid one full fee for each exhaust certificate. If Converter X also pursued 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 estimated cost for this scenario is $438,796.

2. Scenario under Revised 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 final rule. For a list of criteria, *see* Section IV.A.2.b. Had the engine family combinations been available to Converter X, Converter X would have been able to combine two of its engine families into a single 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 (down from four each), thus cutting its costs of certifying its exhaust engine families in half (Table VIII.B–2).

TABLE VIII.B–2—COST OF CERTIFYING TWO EXHAUST ENGINE FAMILIES AND TWO EVAPORATIVE FAMILIES UNDER REVISED RULE

Item	Estimated cost (one engine family)	Number of engine families	Total cost
Exhaust Certification	$42,422	2	$84,845
Exhaust Certification Fee	35,967	2	71,934
Evaporative Certification	9,474	2	18,949
Evaporative Certification Fee	511	2	1,022
OBD Compliance Demonstration	26,317	2	52,634
Total	114,692	2	229,383

The total cost of certifying the same engines under the revised rule is $229,383, representing a 48% savings for Converter X. The cost of certification is also spread over a larger pool of engines, lowering the cost per unit, as Figure VIII.B–1 shows. The ability to cut costs in this way translates into a more cost effective scenario for heavy-duty converters able to use the new engine family combination criteria.

C. Intermediate Age Engine Compliance Costs

The previous fuel conversion process required 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 revised rule, converters of intermediate age engines must still submit test data to demonstrate compliance with applicable standards, but the test data may cover a broader group of engines, as described in Section VIII.B. In addition, converters of intermediate age engines are no longer required to pay fees.

The revised rule further reduces cost because converters of intermediate age engines will no longer need to submit OBD certification data. Instead the revised rule requires converters to ensure that the OBD system remains fully functional in the converted engine. To demonstrate that the OBD system is functional, the converter must interrogate the OBD system with a scan tool device, submit a copy of the OBD results to EPA and attest that the OBD system works properly. Costs associated with this form of OBD demonstration are limited to the cost of a heavy-duty OBD scan tool, periodic software updates [106] and labor costs associated with obtaining and submitting the print-out.

EPA has found that the costs of OBD scan tools for heavy-duty trucks vary widely, depending on the size of the vehicle. For trucks weighing less than 14,000 pounds, OBD scan tools range

[106] Software updates are mainly used to add vehicle models to the list of vehicles the OBD scan tool is capable of scanning. Since EPA is including the cost of a new scan tool in its OBD demonstration estimate for intermediate age and outside useful life engine conversions, adding the cost of software updates does not appear necessary here.

between $90 and $1,000. The less expensive ones are usually specific to a particular vehicle make and model. For trucks weighing between 14,001 and 33,000 pounds, OBD scan tools range between $1,300 and $2,500, but most cost around $1,500. For the largest trucks, over 33,000 pounds, scan tools cost as much as $8,000. Since the majority of applications for certification of converted engines are expected to be for engines used in applications weighing less than 33,000 pounds, EPA has chosen $1,500 as a cost representative of what the average converter is likely to pay for an OBD scan tool.

In addition to the cost of an OBD scan tool, converters of intermediate age engines will incur costs for labor associated with conducting the scanning procedure, gathering data and submitting it to EPA. EPA estimates these cost to amount to approximately $157 per engine family. Table VIII.C–1 summarizes the estimated cost of obtaining a heavy-duty OBD scan tool and generating a scan report for one engine family.

TABLE VIII.C–1—COSTS ASSOCIATED WITH OBTAINING A HD OBD SCAN TOOL AND GENERATING REPORTS FOR ONE ENGINE FAMILY

Item	Estimated cost
OBD Scan Tool	$1,500
Labor	158
Total	1,658

If the engine families Converter X certified in our previous scenario were intermediate age engines, Converter X would realize savings due to (1) engine family groupings, (2) the lack of a certification fee, and (3) lower OBD demonstration costs. As shown in Table VIII.C–2, the cost to Converter X would be approximately $107,109. This represents savings of about $331,687or 76% when compared to the baseline.

TABLE VIII.C–2—COST OF TWO INTERMEDIATE AGE CONVERSIONS CERTIFICATION UNDER REVISED RULE

[Compared to baseline cost estimates and new and nearly new engine certification under the revised rule]

Item	Baseline cost for four exhaust and two evap families (certification)	Cost for two exhaust and two evap families (certification of new and nearly new—revised rule)	Cost for two exhaust and two evap families (intermediate age—revised rule)
Exhaust Certification	$169,689	$84,845	$84,845
Exhaust Certification Fee	143,868	71,934	.....
Evaporative Certification	18,949	18,949	18,949
Evaporative Certification Fee	1,022	1,022	.....
OBD Compliance Demonstration	105,268	52,634	N/A
OBD scan tool report and statement of compliance	N/A	N/A	3,316
Total	438,796	229,383	107,109

D. Outside Useful Life Engine Compliance Costs

As explained in Section VII–D, EPA presented three options for outside useful life engine conversions in the proposed rule. Today, EPA is finalizing "Option 3", which adds the intermediate age OBD scan tool test procedure to the Option 1 good engineering judgment demonstration requirement.

