ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 86

[AMS-FRL 2226-5]

Control of Air Pollution From New Motor Vehicles and New Motor Vehicle Engines; High-Altitude Emission Standards for 1984 and Later Model Year Light-Duty Trucks

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: This action establishes mandatory emission standards for 1984 and later model year light-duty trucks (LDTs) sold for principal use at altitudes above 4,000 feet. The standards apply to exhaust emissions of hydrocarbons (HC), carbon monoxide (CO), and nitrogen oxides (NO_x). In addition, a standard for evaporative HC emissions is also being promulgated. The standards contained in this regulation continue the proportional relationship between high-altitude standards and low-altitude standards that was established by the 1982–83 interim standards (45 FR 66984). A voluntary high-altitude program for 1984 model year LDTs, which was mistakenly included in a separate final rulemaking (45 FR 63734), is also being deleted in this final rule.

This action indefinitely extends both the current self-certification provision and the performance-based exemption from the high-altitude certification requirements for LDTs. The current optional sales-based exemption is also being extended, but only for 1984. Comments are specifically requested on the need for extending the sales-based exemption beyond 1984 and also on the appropriateness of the performance-based exemption criteria. Further, EPA is continuing its policy of foregoing high-altitude Selective Enforcement Audit (SEA) testing.

This regulation is expected to provide up to a 2 percent improvement in the ambient air quality of major high-altitude urban areas. These standards are also expected to add $9 to the purchase price of an average high-altitude LDT.

EFFECTIVE DATE: These regulations are effective as of February 11, 1983.

ADDRESSES: Copies of the material relevant to this rulemaking are contained in Public Docket No. A–79–14 at the U.S. Environmental Protection Agency, Central Docket Section. The docket is located in West Tower Lobby, Gallery 1, 401 M. Street, SW., Washington, D.C. 20460, telephone number (202) 755–0240. The docket may be inspected between 8:00 a.m. and 4:00 p.m. on weekdays. A reasonable fee may be charged for copying services.

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SUPPLEMENTARY INFORMATION: OMB Control Number 2000–0390.

I. Background

These rules establish high-altitude emission standards for 1984 and later LDTs that, with few exceptions, represent essentially a continuation of the approach followed for the current 1982–83 high-altitude emission control program. As such, the most effective way to gain a basic understanding of the high-altitude emission control program for 1984 and later is by briefly reviewing EPA's current emission control regulations for high-altitude LDTs. It will also be helpful to explore both the special air quality problems associated with high-altitude areas and the history which has led to the promulgation of these 1984 high-altitude regulations. Once this background information has been presented, the specific components of this rulemaking action will be described in greater detail.

A. Need for High-Altitude LDT Standards

EPA has found that light-duty motor vehicles which demonstrate compliance with only low-altitude emission standards generally produce about 50 percent more exhaust hydrocarbons (HC) and 100 percent more carbon monoxide (CO) when tested at 5,300 feet above sea level. Also, in most high-altitude urban areas, motor vehicles account for more than half of the total HC emissions and almost all of the CO emissions. The HC emissions in the presence of summer sunlight contribute to numerous violations of the National Ambient Air Quality Standards (NAAQS) for oxidant in high-altitude metropolitan areas. Similarly, CO emissions in stable winter atmospheric conditions cause numerous violations of the NAAQS for CO. Although progress is being made in reducing the severity of air pollution episodes in these metropolitan areas, specifically controlling emissions from high-altitude motor vehicles (including 1984 and later LDTs) is needed to help assure that the NAAQS for ozone and CO are attained and maintained in the future.

B. Current High-Altitude LDT Program

Mandatory high-altitude emission standards for 1982–83 light-duty motor vehicles were proposed on January 24, 1980 (45 FR 5988), under EPA's general rulemaking authority contained in section 202(a) of the Clean Air Act ("the Act"). These rules are consistent with the guidelines for such standards that were established by Congress in section 202(f) of the Act. The 1980 proposal included different sets of high-altitude standards for 1982 and 1983 light-duty trucks, because at that time EPA anticipated promulgating more stringent low-altitude LDT standards for the 1983 model year. Those more stringent standards were subsequently deferred for a year. Accordingly, the final regulations for high-altitude LDTs, promulgated on October 8, 1980 (45 FR 66984), contained a single set of standards for the 1982 and 1983 model years, based upon the less stringent low-altitude standards applicable in those years. Today's action promulgates for 1984 and later model years the more stringent LDT standards originally proposed for the 1983 model year.

The 1982–83 high-altitude HC and CO standards require the same percentage reduction from uncontrolled emissions at high altitude (about 5,300 feet) as that achieved by the associated low-altitude standards. These standards, therefore, are termed "proportional." For NO_x emissions, which decrease from uncontrolled vehicles as altitude increases, section 202(f) effectively limits the high-altitude standard to the same numerical level as the low-altitude standard. (Even though the NO_x standard does not require that this pollutant be "proportionally" controlled at an elevation of 5,300 feet as do the HC and CO standards, all these standards are collectively referred to as "proportional standards" for convenience.) A general result of this control strategy is that proportional high-altitude standards are no more difficult to meet than the standards at low altitude.

The regulations which implement the current high-altitude standards were carefully designed to maximize model availability in high-altitude areas (a problem with EPA's 1977 high-altitude regulations), while at the same time minimizing the cost of the regulations and avoiding any adverse impact on the low-altitude fleet. There are three primary components of the regulations which provide these desired results. First, in order to market a vehicle anywhere in the nation, the regulations require that the vehicle must either automatically meet both the low- and high-altitude standards, or be capable of being modified to do so. This protects model availability at high altitude since manufacturers must invest the required time and money to certify LDTs to the high-altitude standards in order to sell these vehicles at low altitude. Once these resources are expended, manufacturers are likely to sell such vehicles at high altitude to recover their investment. Also, by allowing vehicles to be modified in compliance with the standards, the cost of these regulations to the nation is minimized since high-altitude emission control hardware is required only on those vehicles sold in high-altitude areas. However, the regulations generally restrict any required changes to engine operating parameters such as the air/fuel ratio of the carburetor so that vehicle modifications are not excessively expensive.

Second, manufacturers have the option of certifying vehicles to high-altitude standards at 5,300 feet by either: (1) Utilizing full vehicle tests in conjunction with Federally established procedures, or (2) by submitting a statement to EPA that engineering evaluations, based on whatever test data the manufacturer deems appropriate, were used to determine compliance. This latter provision is generally referred to as self-certification and was introduced into the regulations on April 23, 1981 (46 FR 23053), to ease certification leadtime constraints for 1982 model year vehicles. The provision was continued for 1983 model year vehicles to minimize the potential for confusion which might result from having completely different certification requirements in 1982 than in 1983, and also to reduce the cost burden of high-altitude standards on the economically depressed automotive industry.

