

**The EPA Administrator signed the following proposed rule on August 1, 2002. It is being submitted for publication in the *Federal Register*. While EPA has taken steps to ensure the accuracy of this Internet version of the rule, it is not the official version of the rule for purposes of public comment. Please refer to the official version in a forthcoming *Federal Register* publication and on GPO's Web Site. The rule will likely be published in the *Federal Register* in August 2002 You can access the *Federal Register* at: [http://www.access.gpo.gov/su\\_docs/aces/aces140.html](http://www.access.gpo.gov/su_docs/aces/aces140.html). When using this site, note that "text" files may be incomplete because they don't include graphics. Instead, select "Adobe Portable Document File" (PDF) files.**

**ENVIRONMENTAL PROTECTION AGENCY**

**40 CFR Part 86**

[AMS-FRL-            ]  
RIN 2060-AJ73

**Control of Air Pollution From New Motor Vehicles and New Motor Vehicle Engines; Non-Conformance Penalties for 2004 and later Model Year Emission Standards for Heavy-Duty Diesel Engines and Heavy-Duty Diesel Vehicles**

**AGENCY:** Environmental Protection Agency (EPA).

**ACTION:** Final rule.

**SUMMARY:** EPA is finalizing nonconformance penalties (NCPs) for the 2004 and later model year non-methane hydrocarbons and nitrogen oxides (NMHC+NOx) standard for heavy-duty diesel engines and vehicles. In general, the availability of NCPs allows a manufacturer of heavy-duty engines (HDEs) whose engines fail to conform with the applicable 2004 model year emission standards, but do not exceed a designated upper limit, to be issued a certificate of conformity upon payment of a monetary penalty. This final rule establishes the upper limit associated with the 2004 emission standard for NMHC+NOx as 4.5 grams per brake-horsepower-hour for light and medium heavy-duty engines and urban buses, and 6.0 grams per brake-horsepower-hour for heavy heavy-duty engines. Based on these upper limits, this rule also establishes the cost inputs used in the general NCP formula currently in the regulations.

**DATES:** This rule is effective on **[insert date of publication in the Fed. Reg.]**.

**ADDRESSES:** Comments: All comments and materials relevant to today's action have been placed in Public Docket No. A-2001-25 at the following address: U.S. Environmental Protection Agency (EPA), Air Docket (6102), Room M-1500, 401 M Street, SW, Washington, DC 20460 (on the ground floor in Waterside Mall) from 8:00 a.m. to 5:30 p.m., Monday through Friday, except on government holidays. You can reach the Air Docket by telephone at (202) 260-7548 and by facsimile at (202) 260-4400. We may charge a reasonable fee for copying docket materials, as provided in 40 CFR part 2.

**FOR FURTHER INFORMATION CONTACT:** Margaret Borushko, U.S. EPA, National Vehicle and Fuels Emission Laboratory, 2000 Traverwood, Ann Arbor, MI 48105; Telephone (734) 214-4334; Fax: (734) 214-4816; E-mail: borushko.margaret@epa.gov.

**SUPPLEMENTARY INFORMATION:**

## Regulated Entities

This action may affect you if you produce or import new heavy-duty diesel engines which are intended for use in highway vehicles such as trucks and buses or other types of heavy-duty highway vehicles. The table below gives some examples of entities that may have to follow the regulations. But because these are only examples, you should carefully examine the regulations in 40 CFR part 86. If you have questions, call the person listed in the **FOR FURTHER INFORMATION CONTACT** section above.

Category	NAICS <sup>a</sup> Codes	SIC Codes <sup>b</sup>	Examples of potentially regulated entities
Industry	336112 336120	3711	Engine and truck manufacturers.

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

<sup>b</sup> Standard Industrial Classification (SIC) system code.

### Access to Rulemaking Documents Through the Internet:

This final rule is available electronically on the day of publication from the Environmental Protection Agency Internet Web site listed below. Electronic copies of the preamble, regulatory language, Technical Support Document, and other documents associated with today's final rule are available from the EPA Office of Transportation and Air Quality (formerly the Office of Mobile Sources) Web site listed below shortly after the rule is signed by the Administrator. This service is free of charge, except any cost that you incur for connecting to the Internet.