EPA used the approach described in previous sections to estimate the cost of converting outside useful life heavy-duty engines and concluded that costs would be the same or less than those incurred by converters of intermediate age heavy-duty engines. Please *see* Table VIII.C.2 for further detail on intermediate age conversion costs.

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 rulemaking was non-significant on December 7, 2010 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 final 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 0783.59 and 1684.17. Any information collection requirements in ICR numbers 0783.59 and 1684.17 which are not covered by existing OMB control numbers 2060–0104 and 2060–0287, are not enforceable until OMB approves them.

The Agency is finalizing requirements for manufacturers to submit information to ensure compliance with the provisions in this rule. This includes a variety of requirements for alternative fuel vehicle/engine converters who seek an exemption from the anti-tampering prohibition in section 203(a)(3) of the Clean Air Act. 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 CAA, 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. This action amends those regulations, located in 40 CFR part 85, subpart F. Section 208(a) of the Act requires that vehicle/engine

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.

Model years 2009, 2010, and 2011 have exhibited an upward trend in the number of light-duty fuel conversion certificates issued and the number of clean alternative fuel conversion manufacturers. In 2010, 42 light-duty alternative fuel conversion certificates were issued for seven different conversion manufacturers. In 2011, EPA has thus far issued 100 light duty fuel conversion certificates; however about half of those certificates are renewals, which will no longer be necessary under this new rule. For this final rule, we are assuming an estimated 50 light duty certificates for eight different conversion manufacturers, since this is similar to the 2010 value and the 2011 number if renewals are no longer needed. As shown in Table IX–1, the total annual industry paperwork burden associated with the light-duty vehicle program is about 18,535 hours and $185,093 in annual capital and operations and maintenance costs based on a projection of 8 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 11,203 hours and $89,103 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 76 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 (ICR 0783.59)	8	18,535	$185,093	$1,060,272	$1,245,365
On-Highway Heavy-Duty Engines (ICR 1684.17)	8	1,578	622,389	135,078	757,468
Total	16	20,113	807,482	1,195,350	2,002,833

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. When this ICR is approved by OMB, the Agency will publish a technical amendment to 40 CFR part 9 in the **Federal Register** to display the OMB control number for the approved information collection requirements contained in this final rule.

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 this rule 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 335312, 336312, 336322, and 336399 with fewer than 750–1000 employees and 811198 with annual revenue below $7 million (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 this action 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, previous alternative fuel conversion regulations required converters to complete vehicle and engine certification testing, data submittal and compliance procedures using OEM new vehicle certification procedures. The previous certification process largely will be retained for conversion of vehicles and engines that are about two years old or newer, 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 final 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 intermediate age and outside useful life programs will allow conversion manufacturers to conduct fewer tests and will provide a streamlined data-submittal process. These programs 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 final 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 20 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.

D. Unfunded Mandates Reform Act

This rule 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 rule 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 action 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 action.

Although section 6 of Executive Order 13132 does not apply to this action, EPA did consult with State and local officials and representatives of State and local governments in developing this action. EPA received comments from four separate State agencies/officials: The State of Utah, Office of the Governor Energy Advisor, Dianne Nielson; The Texas Railroad Commission, Michael Williams, Commissioner; The Texas Commission on Environmental Quality, Mark Vickery, Executive Director; and the Florida Department of Environmental Protection, Sandra Veazey, Chief Bureau of Air Monitoring and Mobile Sources. None of the State agency comments expressed federalism implications or concerns. EPA generally received positive comments from State agencies/officials about the goals of the proposed rule. State agency comments about program details are included in the Response to Comments document in the docket.

In the spirit of Executive Order 13132, and consistent with EPA policy to promote communications between EPA and State and local governments, EPA specifically solicited comment on the 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 solicited additional comment on the proposal from Tribal officials, and received no comments 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 is not economically significant as defined in EO 12866 and 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 rulemaking does not involve new technical standards and EPA received no comments concerning any voluntary consensus 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 final 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. This action 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.

K. Congressional Review Act

The Congressional Review Act, 5 U.S.C. 801 *et seq.,* as added by the Small Business Regulatory Enforcement Fairness Act of 1996, generally provides that before a rule may take effect, the agency promulgating the rule must submit a rule report, which includes a copy of the rule, to each House of the Congress and to the Comptroller General of the United States. EPA will submit a report containing this rule and other required information to the U.S. Senate, the U.S. House of Representatives, and the Comptroller General of the United States prior to publication of the rule in the **Federal Register**. A major rule cannot take effect until 60 days after it is published in the **Federal Register**. This action is not a "major rule" as defined by 5 U.S.C. 804(2).