Third, exemptions from the high-altitude certification requirements discussed above are provided for certain LDTs to prevent some light truck configurations from being removed from both the low- and high-altitude markets for failure to comply with high-altitude standards. This result is possible because, in the absence of exemptions, failure to certify to both low- and high-altitude standards precludes selling the affected vehicle anywhere in the nation.

At the time the high-altitude standards were promulated on October 8, 1980, EPA found that different exemption schemes were needed for the 1982 and 1983 model years. For 1982, manufacturers were allowed to exempt up to 30 percent of their projected high-altitude sales from the certification requirements to counter the short leadtime that was provided by the regulations. These exempted vehicles were allowed to be sold for principal use in high-altitude areas in order to prevent model availability problems at elevations above 4,000 feet. This provision is referred to as a sales-based exemption.

For 1983, EPA implemented a performance-based exemption. This provision uses objective performance criteria to identify low power, high fuel economy vehicles which are very difficult to modify properly to comply with high-altitude standards, and which are normally sold in only small numbers at high altitude anyway because of their inferior performance under high-altitude conditions. Performance-exempted vehicles may not be sold for principal use above 4,000 feet to maximize the environmental benefits of the regulations. This exemption removes the potential of adversely affecting national fuel economy and does not significantly affect high-altitude model availability.

On May 20, 1982 (47 FR 21793), EPA granted a petition by Ford Motor Company to extend the sales-based exemption into the 1983 model year. This provided manufacturers with the option of either exempting 30 percent of their projected high-altitude LDT sales, or exempting only low power LDTs with the existing performance-based provision.

A voluntary high-altitude program for 1984 model year LDTs was mistakenly included in the final rule on low-altitude standards for 1984 and later light trucks (45 FR 63734). The standards in this voluntary program are the same as the mandatory 1982–83 high-altitude standards and, hence, are not proportional to the new, more stringent low-altitude standards which are effective beginning in 1984. This voluntary high-altitude program is being deleted in this final rulemaking by promulgating mandatory proportional standards for 1984 LDTs.

C. History of the High-Altitude Rule

All of the proportional high-altitude standards are being promulgated in this final rulemaking, even those that are not changing, because existing standards for LDTs expire after the 1983 model year. As noted above, these standards were proposed on January 24, 1980 for the 1983 model year, and were subsequently commented upon by interested parties. Nevertheless, these proportional standards were never finalized because the new low-altitude LDT standards upon which they were based were eventually postponed until 1984. Therefore, the high-altitude emission standards that are being promulgated in this final rulemaking will retain the "proportional" nature of the low- to high-altitude standards as previously proposed and commented upon.

Also, in the ensuing time since the high-altitude standards were proposed, EPA's intent to continue proportional high-altitude standards for 1984 and later years was clearly stated during EPA/Industry meetings held at the Motor Vehicle Emissions Laboratory in Ann Arbor, Michigan. In addition, a continuation of proportional standards was supported by a Special Task Force to the President which examined the economic problems of the U.S. automotive industry.[1] They recommended that Congress "* * * preserv[e] EPA's [already existing] authority to require proportional standards for light * * * trucks * * *" sold at high altitude into the 1984 model year and beyond. Therefore, the automotive industry has been expecting these new proportional standards for some time.

[1] "Actions to Help the U.S. Auto Industry," The White House, Office of the Press Secretary, April 6, 1981.

II. Specific Components of This Package and Major Issues

A. Standards

The standards contained in this rulemaking apply to the exhaust emissions of HC, CO, and NO_x, and to the evaporative emissions of HC. The exhaust emission standards are 1.0 gram per mile (g/mi) HC, 14 g/mi CO, 2.3 g/mi NO_x. The evaporative HC standard is 2.6 g/test. The HC and CO high-altitude standards are being implemented to retain the current proportional emission control program when the corresponding standards at low altitude become more stringent beginning in 1984. Both the NO_x and evaporative HC emission standards remain unchanged from the 1983 model year values, however, since the corresponding low-altitude standards are not changing in 1984.

A detailed derivation of the 1.0 g/mi HC and 14 g/mi CO proportional high-altitude standards was presented in the proposal of these standards (45 FR 5988). In summary, these standards were derived by multiplying the low-altitude LDT standard of 0.8 g/mi HC and 10 g/mi CO by "proportional factors" of 1.2 for HC and 1.4 for CO. These proportional factors represent the ratio of uncontrolled emissions at high altitude to those at low altitude, and were derived from emission tests conducted on a fleet of 1970 vehicles as specified in section 202(f) of the Act.

The low- and high-altitude standards are summarized in Table 1. This table also contains the low-altitude standards for comparison.

TABLE 1.—LOW- AND HIGH-ALTITUDE STANDARDS FOR 1984 AND LATER LDTS

Altitude	HC[1]	CO[1]	NO_x[1]	Evap HC[2]
Low	0.8	10	2.3	2.0
High	1.0	14	2.3	2.6

[1] Grams/mile.
[2] Grams/test.

No particulate standard is being established at this time for diesel-powered LDTs sold in high-altitude areas. There are three reasons for this. First, particulate standards were not included in the interim high-altitude program (1982–83). Second, a particulate standard for high-altitude LDTs has never been proposed nor has the public had a chance to comment on such a standard. Third, EPA is still in the process of analyzing the feasibility of, need for, and impact of proportional diesel particulate standards at high altitude and has not yet decided on what action, if any, would be appropriate. If EPA decides that a particulate standard is appropriate for LDTs at high altitude, that decision would be announced in a Notice of Proposed Rulemaking and the public would be given ample opportunity to comment on a proposed standard.

B. Exemptions

As previously stated, exemptions from the high-altitude certification requirements were made available during the 1982–83 model years primarily to ensure that the high-altitude standards did not adversely affect model availability at low altitude and also to reduce the burden of these standards on manufacturers without significantly affecting model availability at high altitude. Since this action continues the proportional nature of the earlier standards, and hence, is similar in its emission control requirements (this is discussed in greater detail later), the need for some form of exemptions remains unchanged for the 1984 and later model years. Therefore, exemptions from the high-altitude requirements are included in this rulemaking.

The current performance-based exemption is being extended for 1984 and later LDTs. This exemption scheme preserves the environmental benefit of the regulation since only LDTs which meet proportional standards may be sold for principal use in high-altitude areas. At the same time, the cost of the regulation is significantly reduced by exempting low power vehicles which are the most difficult and costly to control at high altitude. The performance exemption also has little adverse impact on model availability at high altitude because exemptions are available only for low-power vehicles. Even in the absence of high-altitude regulations, these vehicles would be sold in only small numbers in areas above 4,000 feet by virtue of their inherently inferior performance at higher elevations.