Environmental Protection Agency Web Site:

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

(Either select a desired date or use the Search feature.)

Office of Transportation and Air Quality (OTAQ) Web Site:

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

(Look in "Recent Additions" or under the "Heavy Trucks/Buses" topic.)

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

## **Table of Contents**

- I. Background and Statutory Authority
  - A. Background to Nonconformance Penalty Rules
  - B. Statutory Authority
  - C. Heavy-duty Diesel Consent Decrees
  
- II. Nonconformance Penalties for 2004 and Later Heavy-Duty Engines and Heavy-Duty Vehicles
  - A. Finding of Eligibility for NCPs
  - B. Penalty Rates
  
- III. Issues
  - A. Comparison to Rulemaking Costs
  - B. Discount Rate
  - C. Upper Limit
  - D. Use of Penalty Funds
  - E. Incorporating Factors Not Provided For In The NCP Regulations
  - F. Fuel Cost
  
- IV. Economic Impact
  
- V. Environmental Impact
  
  
- VII. Administrative Requirements
  - A. Regulatory Planning and Review: Executive Order 12866
  - B. Regulatory Flexibility Analysis
  - C. Compliance with the Paperwork Reduction Act
  - D. Unfunded Mandates Reform Act
  - E. Executive Order 13175: Consultation and Coordination with Indian Tribal Governments
  - F. National Technology Transfer and Advancement Act
  - G. Executive Order 13045: Children's Health Protection
  - H. Executive Order 13132: Federalism
  - I. Executive Order 13211: Energy Effects
  - J. Congressional Review Act

## **I. Background and Statutory Authority**

### **A. Background to Nonconformance Penalty Rules**

Since the promulgation of the first NCP rule in 1985, NCP rules have generally been described as continuing "phases" of the NCP program. The first NCP rule (Phase I), sometimes referred to as the "generic" NCP rule, established three basic criteria for determining the eligibility of emission standards for nonconformance penalties in any given model year (50 FR 35374, August 30, 1985). For regulatory language, see 40 CFR 86.1103-87. First, the emission standard in question must become more difficult to meet. This can occur in two ways, either by the emission standard itself becoming more stringent, or due to its interaction with another emission standard that has become more stringent. Second, substantial work must be required in order to meet the emission standard. EPA considers "substantial work" to mean the application of technology not previously used in that vehicle or engine class/subclass, or a significant modification of existing technology, in order to bring that vehicle/engine into compliance. EPA does not consider minor modifications or calibration changes to be classified as substantial work. Third, a technological laggard must be likely to develop. Prior NCP rules have considered a technological laggard to be a manufacturer who cannot meet a particular emission standard due to technological (not economic) difficulties and who, in the absence of NCPs, might be forced from the marketplace, including the elimination of one or more engine families/configurations from production. EPA will make the determination that a technological laggard is likely to develop, based in large part on the first two criteria. However, these criteria are not always sufficient to determine the likelihood of the development of a technological laggard. An emission standard may become more difficult to meet and substantial work may be required for compliance, but if that work merely involves transfer of well-developed technology from another vehicle class, it is unlikely that a technological laggard would develop.

The criteria and methodologies established in the 1985 rule have since been used to determine eligibility and to establish NCPs for a number of heavy-duty emission standards. Phases II, III, IV, and V, published in the period from 1985 to 1996, established NCPs that, in combination, cover the full range of heavy-duty - from heavy light-duty trucks (6,000-8,500 pounds gross vehicle weight) to the largest diesel truck and urban bus engines. NCPs have been established for engine emission standards for hydrocarbons (HC), carbon monoxide (CO), nitrogen oxides (NO<sub>x</sub>), and particulate matter (PM). The most recent NCP rule (61 FR 6949, February 23, 1996) established NCPs for the 1998 and later model year NO<sub>x</sub> standard for heavy-duty diesel engines (HDDEs), the 1996 and later model year for Light-Duty Truck 3 (LDT3) NO<sub>x</sub> standard, and the 1996 and later urban bus PM standard. A concurrent but separate final rule (61 FR 6944, February 23, 1996) established NCPs for the 1996 LDT3 PM standard. The NCP rulemaking phases are summarized in greater detail in the Final Technical Support Document for this rule.