L. Administrative Procedure Act

Section 553(d) of the Administrative Procedure Act, 5 U.S.C. 553(d) generally requires agencies to publish substantive rules at least 30 days prior to the effective dates of such rules. One exception to that general requirement is that an agency may establish an immediate effective date for a rule "which grants or recognizes an exemption or relieves a restriction." EPA has decided that this action will be effective immediately upon publication in the **Federal Register** because this action recognizes an exemption to the Clean Air Act's section 203 tampering prohibition.

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 Clean Air Act (CAA) section 307(d).[107]

List of Subjects in 40 CFR Parts 85 and 86

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

[107] *See* CAA section 307(d)(1)(V).

Dated: March 29, 2011.

Lisa P. Jackson,

Administrator.

For the reasons set forth in the preamble title 40, Chapter 1 of the Code of Federal Regulations is 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.

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, medium-duty passenger vehicles, 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".

§ 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/engine, its fueling system, or the integration of these systems, that allows the vehicle/engine to operate on a fuel or power source different from the fuel or power source for which the vehicle/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/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. This is based on the expectation that production periods generally run on consistent schedules from year to year. Conversion model years may not circumvent or skip an annual production period. The term conversion model year means the calendar year if the converter does not have a 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 or more different fuels, but not on a mixture of the fuels.

Heavy-duty engines describes all engines intended for use in heavy-duty vehicles, covered under the applicability of 40 CFR part 86, subpart A.

Light-duty and heavy-duty chassis certified vehicles describes all light-duty vehicles, light-duty trucks, medium duty passenger vehicles, and heavy-duty complete and incomplete vehicles covered under the applicability of 40 CFR part 86, subpart S.

Mixed-fuel vehicle/engine means any vehicle/engine engineered and designed to be operated on the original fuel(s), alternative fuel(s), or a mixture of two or more fuels that are combusted together. Mixed-fuel vehicles/engines include flexible-fuel vehicles/engines as defined in 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 certificate and 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/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/engine as originally certified, excluding new and relatively new vehicles/engines. *See* § 85.515 for provisions that apply specifically to intermediate-age vehicles/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 or mixed-fuel vehicle/engine, you must submit test data using each type of fuel, except that if you wish to certify to the same standards as the OEM vehicle/engine, you may omit testing for the fuel originally used to certify the vehicle/engine if you comply with § 85.510(b)(10)(ii), (iii), and (iv), § 85.515(b)(10)(iii)(B), (C), and (D), or § 85.520(b)(6)(iii)(B), (C), and (D), 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 to the requirements of this subpart. We may ask you to give us less information or do less testing than we specify in this subpart.

(e) EPA may require converters to submit vehicles/engines for EPA testing under any of the three age based programs. Under § 85.510 or § 85.515, if a vehicle/engine is selected for confirmatory testing as part of the demonstration and notification process, the vehicle/engines must satisfy the applicable intermediate and full useful life standards using the appropriate deterioration factors to qualify for an exemption from the tampering prohibition. If an outside useful life vehicle/engine is selected for testing, the vehicle/engine must demonstrate that emissions are maintained or improved upon after conversion to qualify for an exemption from the tampering prohibition.

(f) If you have previously used small volume conversion manufacturer or qualified small volume test group/engine family procedures and you may exceed the volume thresholds using the sum described in § 85.535(f) to determine small volume status in 40 CFR 86.1838–01, 40 CFR 86.098–14, and 40 CFR 86.096–24(e)(2) as appropriate, you must satisfy the requirements for conversion manufacturers who do not qualify for small volume exemptions or your exemption from tampering is no longer valid.

(g) An exemption from the prohibition on tampering applies to previously issued alternative fuel conversion certificates of conformity for the applicable conversion test group/engine family and/or evaporative/refueling family, as long as the conditions under which the certificate was issued remain unchanged, such as small volume manufacturer or qualified small volume test group/engine family status. Your exemption from tampering is valid only if the conversion is installed on the OEM test groups/engine families and/or evaporative emissions/refueling families listed on the certificate.

(h) The applicable useful life of a clean alternative fuel converted vehicle/engine shall end at the same time the OEM vehicle's/engine's original useful life ends.

§ 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 system to the emission standards specified in § 85.525 as described in paragraph (b) 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 such as those specified in 40 CFR part 86, subparts A, B, and S and 40 CFR part 1065, as applicable, subject to the following exceptions and special provisions:

(1) Test groups and evaporative/refueling families for light-duty and heavy-duty chassis certified vehicles.

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

(A) If criteria for small volume manufacturer or qualified 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 flexible-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 qualified 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 if the rate differs by fuel type.

(C) As part of the conversion system description provided in the application for certification, conversion manufacturers using EPA assigned deterioration factors must present detailed information to confirm the durability of all relevant new and existing components and to explain why the conversion system will not harm the emission control system or degrade the emissions.

(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 86.1821–01.

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

(i) Small volume conversion manufacturers and qualified small volume heavy-duty engine families.