The Agency had previously stated that the 30 percent sales-based exemption would not be extended into 1984. This intent was stated in the rulemaking that promulgated the sales-based exemption for 1983 as an option to the performance-based exemption which was already available in that year (45 FR 21293). Nevertheless, the Agency now finds it necessary to extend into 1984 the availability of the optional sales-based exemption provision for two principal reasons. First, while the leadtime for manufacturers to respond to new proportional standards is adequate with sales exemptions (as discussed in greater detail below), their absence could jeopardize completing certification in time for the normal introduction of 1984 LDTs. Potentially, manufacturers would have to develop and certify more LDT configurations (model/drivetrain combinations) if only performance-based exemptions were available in 1984 since many vehicle configurations were previously exempt in 1982 and 1983 under the optional 30 percent sales-based exemption. Developing calibrations for these previously exempted vehicles would likely require more leadtime than will be provided by this rulemaking action. Also, developing these new calibrations on such short notice could significantly increase the development cost of the 1984 standards at a time when the economically depressed industry must already comply with both new 1984 low- and high-altitude emission standards.

The second reason for extending the optional sales exemption for one more year is that the appropriateness of the performance-exemption criteria has been questioned by Ford Motor Company and, as a result, EPA solicited comments on the proper form of this provision in conjunction with the above-referenced rulemaking. The comment period on the performance-exemption criteria closed August 18, 1982, and EPA is continuing to evaluate the issues in light of the comments received. Unfortunately, there is inadequte time in which to resolve those issues fully in this action without jeopardizing the promulgation of LDT standards for 1984. Therefore, this issue is more properly addressed at a later time for the 1985 model year. In the interim, EPA is inviting additional comments from interested parties on the adequacy of the performance-exemption criteria so that all possible evidence can be considered by the Agency before a final decision is made on the need to revise this provision. At the same time, the Agency will also consider comments from interested parties on the need for and desirability of extending sales-based exemptions into future model years since EPA has not reached a final decision on whether continuation of this option is necessary for those years. Further information on the comment period for both the sales and performance exemption is provided in the Public Participation section.

C. High-Altitude Certification

The certification requirements for 1984 and later LDTs are unchanged from the requirements that are currently applicable to 1982 and 1983 vehicles. These certification requirements were amply described in the Background section of that preamble, and hence, there is no need to repeat that

discussion here. However, one aspect of high-altitude certification does deserve additional attention, i.e., self-certification. For 1984 and later, manufacturers will continue to have the option of self-certifying non-exempt LDTs at high altitude by submitting statements to EPA attesting that engineering evaluations, based on appropriate emissions test data, were used to determine compliance with the hight-altitude standards. This self-certification option is being continued so that the burden of complying with proportional standards does not significantly increase in 1984 from past years. This program should save the LDT industry a significant amount of money when compared to the costs of full certification at high-altitude, which would require expensive testing labs and expensive prototype vehicles for a relatively small percentage of a manufacturer's LDT sales. A self-certification program is therefore consistent with the President's goal of minimizing the costs of environmental regulations. Also, manufacturers should have the capability to evaluate high-altitude LDT emissions accurately without direct testing, since they have a valid emissions data base of LDTs certified at low altitude and can extrapolate this data to high-altitude conditions. More discussion on the development and appropriateness of the self-certification program for high altitude can be found in a previous rulemaking notice (46 FR 23053).

Although self-certification should accurately reflect the emissions of new LDTs, there is some concern of an increase in risk, when compared to full certification, that some LDTs will not be complying with high-altitude standards. However, non-exempt LDTs will still be liable for meeting applicable standards while in-use at high-altitude and EPA will also continue its emission factors program of testing in-use LDTs at high altitude. This should provide assurance that self-certification will not result in air quality degradation in areas above 4,000 feet. Thus, self-certification should be a more cost-effective approach for reducing emissions at high altitude than full certification.

D. Technological Feasibility

The technological feasibility of high altitude HC, CO, and NO_x standards is primarily dependent on the degree to which emissions must be reduced from a low-altitude vehicle when it is operated at high altitude. By retaining the proportional nature of the 1982–83 high altitude standards in the new 1984 high altitude standards, as previously discussed, EPA has also essentially retained the degree to which emissions must be controlled from a low-altitude vehicle at high altitude. Consequently, the technical feasibility of the new 1984 proportional standards is basically the same as that of the readily achievable 1982–83 proportional standards. This is especially true since LDT manufacturers are projecting the continued use of non-electronic (nonfeedback) emission control systems at low altitude.

This similarity in technical difficulty, therefore, will manifest itself in requiring essentially the same emission control hardware on 1984 LDTs as is currently required on 1982–83 LDTs. The majority of high-altitude LDTs will require carburetor modifications to produce leaner fuel/air mixtures, recalibration of existing adjustable parameters such as spark timing, and the addition of an aneroid (pressure-sensing device) to the carburetor to maintain performance when the vehicle is driven at low altitude by enriching the fuel/air mixture. Thus, the new 1984 proportional standards will not require any new emission control hardware, even though the standards are numerically more stringent, i.e., the numerical values for HC and CO are lower. The evaporative HC control technology will, of course, remain unchanged for 1984 since the level of the standard is unchanged.

The control hardware discussed above is the control technology EPA projected in the January 1980 Notice of Proposed Rulemaking would be required to meet these standards (45 FR 5988).[2] The comments received subsequent to that proposal supported the technological feasibility of the new proportional standards and no comments received since that time have challenged that finding.

E. Leadtime

The leadtime which is necessary for manufacturers to comply with high-altitude standards depends primarily on the technical complexity of the requirements. Discussions in the previous sections of this preamble have clearly shown that the technical complexity and, indeed, the control hardware, are essentially the same for both the 1982–83 proportional standards and the 1984 proportional standards. For these reasons, the best basis for determining whether or not adequate leadtime exists for implementing proportional standards for 1984 is to compare these requirements against past experience with similar requirements for the 1982 model year.

In promulgating the 1982–83 proportional standards, EPA allowed about nine months for manufacturers to develop, certify, and produce vehicles (November 1980 to August 1981). This was, admittedly, a shorter period of time than normally would be provided to respond to new emission standards. However, this leadtime was judged to be adequate since sales exemptions and, eventually, self-certification were included in the 1982 regulations to remove any jeopardy of not being able to conclude certification on time. The adequacy of the 9-month leadtime is now apparent from the fact that manufacturers' scheduled introduction dates for 1982 model year vehicles were not adversely affected. Based on this past experience with standards of equivalent technological complexity (i.e., similar control technology, sales-based exemptions, and self-certification), EPA concludes that adequate leadtime exists for implementing new proportional standards since at least nine months will be available between the promulgation of these rules and the normally scheduled production date for 1984 model year LDTs.

This conclusion is further supported in that manufacturers now have substantial experience in complying with the 1982–83 proportional standards and this experience should be useful in reducing the time which might otherwise be necessary to develop the required high-altitude engine calibrations for 1984. Also, manufacturers already may have begun to develop the necessary emission controls for 1984 since EPA has clearly stated the Agency's intent to promulgate new proportional standards over the past several months, as discussed previously. Therefore, EPA believes that the leadtime provided by this rulemaking action is adequate.

F. Economic Impact

The incremental cost of these regulations is due primarily to new development and certification cost.[3] While these regulations will require control hardware to be added to low altitude LDTs, this is essentially the same hardware already required by the

[2] Emission control hardware projections were presented in detail in the Draft Regulatory Analysis of the proposed standards which is available for review in the public docket.