### **B. Statutory Authority**

Section 206(g) of the Clean Air Act (the Act), 42 U.S.C. 7525(g), requires EPA to issue a certificate of conformity for HDEs or HDVs which exceed a federal emissions standard, but do

not exceed an upper limit associated with that standard, if the manufacturer pays an NCP established by rulemaking. Congress adopted section 206(g) in the Clean Air Act Amendments of 1977 as a response to perceived problems with technology-forcing heavy-duty emissions standards. Following International Harvester v. Ruckelshaus, 478 F.2d 615 (D.C. Cir. 1973), Congress realized the dilemma that technology-forcing standards might cause for motor vehicle manufacturers. If strict standards were maintained, then some manufacturers, "technological laggards," might be unable to comply initially and would be forced out of the marketplace. NCPs were intended to remedy this potential problem. The NCP would provide a temporary alternative that would permit manufacturers to sell their engines or vehicles by payment of a penalty. At the same time, conforming manufacturers would not suffer an economic disadvantage compared to nonconforming manufacturers, because the NCP would be based, in part, on money saved by the technological laggard and its customer from the nonconforming engine or vehicle.

Under section 206(g)(1), NCPs may be offered for HDVs or HDEs. The penalty may vary by pollutant and by class or category of vehicle or engine. HDVs are defined in section 202(b)(3)(C) of the CAA as vehicles in excess of 6,000 pounds gross vehicle weight rating (GVWR). The light-duty truck (LDT) classification includes trucks that have a GVWR of 8500 lbs or less. Therefore, certain LDTs may be classified as HDVs. Historically, LDTs up through 6000 lbs GVWR have been considered "light light-duty trucks" (LLDTs) and LDTs between 6,001 and 8,500 pounds GVWR have been considered "heavy light-duty trucks" (HLDTs). Based on various new requirements established by the Clean Air Act Amendments of 1990, each of these two light truck categories has been further subdivided into groups by weight. The LLDTs are classified by weight based on "loaded vehicle weight," or LVW, which maintains its current definition: curb weight plus 300 lbs. The trucks up through 3750 lbs LVW make up a subclass called light-duty-trucks-1, or LDT1. Those greater than 3750 lbs LVW but less than or equal to 6000 lbs GVWR are the subclass light-duty-trucks-2, or LDT2. The HLDTs are divided at 5750 lbs "adjusted loaded vehicle weight," or ALVW. Adjusted loaded vehicle weight is the average of the curb weight and the GVWR. The HLDTs that are up through 5750 lbs ALVW are called light-duty trucks-3, or LDT3. Those above 5750 lbs ALVW but less than or equal to 8500 lbs GVWR are light-duty-trucks-4, or LDT4. The LDT3 and LDT4 subclasses make up the HLDT vehicle class. Since NCPs can only be established for heavy duty vehicles or engines, emission standards for light-duty trucks of the LDT3 and LDT4 categories are the only light-duty truck categories eligible for NCPs.

Section 206(g)(3) requires that NCPs:

Account for the degree of emission nonconformity;

Increase periodically to provide incentive for nonconforming manufacturers to achieve the emission standards; and

Remove the competitive disadvantage to conforming manufacturers.

Section 206(g) authorizes EPA to require testing of production vehicles or engines in order to determine the emission level on which the penalty is based. If the emission level of a vehicle or engine exceeds an upper limit of nonconformity established by EPA through regulation, the vehicle or engine would not qualify for an NCP under section 206(g) and no certificate of conformity could be issued to the manufacturer. If the emission level is below the upper limit but above the standard, that emission level becomes the "compliance level," the level

to which the engine must conform. This is also the benchmark for warranty and recall liability. The manufacturer who elects to pay the NCP is liable for vehicles or engines that exceed the compliance level in-use, unless, for the case of HLDTs, the compliance level is below the in-use standard. The manufacturer does not have in-use warranty or recall liability for emissions levels above the standard but below the compliance level.

Section 307(d) of the CAA applies to today's rule as provided by Section 307(d)(1)(v), 42 U.S.C. 7607(d)(1)(v).