(A) If criteria for small volume manufacturer or qualified small volume engine families are met as defined in 40 CFR 86.098–14 and 40 CFR 86.096–24(e)(2) 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 engines 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 or qualified small volume engine families are met as defined in 40 CFR 86.098–14 and 40 CFR 86.096–24(e)(2). 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 if the rate differs by fuel type.

(C) As part of the conversion system description provided in the application for certification, conversion manufacturers using EPA assigned deterioration factors must present detailed information to confirm the durability of all relevant new and existing components and to explain why the conversion system will not harm the emission control system or degrade the emissions.

(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 for small volume conversion manufacturers and qualified small volume 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/engines included in the conversion test group/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. Conversion manufacturers may choose to certify a conversion test group/engine family to a more stringent standard than the OEM did. The optional, more stringent standard would then apply to all OEM test groups/engine families within the conversion test group/engine family. This paragraph (b)(3) does not apply to conversions to dual-fuel/mixed-fuel vehicles/engines, as provided in paragraph (b)(7) of this section.

(4)–(5) [Reserved]

(6) Durability testing is required unless the criteria for small volume manufacturer or qualified small volume test groups/engine families are met as defined in 40 CFR 86.1838–01, 40 CFR 86.098–14, and 40 CFR 86.096–24(e)(2), as applicable.

(7) Conversion test groups/engine families for conversions to dual-fuel or mixed-fuel vehicles/engines cannot include vehicles/engines subject to different emission standards unless applicable exhaust and OBD demonstrations are also conducted for the original fuel(s) demonstrating compliance with the most stringent standard represented in the test group. However for small volume conversion manufacturers and qualified small volume test groups/engine families the data generated from exhaust emission testing on the new fuel for dual-fuel or mixed-fuel test vehicles/engines may be carried over to vehicles/engines which otherwise meet the test group/engine family criteria and for which the test vehicle/engine data demonstrate compliance with the application vehicle/engine standard. Clean alternative fuel conversion evaporative families for dual-fuel or mixed-fuel vehicles may not include vehicles/engines which were originally certified to different evaporative emissions standards unless evaporative/refueling demonstrations are also conducted for the original fuel(s) demonstrating compliance with the most stringent standard represented in the evaporative/refueling family.

(8) The vehicle/engine selected for testing must qualify as a worst-case vehicle/engine under 40 CFR 86.1828–10 or 40 CFR 86.096–24(b)(2) through (b)(3), as applicable.

(9) OBD requirements.

(i) 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.

(ii) Conduct all OBD testing as required for OEM certification.

(iii) In addition to conducting OBD testing as required for certification, submit the following statement of compliance, if the OEM vehicles/engines were required to be OBD equipped. The test group/engine family converted to an alternative fuel has fully functional OBD systems and therefore meets the OBD requirements such as those specified in 40 CFR 86, subparts

A and S when operating on the alternative fuel.

(10) In lieu of specific certification test data, you may submit the following attestations for the appropriate statements of compliance, if you have sufficient basis to prove the statement is valid.

(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 such as those specified in 40 CFR part 86, subparts A, B, and S and 40 CFR part 1065. Attest to each statement or waiver in your application for certification.

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

(11) Certification fees apply per 40 CFR 1027.

(12) A certificate issued under this section is valid starting with the indicated effective date and expires on 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. Even after the certificate expires, your exemption from the prohibition on tampering remains valid for the applicable conversion test group/engine family and/or evaporative/refueling family, as long as the conditions under which the certificate was issued remain unchanged, such as small volume manufacturer or qualified small volume test group/engine family status. Your exemption from tampering is valid only if the conversion is installed on the OEM test groups/engine families and/or evaporative emissions/refueling families listed on the certificate. For example, if you have received a clean alternative fuel conversion certificate of conformity in conversion model year 2011 for converting a 2010 model year OEM test group/evaporative/refueling family, your exemption from tampering continues to apply for the conversion of the same 2010 model year OEM test group/evaporative/refueling family as long as the conditions under which the certificate was issued remain unchanged, such as small volume manufacturer status.

(13) 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 demonstrating compliance with all the provisions in this section and providing all notification information to EPA. You may notify us as described in this section instead of certifying the clean alternative fuel conversion system. You must demonstrate compliance with all exhaust and evaporative emissions standards by conducting all exhaust and evaporative emissions and durability testing as required for OEM certification subject to the exceptions and special provisions permitted in § 85.510. This paragraph (b) provides additional special provisions applicable to intermediate age vehicles/engines. Paragraph (b) is applicable to all conversion manufacturers unless otherwise specified.

(1) Conversion test groups for light-duty and heavy-duty chassis certified 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. Evaporative/refueling families may be grouped together using the criteria described in § 85.510(b)(1)(ii).

(2) 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. Evaporative/refueling families may be grouped together using the criteria described in § 85.510(b)(2)(ii).