[3] The economic impacts described herein are incremental to those associated with the current 1982–83 proportional high-altitude standards. However, it should be noted that not all of the costs associated with the 1982–83 standards continue beyond the 1983 model year. In particular, the development and certification costs associated with those standards were amortized over only two years in that rulemaking and do not apply to the 1984 model year and beyond (45 FR 66984).

1982 and 1983 regulations. Thus, the incremental cost due to hardware requirements should be zero. There also will be no incremental cost for Selective Enforcement Auditing (SEA) of high-altitude LDTs since the Agency will continue its present policy of no high-altitude SEA testing. This policy is consistent with statements made by the President's Special Task Force on the U.S. automotive industry [4] and was implemented by EPA on April 13, 1982 (46 FR 21628).

As discussed previously, LDTs must undergo recalibration due to the new proportional standards. Based on an analysis of the development costs in the 1982–83 interim program,[5] and assuming all LDT models require development, the total development cost would be about $3.2 million in 1984. For each succeeding year, development costs would only occur on new models being introduced, amounting to about $320,000 per year.

The above development costs are likely to be overestimated for three principal reasons. First, the self-certification provision included in these regulations will significantly reduce the cost of development from that originally projected in the 1982–83 interim program, which served as the basis for the estimates. The economic impact analysis of the interim program assumed "full" certification would be in effect. This would have required vehicle calibrations to be developed using actual vehicle tests in order to demonstrate compliance with the high-altitude standards at the time of certification. Many of these expensive vehicle tests will be eliminated if manufacturers take advantage of the self-certification provision, which relies predominantly on engineering evaluations to determine compliance with the standards. Second, all LDT engine families will not require development due to this regulation since approximately 30 percent of the LDT engine families will be exempted from meeting the new proportional standards, at least for the 1984 model year. Third, many families would have required new calibrations even without the new proportional standards because of changes in the low-altitude emission standards.

In addition to development, manufacturers of LDTs must also certify vehicles for 1984. The total cost of certification for high-altitude LDTs will be approximately $120,000 for 1984. For each year after 1984, certification will occur only for new models and will cost about $120,000 per year. Referring back to the above discussion, these costs are likely to be overestimated since they are based on the estimates contained in EPA's analysis of the interim high-altitude program, which assumed full certification, and do not reflect the potential savings due to self-certification.

Thus, the cost of these regulations in 1984 is estimated to be at most about $3.2 million. After 1984, the cost will decrease to about $320,000 per year. The total cost of these regulations to the nation during the first 5 years is conservatively estimated at about $4.4 million (discounted at 10 percent to 1984). Expressed differently, if these costs are amortized over the number of high-altitude LDTs sold during the first 5 years of the regulations, the average cost increase per high-altitude LDT will be no more than about $9. The potential fuel economy savings of the 1982 and 1983 high-altitude standards should remain unchanged in 1984 and later years as a result of these standards.

The economic impact of complying with these new proportional high-altitude LDT standards was also analyzed in the proposed rulemaking for the 1982–83 high-altitude standards (45 FR 5988). Generally larger costs were estimated at that time compared to those described above, because EPA originally projected that more expensive control technology would be required by some LDTs. However, even with those somewhat higher costs, EPA also concluded at that time that there would be no significant adverse economic impacts for LDT manufacturers, high-altitude dealerships, or vehicle purchasers. Thus, the same conclusion should hold for this rulemaking with its lower cost. It is true that the economic condition of the LDT industry has changed since the time of the original analyses. However, a cost of $9 per LDT sold at high altitude is very small compared to the total cost of the vehicle and would be very unlikely to affect sales or profits on high-altitude LDTs significantly.

G. Air Quality

These standards would reduce HC emissions by 20 percent or 0.05 tons and CO emissions by 40 percent or 1.45 tons compared to no high-altitude control over the lifetime of each 1984 and later LDT. Over a 5-year sales period, the LDT lifetime reductions would be 23,800 tons HC and 690,000 tons of CO in high-altitude areas. These incremental reductions compare favorably with the original reductions associated with the 1982–83 high-altitude LDT regulations.

These emission reductions will result in improved air quality. An analysis of the ambient CO concentrations from 1986 to 1995 in selected high-altitude cities shows a reduction of up to 2 percent in expected second highest 8-hour CO concentrations from the 1979 base year. An analysis of ambient ozone concentrations shows that from 1986 to 1995, up to a 1 percent reduction can be expected in the maximum 1-hour ozone concentrations from the 1979 base year. While small, these improvements are needed since some high-altitude areas have significant air quality problems.

H. Cost Effectiveness

Using the lifetime emission reductions of 0.045 metric tons HC and of 1.3 metric tons CO, and dividing the $9 cost evenly between HC and CO control, the cost effectiveness of these regulations is $100 per metric ton HC and $3 per metric ton CO. These cost-effectiveness values compare favorably to the cost-effectiveness values of the 1982–83 high-altitude LDT standards. They also compare very favorably with the cost effectiveness values of other emission control strategies, which range up to about $735 per metric ton HC and $70 per metric ton CO.

I. Alternatives

Two alternative control strategies to these 1984 high-altitude LDT standards were considered by the Agency: (1) eliminating high-altitude standards altogether for 1984 and later LDTs, and (2) continuing the 1982–83 standards into 1984 and later model years.

The first alternative would eliminate EPA's mandatory high-altitude program for 1984 and later LDTs (only voluntary performance adjustments would be left). However, the mandatory high-altitude program of emission standards was initiated because EPA found that motor vehicles which demonstrated compliance at low altitude generally produced 50 percent more HC and 100 percent more CO when tested at 500 feet above sea level. The Agency also found that in most high-altitude urban areas, motor vehicles accounted for more than half of the total HC emissions and almost all CO emissions. Given that a number of large high-altitude urban centers are still in violation of the National Ambient Air Quality Standards (NAAQS) for CO and ozone (of which HC is a precursor), cost effective control of HC and CO from motor vehicles still appears necessary. Therefore, the

[4] "Actions to Help the U.S. Auto Industry," The White House, Office of the Press Secretary, April 6, 1981.

[5] A detailed description of these development costs is provided in a memorandum to the record and in the Final Regulatory Analysis of the 1982–83 high-altitude program which is available for review in the public docket.

alternative of setting no standards and essentially eliminating the high-altitude LDT program would be inappropriate.

The second option considered was a continuation of the 1982–83 high-altitude standards into 1984 and beyond. Such a continuation would actually be a relaxation of the technical stringency of the current standards because the emission control capability of low-altitude LDTs will improve dramatically in 1984. In fact, due to the new 1984 low-altitude standards, some 1984 LDTs may be able to meet the 1982–83 high-altitude standards without any modifications and, overall, little emission reduction would occur from those requiring control. Nevertheless, many of the costs of high-altitude emission control would remain since high-altitude calibrations would still need to be developed, vehicles certified, and inventories maintained. Thus, under this approach, few emission reductions would be realized, while many costs of full proportional standards would still remain. The cost effectiveness of this approach should actually be worse than that of the full proportional standards, since much greater emission reductions can be obtained for a slight increase in cost. Given that further cost-effective emission reductions still appear to be needed, the option of continuing the current standards was rejected.