(3) Conversion test groups/engine families may include vehicles/engines that are subject to different OEM emission standards; however, all vehicles/engines in a single conversion test group/engine family are subject to the most stringent standards that apply for vehicles/engines included in the conversion test group/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 in the conversion test group under this subpart are subject to the Tier 2, Bin 4 standards. This paragraph (b)(3) does not apply to conversions to dual-fuel/mixed-fuel vehicles/engines, as provided in paragraph (b)(7).

(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 qualified small volume test groups/engine families are met as defined in 40 CFR 86.1838–01, 40 CFR 86.098–14, or 40 CFR 86.096–24(e)(2), 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 if the rate differs by fuel type.

(5) As part of the conversion system description required by paragraph (b)(10)(i) of this section, small volume conversion manufacturers and qualified small volume test groups/engine families using EPA assigned deterioration factors must present detailed information to confirm the durability of all relevant new and existing components and explain why the conversion system will not harm the emission control system or degrade the emissions.

(6) Durability testing is required unless the criteria for small volume manufacturer or qualified small volume test groups/engine families are met as defined in 40 CFR 86.1838–01, 40 CFR 86.098–14, or 40 CFR 86.096–24(e)(2), as applicable. Durability procedures for large volume conversion manufacturers of intermediate age light-duty and heavy-duty chassis certified vehicles that follow provisions in 40 CFR 86.1820–01 may eliminate precious

metal composition and catalyst grouping statistic when creating clean alternative fuel conversion durability groupings.

(7) Conversion test groups/engine families for conversions to dual-fuel or mixed-fuel vehicles/engines may not include vehicles/engines subject to different emissions standards unless applicable exhaust and OBD demonstrations are also conducted for the original fuel(s) demonstrating compliance with the most stringent standard represented in the test group/engine family. However the data generated from testing on the new fuel for dual-fuel or mixed/fuel test vehicles/engines may be carried over to vehicles/engines that otherwise meet the conversion test group/engine family criteria and for which the test vehicle/engine data demonstrate compliance with the applicable vehicle/engine standards. Clean alternative fuel conversion evaporative families for dual-fuel or mixed-fuel vehicles/engines cannot include vehicles/engines that were originally certified to different evaporative emissions standards unless evaporative/refueling demonstrations are also conducted for the original fuel(s) demonstrating compliance with the most stringent standard represented in the evaporative/refueling family.

(8) You must 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, based on the certification procedures such as those specified in 40 CFR part 86, subparts A, B, and S and 40 CFR part 1065.

(9) *OBD requirements.* (i) 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 that 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.

(ii) Subsequent to the vehicle/engine fuel conversion, you must clear all OBD codes and reset all OBD monitors to not-ready status using an OBD scan tool appropriate for the OBD system in the vehicle/engine in question. You must operate the vehicle/engine with the new fuel on representative road operation or chassis dynamometer/engine dynamometer testing cycles to satisfy the monitors' enabling criteria. When all monitors have reset to a ready status, you must submit an OBD scan tool report showing that with the vehicle/engine operating in the key-on/engine-on mode, all supported monitors have reset to a ready status and no emission related "pending" (or potential) or "confirmed" (or MIL-on) diagnostic trouble codes (DTCs) have been set. The MIL must not be commanded "On" or be illuminated. A MIL check must also be conducted in a key-on/engine-off mode to verify that the MIL is functioning properly. You must include the VIN/EIN number of the test vehicle/engine. If necessary, the OEM evaporative emission readiness monitor may remain unset for dedicated gaseous fuel conversion systems.

(iii) In addition to conducting OBD testing described in this paragraph (b)(9), you must submit to EPA the following statement of compliance, if the OEM vehicles/engines were required to be OBD equipped. The test group/engine family converted to an alternative fuel has fully functional OBD systems and therefore meets the OBD requirements such as those specified in 40 CFR 86, subparts A and S when operating on the alternative fuel.

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

(i) You must describe how your conversion system qualifies as a clean alternative fuel conversion. You must include emission test results from the required exhaust, evaporative emissions, and OBD 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 86.1828–10 or 40 CFR 86.096–24(b)(2) through (b)(3) as applicable.

(ii) You must 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)(1) or (b)(2) of this section.

(iii) In lieu of specific test data, you may submit the following attestations for the appropriate statements of compliance, if you have sufficient basis to prove the statement is valid.

(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 such as those specified in 40 CFR part 86, subparts A, B, and S and 40 CFR part 1065. Attest to each statement or waiver in your notification.

(B) The test group/engine family converted to dual-fuel or mixed-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.

(C) The test group/engine family converted to dual-fuel or mixed-fuel operation retains all the functionality of the OEM OBD system (if the OEM vehicles/engines were required to be OBD equipped) when operating on the fuel for which the vehicle/engine was originally certified.

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

(iv) 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 and meets applicable emission standards.

(11) [Reserved]

(12) Your exemption from the prohibition on tampering remains valid for the applicable conversion test group/engine family and/or evaporative/refueling family, as long as the conditions under which you previously complied remain unchanged, such as small volume manufacturer or qualified small volume test group/engine family status. Your exemption from tampering is valid only if the conversion is installed on the OEM test groups/engine families and/or evaporative emissions/refueling families listed on the notification. For example, if you have complied properly with the provisions in this section in calendar year 2011 for converting a model year 2006 OEM test group/evaporative/refueling family, your exemption from tampering continues to apply for the conversion of the same model year 2006 OEM test group/evaporative/refueling family as long as the conditions under which the notification was submitted remain unchanged.

(13) 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.

§ 85.520 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 must notify us as described in this section.

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

(3) You must 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/engines in which they will be installed. Good engineering judgment also dictates that any testing or data used to satisfy demonstration requirements be generated at a quality laboratory that follows good laboratory practices and that is capable of performing official EPA emission tests.

(4) *OBD requirements.* (i) 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 that 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.

(ii) Subsequent to the vehicle/engine fuel conversion, you must clear all OBD codes and reset all OBD monitors to not-ready status using an OBD scan tool appropriate for the OBD system in the vehicle/engine in question. You must operate the vehicle/engine with the new fuel on representative road operation or chassis dynamometer/engine dynamometer testing cycles to satisfy the monitors' enabling criteria. When all monitors have reset to a ready status, you must submit an OBD scan tool report showing that with the vehicle/engine operating in the key-on/engine-on mode, all supported monitors have reset to a ready status and no emission related "pending" (or potential) or "confirmed" (or MIL-on) diagnostic trouble codes (DTCs) have been stored. The MIL must not be commanded "On" or be illuminated. A MIL check must also be conducted in a key-on/engine-off mode to verify that the MIL is functioning properly. You must include the VIN/EIN number of the test vehicle/engine. If necessary, the OEM evaporative emission readiness monitor may remain unset for dedicated gaseous fuel conversion systems.

(iii) In addition to conducting OBD testing described in this paragraph (b)(4), you must submit to EPA the following statement of compliance, if the OEM vehicles/engines were required to be OBD equipped. The test group/engine family converted to an alternative fuel has fully functional OBD systems and therefore meets the OBD requirements such as those specified in 40 CFR 86, subparts A and S when operating on the alternative fuel.

(5) Conversion test groups/engine families for conversions to dual-fuel or mixed-fuel vehicles/engines may not include vehicles/engines subject to different emissions standards unless applicable exhaust and OBD demonstrations are also conducted for the original fuel(s) demonstrating compliance with the most stringent standard represented in the test group. However the data generated from testing on the new fuel for dual-fuel or mixed-fuel test vehicles/engines may be carried over to vehicles/engines that otherwise meet the conversion test group/engine family criteria and for which the test vehicle/engine data demonstrate compliance with the applicable vehicle/engine standards. Clean alternative fuel conversion evaporative families for dual-fuel or mixed-fuel vehicles/engines cannot include vehicles/engines that were originally certified to different evaporative emissions standards.

(6) You must notify us by electronic submission in a format specified by the Administrator with all required documentation. The following must be submitted.

(i) You must 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 maintain or improve on emission levels in a worst case vehicle/engine. The submission of 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. You must present detailed information to confirm the durability of all relevant new and existing components and to explain why the conversion system will not harm the emission control system or degrade the emissions. 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) You must describe the group of vehicles/engines (conversion test group/conversion engine family) that is covered by your notification based on the criteria specified in paragraph (b)(2) of this section.

(iii) In lieu of specific test data, you may submit the following attestations for the appropriate statements of compliance, if you have sufficient basis to prove the statement is valid.

(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 such as those specified in 40 CFR part 86, subparts A, B, and S and 40 CFR part 1065. Attest to each statement or waiver in your notification.

(B) The test group/engine family converted to dual-fuel or mixed-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.

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

(D) The test group/engine family converted to dual-fuel or mixed-fuel

operation properly purges hydrocarbon vapor from the evaporative emission canister when the vehicle/engine is operating on the alternative fuel.

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

(iv) You must 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.

(7) 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.

(8) EPA may ask for any documentation and/or ask you to conduct emission testing to demonstrate the conversion is for the purpose of a clean alternative fuel.

§ 85.524 Legacy standards.

Prior to April 8, 2011, the following emission standards applied for conversions of vehicles/engines with an original model year of 1992 or earlier:

(a) *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.

(b) CO, NO_X and particulate matter. Vehicles/engines must meet the CO, NO_X, and particulate matter emission standards that applied for the vehicle's/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.

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

§ 85.525 Applicable standards.

To qualify for an exemption from the tampering prohibition, vehicles/engines that have been converted to operate on a different fuel must meet emission standards and related requirements as follows:

(a) The modified vehicle/engine must meet the requirements that applied for the OEM vehicle/engine, or the most stringent OEM vehicle/engine standards in any allowable grouping. Fleet average standards do not apply unless clean alternative fuel conversions are specifically listed as subject to the standards.