III. Description of Changes From Proposed Regulations

These final regulations for 1984 and later model year LDTs are in all substantive respects identical to the regulations proposed for the 1983 model year, with the exception of the exemption and self-certification provisions. Those provisions, which are described in detail above, are a continuation of provisions previously promulgated for 1983 model year light-duty trucks.

IV. Response to Comments

The comments received in response to the proposed regulations generally supported the Agency's approach, including the technological and economic feasibility of the proposed standards. No information available to EPA indicates that the proposed standards would not continue to be technologically feasible; in fact, the continuation of the sales exemption and self-certification provisions improve the projections of technological feasibility made at the time of proposal. In any event, a detailed response to the comments received appears in a separate document in the public docket for this action, entitled, "Summary and Analysis of Comments," and dated October, 1980. That document was prepared in support of the 1982–83 standards previously promulgated, but also contains an analysis of the comments relating to the provisions promulgated in today's final action.

V. Amendments to Current Regulations

These final regulations also amend the existing paragraph (a)(1)(iii)(H) of § 86.082–35 of Subpart A. This paragraph explains the labeling requirements for each LDT exempted from high-altitude certification because of poor performance at high-altitude. The paragraph incorrectly refers to specifications for sales-based exemptions of LDTs (§ 86.083–9(g)(2)) and should refer to criteria for performance exemptions (§ 86.083–9(g)(4)). This change was inadvertently omitted in the interim final rulemaking published on May 20, 1982 (45 FR 21793) which extended the LDT sales-based exemptions into the 1983 model year.

VI. Judicial Review

The final action taken today is nationally applicable. Under section 307(b)(1) of the Clean Air Act, judicial review may be sought only in the United States Court of Appeals for the District of Columbia Circuit. Petitions for judicial review must be filed on or before March 14, 1983.

Legal Authority

Statutory authority for this action is provided by section 202(a) and 301(a) of the Clean Air Act [42 U.S.C. 7521 and 7601]. Section 202(a)(1) of the Act provides, in part, that "* * * the Administrator shall by regulation prescribe * * * standards applicable to the emission of any air pollutant from any class or classes of new motor vehicles * * * which may reasonably be anticipated to endanger the public health or welfare * * *." Section 202(a)(2) of the Act provides, in part, that "* * * any regulation prescribed under paragraph (1) * * * shall take effect after such period as the Administrator finds necessary to permit the development and application of the requisite technology, giving appropriate consideration to the cost of compliance within such period." Section 301(a) provides, in part, that "the Administrator is authorized to prescribe such regulations as are necessary to carry out his functions under this Act."

Although this is a final rule, EPA requests manufacturers and other interested persons to submit comments on the need to continue sales-based exemptions beyond the 1984 model year and on the appropriateness of the current performance-based exemption criteria. If, as a result of these comments, amendments to the regulations are needed, EPA will initiate the rulemaking process to implement the appropriate changes.

Please submit written comments to: United States Environmental Protection Agency, Central Docket Section (A–130), ATTN: Docket No. A–79–14, Waterside Mall, West Tower Lobby, Gallery I, 401 M Street SW, Washington, D.C. 20460.

The docket may be inspected between 8:00 am and 4:00 pm, Monday through Friday. A reasonable fee may be charged for copying service.

Administrative Designation

Under Executive Order 12291, EPA must judge whether a regulation is "major" and therefore subject to the requirement of a Regulatory Impact Analysis. This regulation is not major because it has an annual effect on the economy of less than $100 million and it involves no significant adverse effect on competition, productivity, investment, employment, or innovation.

This regulation was submitted to the Office of Management and Budget for review as required by Executive Order 12291.

Effect on Small Entities

The Regulatory Flexibility Act, 5 U.S.C. 601 et seq., requires that EPA certify regulations that do not have a significant impact on a substantial number of small entities. Small entities potentially affected by this regulation include the automobile dealerships selling LDTs in designated high-altitude areas. These dealerships could potentially be adversely affected in two days. One, the price of a LDT could increase to the point of reducing sales. Two, the availability of certain models could be eliminated, again reducing sales.

EPA has designed these regulations to ensure that neither situation will occur. The cost of these regulations has already been described and should be very close to that of the high-altitude regulations for 1982 and 1983 model year light-duty trucks, which are not currently causing any hardships. Also, the extension of the 30 percent sales exemption should easily ensure model availability. Therefore, I certify that this regulation does not have any significant impact on small entities.

Impacts on Reporting Requirements

Information collection requirements contained in this regulation have been approved by the Office of Management and Budget (OMB) under the provisions of the Paperwork Reduction Act of 1980

U.S.C. 3501 *et seq.* and have been assigned OMB control number 2000-0390.

List of Subjects in 40 CFR Part 86

Administrative practice and procedure, Labeling, Motor vehicle pollution, Reporting and recordkeeping requirements.

Dated: December 20, 1982.

Anne M. Gorsuch,

Administrator.

PART 86—[AMENDED]

For the reasons set forth in the preamble, Part 86 of Chapter I, Title 40 of the Code of Federal Regulations is amended as follows:

1. Section 86.082–35 is amended by revising paragraph (a)(1)(iii)(H) as follows:

§86.082-35 Labeling.

(a) * * *
(1) * * *
(iii) * * *

(H) A statement, if applicable, that the vehicle has been exempted from meeting the high-altitude gaseous emission standards as specified in § 86.082–8(g)(2) and § 86.083–9(g)(4) and that its unsatisfactory performance under high-altitude conditions make it unsuitable for principal use at high altitude.

* * * * *

2. Section 86.084–9 is amended by revising paragraph (a)(1) introductory text, (d), and (e), and adding paragraphs (f) and (g) as follows:

§ 86.084-9 Emission standards for 1984 and later model year light-duty trucks.

(a)(1) The standards set forth in paragraphs (a) through (c) of this section shall apply for trucks sold for principal use at other than a designated high-altitude location. Exhaust emissions from 1984 and later model year light-duty trucks shall not exceed:

* * * * *

(d)(1) Model year 1984 and later light-duty trucks sold for principal use at designated high-altitude locations shall be capable of meeting the following exhaust emission standards when tested under high-altitude conditions.

(i) *Hydrocarbons.* 1.0 grams per vehicle mile (0.62 grams per vehicle kilometer);

(ii) *Carbon Monoxide.* 14 grams per vehicle mile (8.7 grams per vehicle kilometer);

(iii) *Oxides of Nitrogen.* 2.3 grams per vehicle mile (1.43 grams per vehicle kilometer).