(1) If the vehicle/engine was certified with a Family Emission Limit for NO_X, NO_X+HC, or particulate matter, as noted on the vehicle/engine emission control information label, the modified vehicle/engine may not exceed this Family Emission Limit.

(2) Compliance with light-duty vehicle greenhouse gas emission standards is demonstrated by complying with the N_2O and CH_4 standards and provisions set forth in 40 CFR 86.1818–12(f)(1) and the in-use CO_2 exhaust emission standard set forth in 40 CFR 86.1818–12(d) as determined by the OEM for the subconfiguration that is identical to the fuel conversion emission data vehicle (EDV). If the OEM complied with the light-duty greenhouse gas standards using the fleet averaging option for nitrous oxide (N_2O) and methane (CH_4), as allowed under 40 CFR 86.1818–12(f)(2), the calculations of the carbon-related exhaust emissions require the input of grams/mile values for N_2O and CH_4. Compliance with N_2O and CH_4 exhaust emission standards may be optionally demonstrated by following the same procedures set forth in 40 CFR 86.1818–12(f)(2), except that the carbon-related exhaust emission value determined for the fuel conversion EDV must comply with the in-use CO_2 exhaust emission standard set forth in 40 CFR 86.1818–12(d) and determined by the OEM for the subconfiguration that is identical to the fuel conversion EDV.

(3) Conversion systems for engines that would have qualified for chassis certification at the time of OEM certification may use those procedures, even if the OEM did not. Conversion manufacturers choosing this option must designate test groups using the appropriate criteria as described in this subpart and meet all vehicle chassis certification requirements set forth in 40 CFR part 86, subpart S.

(b) [Reserved]

§ 85.530 Vehicle/engine labels and packaging labels.

(a) The following labeling requirements apply for clean alternative fuel conversion manufacturers to qualify for an exemption from the tampering prohibition:

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

(2) On the supplemental label you must 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 test group/engine family names and original model year to which your conversion is applicable as described in § 85.510(b)(1) or § 85.510(b)(2), § 85.515(b)(10)(ii), or § 85.520(b)(6)(ii). Your commercial packaging materials must also clearly describe this information.

(3) You must include the following on the supplemental label:

(i) You must 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 certified 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) You must identify your corporate name, address, and telephone number.

(iii) You must include one of the following statements that describes how you comply under this subpart and any applicable mileage or age restrictions due to how compliance was demonstrated:

(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/engine 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/engines that are older than 11 years or 120,000 miles." (Values must be adjusted to reflect OEM useful life; useful life in hours should be added, if applicable).

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

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

(5) On the supplemental label, you must include the date of conversion and the mileage of the vehicle/engine at the time of conversion. Include the hours of operation instead of mileage, if applicable.

(b) The supplemental emission control information label shall be placed in a permanent manner adjacent to the vehicle's/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. If the supplemental label information cannot fit on one label, the information can be logically split among two labels that are both near the original VECI or engine label.

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

(d) Examples of all labeling and warranty information must be provided as part of the application for certification or notification process.

(e) The marketing material and label information for a given conversion system must be consistent with the conversion manufacturer's demonstration/notification to EPA for that system.

§ 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/engines as allowed under the Clean Air Act. This may involve confirmatory testing, in-use testing, and/or selective enforcement audits for clean alternative fuel conversion systems. Dual-fuel vehicles/engines may be tested when operating on any of the fuels. Mixed-fuel vehicles/engines may be tested on any fuel blend ratio that is expected to occur during normal operation.

(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 may be 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, are subject to defect reporting requirements, and may be required to recall any parts or systems for which the failure can be traced to the conversion, regardless of whether installation was proper or improper. The OEM shall remain liable for the performance of any parts or systems which retain their original function following conversion and are unaffected by the conversion.

(e) Clean alternative fuel conversion manufacturers must keep sufficient records for five years from the date of notification or certification, or the date of the last conversion installation, whichever is later, 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 clean alternative fuel conversions by fuel type(s) and vehicle test group/engine family by January 31 of the following year. The number of conversions is the sum of the calendar year intermediate age conversions, outside useful life conversions, and the same conversion 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 86.098–14 as appropriate to determine small volume manufacturer or qualified small volume test group/engine family status.

(g) Conversion manufacturers who market conversion systems for use on vehicles/engines other than the test group/engine families and evaporative/refueling families covered by the compliance demonstration and notification may be liable for a tampering violation for each vehicle/engine to which conversion system is misapplied.

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 86.1801–01 is amended by revising paragraph (b) and paragraphs (c)(4) and (c)(5) to read as follows:

§ 86.1801–01 Applicability.

* * * * *

(b) *Clean alternative fuel conversions.* The provisions of the subpart apply to clean alternative fuel conversions as defined in 40 CFR 85.502, of all model year light-duty vehicles, light-duty trucks, medium duty passenger vehicles, and complete Otto-cycle heavy-duty vehicles.

(c) * * *

(4) Upon preapproval by the Administrator, a manufacturer may optionally certify a clean alternative fuel conversion of a complete heavy-duty vehicle greater than 10,000 pounds Gross Vehicle Weight Rating and of 14,000 pounds Gross Vehicle Weight Rating or less under the heavy-duty engine or heavy-duty vehicle provisions of subpart A of this part. Such preapproval will be granted only upon demonstration that chassis-based certification would be infeasible or unreasonable for the manufacturer to perform.

(5) A manufacturer may optionally certify a clean alternative fuel conversion of a complete heavy-duty vehicle greater than 10,000 pounds Gross Vehicle Weight Rating and of 14,000 pounds Gross Vehicle Weight Rating or less under the heavy-duty engine or heavy-duty vehicle provisions of subpart A of this part without advance approval from the Administrator if the vehicle was originally certified to the heavy-duty engine or heavy-duty vehicle provisions of subpart A of this part.

* * * * *

■ 5. Section 86.1801–12 is amended by revising paragraph (b) and paragraphs (c)(4) and (c)(5) to read as follows:

§ 86.1801–12 Applicability.

* * * * *

(b) *Clean alternative fuel conversions.* The provisions of the subpart apply to clean alternative fuel conversions as defined in 40 CFR 85.502, of all model year light-duty vehicles, light-duty trucks, medium duty passenger vehicles, and complete Otto-cycle heavy-duty vehicles.

(c) * * *

(4) Upon preapproval by the Administrator, a manufacturer may optionally certify a clean alternative fuel conversion of a complete heavy-duty vehicle greater than 10,000 pounds Gross Vehicle Weight Rating and of 14,000 pounds Gross Vehicle Weight Rating or less under the heavy-duty engine or heavy-duty vehicle provisions of subpart A of this part. Such preapproval will be granted only upon demonstration that chassis-based certification would be infeasible or unreasonable for the manufacturer to perform.

(5) A manufacturer may optionally certify a clean alternative fuel

conversion of a complete heavy-duty vehicle greater than 10,000 pounds Gross Vehicle Weight Rating and of 14,000 pounds Gross Vehicle Weight Rating or less under the heavy-duty engine or heavy-duty vehicle provisions of subpart A of this part without advance approval from the Administrator if the vehicle was originally certified to the heavy-duty engine or heavy-duty vehicle provisions of subpart A of this part.

* * * * *

■ 6. 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. For vehicles fuel by natural gas, liquefied petroleum gas, hydrogen manufacturers must propose an adjustment factor to adjust NMHC results to 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.

■ 7. Section 86.1818–12 is amended by revising paragraph (a) to read as follows:

§ 86.1818–12 Greenhouse gas emission standards for light-duty vehicles, light-duty trucks, and medium-duty passenger vehicles.

(a) *Applicability.* This section contains standards and other regulations applicable to the emission of the air pollutant defined as the aggregate group of six greenhouse gases: Carbon dioxide, nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. This section applies to 2012 and later model year LDVs, LDTs and MDPVs, including multi-fuel vehicles, vehicles fueled with alternative fuels, hybrid electric vehicles, plug-in hybrid electric vehicles, electric vehicles, and fuel cell vehicles. Unless otherwise specified, multi-fuel vehicles must comply with all requirements established for each consumed fuel. The provisions of this section, except paragraph (c), also apply to clean alternative fuel conversions as defined in 40 CFR 85.502, of all model year light-duty vehicles, light-duty trucks, and medium-duty passenger vehicles. Manufacturers that qualify as a small business according to the requirements of § 86.1801–12(j) are exempt from the emission standards in this section. Manufacturers that have submitted a declaration for a model year according to the requirements of § 86.1801–12(k) for which approval has been granted by the Administrator are conditionally exempt from the emission standards in paragraphs (c) through (e) of this section for the approved model year.

* * * * *

■ 8. Section 86.1829–01 is amended by revising paragraphs (b)(1)(iii)(E) and (F), and (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, diesel, 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-, 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) *Testing at low altitude.* One EDV in each evaporative/refueling family and evaporative/refueling emission control system combination must be tested in accordance with the evaporative/refueling test procedure requirement of subpart B of this part. The configuration of the EDV will be determined under the provisions of § 86.1828–01. The EDV must also be tested for exhaust emission compliance using the FTP and SFTP procedures of subpart B of this part. 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.

* * * * *

■ 9. Section 86.1864–10 is amended by removing and reserving paragraph (a)(3) to read as follows.

§ 86.1864–10 How to comply with the fleet average cold temperature NMHC standards.

(a) * * *

(3) [Reserved]

* * * * *

■ 10. Section 86.1865–12 is amended by removing and reserving paragraph (a)(1)(ii) to read as follows.

§ 86.1865–12 How to comply with the fleet average CO_2 standards.

(a) * * *

(1) * * *

(ii) [Reserved]

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