(2) The standards set forth in paragraph (d)(1)(i), (d)(1)(ii)(A), and (d)(1)(iii) of this section refer to the exhaust emitted over a driving schedule as set forth in Subpart B of this part and measured and calculated in accordance with those procedures.

(e)(1) Fuel evaporative emissions from 1984 and later model year gasoline-fueled light-duty trucks sold for principal use at a designated high-altitude location shall not exceed 2.6 grams per test when tested under high-altitude conditions.

(2) The standard set forth in paragraph (e)(1) of this section refers to a composite sample of the fuel evaporative emissions collected under the conditions set forth in Subpart B of this part and measured in accordance with those procedures.

(f) No crankcase emissions shall be discharged into the ambient atmosphere from any 1984 and later model year gasoline-fueled light-duty trucks sold for principal use at a designated high-altitude location.

(g)(1) Any light-duty truck that a manufacturer wishes to certify for sale at low altitude must be capable of meeting high-altitude emission standards (specified in paragraphs (d) through (f) of this section). The manufacturer may specify vehicle adjustments or modifications to allow the vehicle to meet high-altitude standards but these adjustments or modifications may not alter the vehicle's basic engine, inertia weight class, transmission configuration, and axle ratio.

(i) A manufacturer may certify unique configurations to meet the high-altitude standards but is not required to certify these vehicle configurations to meet the low-altitude standards.

(ii) Any adjustments or modifications that are recommended to be performed on vehicles to satisfy the requirements of paragraph (g)(1) of this section:

(A) Shall be capable of being effectively performed by commercial repair facilities.

(B) Must be included in the manufacturer's application for certification.

(2) The manufacturer may exempt 1984 model year light-duty trucks from high-altitude emission standards as set forth in paragraph (d) of this section. No specific justification for the exemption need be included in the application for certification. The exemptions may include up to 30 percent of the manufacturer's projected light-duty truck sales for principal use at designated high-altitude locations for the 1984 model year. For this purpose, the sales percentage will be based on sales projections for individual vehicle configurations to be exempted. Exemptions will cover individual vehicle configurations, or groups of vehicle configurations, as specified by the manufacturer.

(3) The sale of a vehicle for principal use at a designated high-altitude location that has been exempted as set forth in paragraph (g)(2) of this section will not be considered a violation of section 203(a)(1) of the Clean Air Act.

(4) Exemption for vehicles from the high-altitude emission standards as set forth in paragraph (d) of this section may be granted by the Administrator for vehicles that are expected to have unsatisfactory performance under high-altitude conditions. Such exemptions will be granted upon petition by the manufacturer that the vehicle falls within the definition of vehicles eligible for exemption. A vehicle shall be considered eligible for exemption if its design parameters (displacement-to-weight ratio (D/W) and engine speed-to-vehicle speed (N/V)) simultaneously fall within the exempted range for that manufacturer for that year. The exempted range is determined according to the following procedure:

(i) The manufacturer shall graphically display the D/W and N/V data of all vehicle configurations it will offer for the model year in question. The axis of the abscissa shall be D/W (where (D) is the engine displacement expressed in cubic centimeters and (W) is the equivalent vehicle test weight expressed in pounds), and the axis of the ordinate shall be N/V (where (N) is the crank shaft speed expressed in revolutions per minute and (V) is the vehicle speed expressed in miles per hour). At the manufacturer's option, either the 1:1 transmission gear ratio or the lowest numerical gear ratio available in the transmission will be used to determine N/V. The gear selection must be the same for all N/V data points on the manufacturer's graph. For each transmission/axle ratio combination, only the lowest N/V value shall be used in the graphical display.

(ii) The product line is then defined by the equation; $N/V = C(D/W)^{-0.9}$, where the constant, (C), is determined by the requirement that all the vehicle data points either fall on the line or lie to the upper right of the line as displayed on the graph.

(iii) The exemption line is then defined by the equation, $N/V = C(0.84\ D/W)^{-0.9}$, where the constant, (C), is the same as that found in paragraph (g)(4)(ii) of this section.

(iv) The exempted range includes all values of N/V and D/W which simultaneously fall to the lower left of the exemption line as drawn on the graph.

(5) No exemptions will be granted under paragraph (g)(4) of this section to any manufacturer that has exempted vehicle configurations as set forth in paragraph (g)(2) of this section.

(6) The sale of a vehicle for principal use at a designated high-altitude location that has been exempted as set forth in paragraph (g)(4) of this section will be considered a violation of section 203(a)(1) of the Clean Air Act.

3. Section 86.084–21 is amended by revising paragraphs (b)(2) and (b)(4)(ii)(C)(*5*) as follows:

§ 86.084–21 Application for certification.

* * * * *

(b) * * *

(2) Project U.S. sales data sufficient to enable the Administrator to select a test fleet representative of the vehicles (or engines) for which certification is requested. The sales data shall also include the altitude of intended sale for light-duty trucks.

* * * * *

(4) * * *

(ii) * * *

(C) * * *

(*5*)(*i*) A statement of recommended maintenance and procedures necessary to assure that the vehicles (or engines) covered by a certificate of conformity in operation conform to the regulations, and a description of the program for training of personnel for such maintenance, and the equipment required.

(*ii*) A description of vehicle adjustments or modifications necessary, if any, to assure that light-duty trucks covered by a certificate of conformity conform to the regulations while being operated at any altitude locations, and a statement of the altitude at which the adjustments or modifications apply.

* * * * *

4. Section 86.084–24 is amended by adding paragraph (b)(1)(v), redesignating and revising paragraphs (b)(1)(vii) (D) and (E) as (b)(1) (viii) and (ix), respectively, and adding paragraph (b)(1)(x) to read as follows:

§ 86.084–24 Test vehicles and engines.

* * * * *

(b) *Emission date*—(1) * * *

(v) For high-altitude exhaust emission compliance for each engine family, the manufacturer shall follow one of the following procedures:

(A) The manufacturer will select for testing under high-altitude conditions the vehicle expected to exhibit the highest emissions from the nonexempt vehicles selected in accordance with § 86.084–24(b)(1) (ii), (iii), and (iv) of this section or,

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

(*1*) [Reserved]

(*2*) That light-duty trucks sold for principal use at designated high-altitude locations comply with the high-altitude emission requirements and, that all other light-duty trucks sold at low altitude and not exempt under § 86.084–9(g)(2) are capable of being modified to meet high-altitude standards.

* * * * *

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

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

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

(*1*) [Reserved]

(*2*) That light-duty trucks sold for principal use at designated high-altitude locations comply with the high-altitude emission requirements and that all other light-duty trucks sold at low altitude and not exempt under § 86.084–9(g)(2) are capable of being modified to meet high-altitude standards.

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

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

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

* * * * *

5. Section 86.084–26 is amended by revising the heading and by adding paragraphs (b)(4)(i)(B), (b)(4)(i)(C), (b)(4)(i)(D), (b)(4)(ii)(B), and (b)(4)(ii)(C), (b)(4)(ii)(D) as follows:

§ 86.084–26 Mileage and service accumulation; emission requirements.

* * * * *

(b) * * *

(4) * * *

(i) * * *

(B) Emission tests for emission-data vehicle(s) selected for testing under § 86.084–24(b)(1)(v) or (b)(1)(viii) shall be conducted at the mileage at which the engine-system combination is stabilized for emission testing or at 6,436 kilometers (4,000 miles) under high-altitude conditions.

(C) Exhaust and evaporative emission tests for emission-data vehicle(s) selected for testing under § 86.084–24(b)(1) (ii), (iii), (iv)(A), or (vii)(B) shall be conducted at the mileage at which the engine-system combination is stabilized for emission testing or at the 6,436-kilometer (4,000-mile) test point under low-altitude conditions.

(D) For each engine family, the manufacturer will select one vehicle previously selected under § 86.084–24(b) (1) (ii) through (b) (1) (iv) to be tested under high-altitude conditions. If the manufacturer recommends adjustments or modifications in order to conform to emission standards at high altitude, such adjustments or modifications shall be made to the test vehicle (in accordance with the instructions to be provided to the ultimate purchaser) before being tested under high-altitude conditions.

(ii) * * *

(B) Emission tests for emission-data vehicle(s) selected for testing under § 86.084–24(b) (1) (v) shall be conducted at the mileage at which the engine-system combination is stabilized for emission testing or at the 6,436-kilometer (4,000-mile) test point under low-altitude conditions.

(C) Exhaust and evaporative emission tests for emission-data vehicle(s) selected for testing under § 86.084–24(b) (1) (ii), (iii), and (iv) shall be conducted at the mileage at which the engine-system combination is stabilized for emission testing or at the 6,436-kilometer (4,000-mile) test point under low-altitude conditions.

(D) For each engine family, the manufacturer will select one vehicle previously selected under § 86.084–24(b) (1) (ii) through (b) (1) (iv) to be tested under high-altitude conditions. If the manufacturer recommends adjustments or modifications in order to conform to emission standards at high altitude, such adjustments or modifications shall be made to the test vehicle (in accordance with the instructions to be provided to the ultimate purchaser) before being tested under high-altitude conditions.

* * * * *

6. Section 86.084–30 is amended by revising paragraphs (a)(3), (a)(4), (a)(5), (b)(1)(ii)(D), and (b)(1)(ii)(E) as follows:

§ 86.084–30 Certification.

(a) * * *

(3) One such certificate will be issued for each engine family. For gasoline-fueled light-duty vehicles and light-duty trucks, one such certificate will be issued for each engine family-evaporative emission family combination.

(i) *Light-Duty Vehicles.* Each certificate will certify compliance with no more than one set of standards.

(ii) *Light-Duty Trucks.* Each certification will certify compliance with no more than one set of standards except for low-altitude standards and high-altitude standards. The certificate shall state that it covers vehicles sold or delivered to an ultimate purchaser for principal use at a designated high-altitude location only if the vehicle conforms in all material respects to the design specifications that apply to those vehicles described in the application for certification at high altitude.

(4) The adjustment or modification of any light-duty truck in accordance with instructions provided by the manufacturer for the altitude where the vehicle is principally used will not be considered violation of Section 203(a)(3) of the Clean Air Act. A violation of Section 203(a)(1) of the Clean Air Act occurs when any manufacturer sells or delivers to an ultimate purchaser any light-duty truck, subject to the regulations under the Act, which is not configured to meet high-altitude requirements:

(i) At a designated high-altitude location, unless such manufacturer has substantial reason to believe that such motor vehicle will not be used principally at a designated high-altitude location; or

(ii) At an other than designated high-altitude location, when such manufacturer has reason to believe that such motor vehicle will be used principally at a designated high-altitude location.

(5) For the purpose of paragraph (a) of this section, "designated high-altitude location" is any county which has substantially all of its area located above 1,219 meters (4,000 feet) and which is identified below:

Counties Located Substantially Above 1,219 Meters (4,000 Feet) in Elevation

State of Arizona

Apache	Navajo
Cochise	Yavapai
Coconino	

State of Colorado

Adams	Kit Carson
Alamosa	Lake
Arapahoe	La Plata
Archuleta	Larimer
Boulder	Las Animas
Chaffee	Lincoln
Cheyenne	Mesa
Clear Creek	Mineral
Conejos	Moffat
Costilla	Montezuma
Crowley	Montrose
Custer	Morgan
Delta	Otero
Denver	Ouray
Dolores	Park
Douglas	Pitkin
Eagle	Pueblo
Elbert	Rio Blanco
El Paso	Rio Grande
Fremont	Routt
Garfield	Saquache
Gilpin	San Juan
Grand	San Miguel
Gunnison	Summit
Hinsdale	Teller
Huerfano	Washington
Jackson	Weld
Jefferson	

State of Idaho

Bannock	Franklin
Bear Lake	Fremont
Bingham	Jefferson
Blaine	Lemhi
Bonneville	Madison
Butte	Minidoka
Camas	Oneida
Carribou	Power
Cassia	Teton
Clark	Valley
Custer	

State of Montana

Beaverhead	Madison
Deer Lodge	Meagher
Gallatin	Park
Jefferson	Silver Bow
Judith Basin	Wheatland
Powell	

State of Nebraska

Banner	Kimball
Cheyenne	Sioux

State of Nevada

Carson City	Lyon
Douglas	Mineral
Elko	Nye
Esmeralda	Pershing
Eureka	Storey
Humboldt	Washoe
Lander	White Pine
Lincoln	

State of New Mexico

Bernalillo	Mora
Catron	Rio Arriba
Colfax	Roosevelt
Curry	Sandoval
De Baca	San Juan
Grant	San Miguel
Guadalupe	Santa Fe
Harding	Sierra
Hidalgo	Socorro
Lincoln	Taos
Los Alamos	Torrance
Luna	Union
McKinley	Valencia
Otero	

State of Oregon

Harney	Klamath
Lake	

State of Texas

Jeff Davis	Parmer
Hudspeth	

State of Utah

Beaver	Piute
Box Elder	Rich
Cache	Salt Lake
Carbon	San Juan
Daggett	Sanpete
Davis	Sevier
Duchesne	Summit
Emery Garfield	Tooele
Grand	Uintah
Iron	Utah
Juab	Wasatch
Kane	Wayne
Millard	Weber
Morgan	

State of Wyoming

Albany	Natrona
Campbell	Niobrara
Carbon	Park
Converse	Platte
Fremont	Sublette
Goshen	Sweetwater
Hot Springs	Teton
Johnson	Uinta
Laramie	Washakie
Lincoln	Weston

* * * * *

(b)(1) * * *

(ii) * * *

(D) The emission-data vehicle(s) selected under § 86.084–24(b)(1)(v) shall represent all vehicles of the same engine-system combination as applicable.

(E) The emission-data vehicle(s) selected under § 86.084–24(b)(1)(viii) shall represent all vehicles of the same evaporative control system within the evaporative emission family, as applicable.

* * * * *

7. Section 86.084–35 is amended by revising paragraphs (a)(2)(iii)(D), and (a)(2)(iii)(G), removing and reserving paragraph (a)(1)(iii)(F), and adding paragraphs (a)(2)(iii)(H), (a)(2)(iii)(I), and (a)(2)(iii)(J) as follows:

§ 86.084–35 Labeling.

(a) * * *

(1) * * *

(iii) * * *

(F) [Reserved]

* * * * *

(2) * * *

(iii) * * *

(D) Engine tune-up specifications and adjustment, as recommended by the manufacturer in accordance with the altitude at which the vehicle is to be sold for principal use to the ultimate purchaser, including but not limited to idle speed(s), ignition timing, the idle

air/fuel mixture setting procedure and value (e.g., idle CO, idle air/fuel ratio, idle speed drop), high idle speed, initial injection timing, and valve lash (as applicable), as well as other parameters deemed necessary by the manufacturer. These specifications should indicate the proper transmission position during tune-up and what accessories (e.g., air conditioner), if any should be in operation. If adjustments or modifications are necessary to ensure compliance with emission standards at either high or low altitude, the manufacturer shall either include the instructions for such adjustments on the label, or indicate on the label where instructions for such adjustments may be found. The label shall indicate whether the engine tune-up or adjustment specifications are applicable to high altitude, low altitude or both.

* * * * *

(G) A statement, if applicable, that the adjustments or modifications indicated on the label are necessary to ensure emission control compliance at the altitude specified.

(H) A statement, if applicable, that the high-altitude vehicle was designed or modified for principal use at high altitude. This statement must be affixed by the manufacturer at the time of assembly or by any dealer who performs the high-altitude modification or adjustment prior to sale to an ultimate purchaser.

(I) A statement, if applicable, that the vehicle has been exempted from meeting the high-altitude gaseous emission standards as specified in § 86.084–9(g)(4) or § 86.085–9(g)(2), as applicable, and that its unsatisfactory performance under high-altitude conditions makes it unsuitable for principal use at high altitude.

(J) A statement, if applicable, that the vehicle has been exempted from meeting the high-altitude gaseous emissions standards as specified in § 86.084–9(g)(2) and, as a consequence, the emission performance warranty provisions of 40 CFR Part 85, Subpart V do not apply when the vehicle is tested at high altitude.

* * * * *

8. Section 86.084–38 is amended by adding paragraph (e)(3) as follows:

§ 86.084–38 Maintenance instructions.

* * * * *

(e) * * *

(3) Such instructions shall indicate what adjustments or modifications, if any, are necessary to allow the vehicle to meet applicable emission standards at elevations above 4,000 feet, or at elevations of 4,000 feet or less.

* * * * *

9. Section 86.085–9 is amended by revising the heading and by revising paragraph (a)(1) introductory text, (d) and (e), and adding paragraphs (f) and (g) as follows:

§ 86.085–9 Emission standards for 1985 and later model year light-duty trucks.

(a)(1) The standards set forth in paragraphs (a) through (c) of this section shall apply for trucks sold for principle use at other than a designated high-altitude location. Exhaust emissions from 1985 and later model year light-duty trucks shall not exceed:

* * * * *

(d)(1) Model year 1985 and later light-duty trucks sold for principal use at a designated high-altitude location shall be capable of meeting the following exhaust emission standards when tested under high-altitude conditions.

(i) *Hydrocarbons.* 1.0 grams per vehicle mile (0.62 grams per vehicle kilometer);

(ii) *Carbon Monoxide.* 14 grams per vehicle mile (8.7 grams per vehicle kilometer);

(iii) *Oxides of Nitrogen.* 2.3 grams per vehicle mile (1.43 grams per vehicle kilometer).

(2) The standards set forth in paragraph (d)(1) of this section refer to the exhaust emitted over a driving schedule and to idle emissions collected under the conditions as set forth in Subpart B of this part and measured and calculated in accordance with those procedures.

(e)(1) Fuel evaporative emissions from 1985 and later model year gasoline-fueled light-duty trucks sold for principal use at a designated high-altitude location shall not exceed 2.6 grams per test when tested under high-altitude conditions.

(2) The standard set forth in paragraph (e)(1) of this section refers to a composite sample of the fuel evaporative emissions collected under the conditions set forth in Subpart B of this part and measured in accordance with those procedures.

(f) No crankcase emissions shall be discharged into the ambient atmosphere from any 1985 and later model year gasoline-fueled light-duty trucks sold for principal use at a designated high-altitude location.

(g)(1) All light-duty trucks shall be capable (by initial design, adjustment, or modification) of meeting the applicable emission standards set forth in this section for any altitude of operation. Such adjustments and modifications shall:

(i) Be capable of being effectively performed by commercial repair facilities.

(ii) All adjustment and modifications recommended by the manufacturer to be performed on vehicles to satisfy this requirement must be approved in advance by EPA in accordance with § 86.079–22.

(2) Exemption for vehicles from the high-altitude emission standards as set forth in paragraph (d) of this section may be granted by the Administrator for vehicles that are expected to have unsatisfactory performance under high-altitude conditions. Such exemptions will be granted upon petition by the manufacturer that the vehicle falls within the definition of vehicles eligible for exemption. A vehicle shall be considered eligible for exemption if its design parameters (displacement-to-weight ratio (D/W) and engine speed-to-vehicle speed (N/V)) simultaneously fall within the exempted range for that manufacturer for that year. The exempted range is determined according to the following procedure:

(i) The manufacturer shall graphically display the D/W and N/V data of all vehicle configurations it will offer for the model year in question. The axis of the abscissa shall be D/W (where (D) is the engine displacement expressed in cubic centimeters and (W) is the equivalent vehicle test weight expressed in pounds), and the axis of the ordinate shall be N/V (where (N) is the crank shaft speed expressed in revolutions per minute and (V) is the vehicle speed expressed in miles per hour). At the manufacturer's option, either the 1:1 transmission gear ratio or the lowest numerical gear ratio available in the transmission will be used to determine N/V. The gear selection must be the same for all N/V data points on the manufacturer's graph. For each transmission/axle ratio combination, only the lowest N/V value shall be used in the graphical display.

(ii) The product line is then defined by the equation, $N/V = C(D/W)^{-0.9}$, where the constant, (C) is determined by the requirement that all the vehicle data points either fall on the line or lie to the upper right of the line as displayed on the graph.

(iii) The exemption line is then defined by the equation, $N/V = C(0.84\ D/W)^{-0.9}$, where the constant, (C), is the same as that found in paragraph (g)(2)(ii) of this section.

(iv) The exempted range includes all values of N/V and D/W which simultaneously fall to the lower left of

the exemption line as drawn on the graph.

(3) The sale of a vehicle for principal use at a designated high-altitude location that has been exempted as set forth in paragraph (g)(2) of this section will be considered a violation of section 203(a)(1) of the Clean Air Act.

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