### **C. Heavy-duty Diesel Consent Decrees**

On October 22, 1998, the Department of Justice and the Environmental Protection Agency announced settlements with seven major manufacturers whose diesel engines comprise a majority of the diesel engine market. The settlements resolved claims that the manufacturers installed computer software on heavy duty diesel engines that turned off the engine emission control system during highway driving in violation of the CAA's prohibition on defeat devices (42 USC 7522(a)(3)). The settlements were entered by the U.S. District Court for the District of Columbia on July 1, 1999. These consent decrees with the U.S. Government contained a number of provisions applying to heavy-duty on-road, and in some cases, nonroad, engines. Specific to the on-road engines, the decrees permit the continued use of non-complying engines for a period of time (although emissions are capped by limits associated with new supplemental test procedures). Other elements of these consent decrees include a program under which the consent decree manufacturers are required to invest considerable resources to evaluate instrumentation and methodologies for on-road testing. Because the Consent Decrees refer to NCPs for the 2004 model year, if established, promulgation of this rule would have an impact on the penalties determined under the Consent Decrees.

## **II. Nonconformance Penalties for 2004 and Later Heavy-Duty Engines and Heavy-Duty Vehicles**

### **A. Finding of Eligibility for NCPs**

In the Notice of Proposed Rulemaking (NPRM) (67 FR 2159, January 16, 2002), we identified the heavy-duty diesel NMHC+NO<sub>x</sub> standard becoming effective in model year 2004, the heavy-duty gasoline standards generally taking effect in the 2005 model year, and the Tier 2 standards for Medium-duty Passenger Vehicles & Heavy Light-duty Trucks taking effect in 2004 as new standards for which we have statutory authority for considering NCPs. We then applied the three generic NCP criteria (discussed in section I.A) to each of those emission standards, and identified the 2004 heavy-duty diesel NMHC+NO<sub>x</sub> standard of 2.4 g/bhp-hr as satisfying the required NCP criteria and, therefore, proposed to make NCPs available for heavy-duty engines subject to that standard. We also proposed upper limits for that standard and numerical values to be used in the calculation of the NCP for the associated vehicles.

We did not propose NCPs for the other new standards because they did not meet all three of the generic NCP criteria. No comments were received during the public comment period indicating that NCPs should be proposed for these other new standards. See the NPRM for

additional detail on the consideration of these standards for NCPs. For the reasons stated in the NPRM, EPA therefore is not adopting NCPs at this time for the other new standards.

As discussed in section I.A., EPA must determine that three criteria are met in order to determine that an NCP should be established in any given model year. For the model year 2004 heavy-duty diesel NMHC+NO<sub>x</sub> standard, we believe these criteria have been met and it is therefore appropriate to establish NCPs for the 2004 model year NMHC+NO<sub>x</sub> standard.

The first criteria requires that the emission standard in question must become more difficult to meet. This is the case with the 2004 NMHC+NO<sub>x</sub> standard. The previous emission standards to which manufacturers must certify for this category are 4.0 g/bhp-hr NO<sub>x</sub> and 1.3 g/bhp-hr HC. The 2004 standard is a combined NMHC+NO<sub>x</sub> standard of 2.4 g/bhp-hr, or optionally a 2.5 g/bhp-hr NMHC+NO<sub>x</sub> with a limit of 0.5 g/bhp-hr NMHC.<sup>1</sup> When promulgated, the Agency concluded that the 2004 standard was a technology forcing standard, and therefore it is reasonable to conclude that the increased level of stringency made the standard more difficult to meet.

The second criteria which must be met in order for EPA to determine that an NCP should be established is the determination that substantial work must be required to meet the emission standard. This criteria has also been met. As discussed in both the 1997 final rule (see 62 FR 54694, October 21, 1997) which established the 2004 standards, as well as the 2000 final rule (see 65 FR 59896, October 6, 2000) which reaffirmed those standards, EPA projected that new emission control technologies would be needed to achieve the 2004 standards. In these previous rulemakings EPA identified technologies such as cooled exhaust gas recirculation (EGR) and variable geometry turbochargers (VGT) as some of the technologies manufacturers could use to meet the 2004 standards. Such technologies have not previously been used in the on-highway heavy-duty diesel market, and EPA estimated substantial research and development efforts by the engine manufacturers would be undertaken to meet the 2004 standards. We continue to believe such new technologies will be used by a number of engine manufacturers, and in fact several manufacturers have indicated in recent statements that they will use new emission control technologies in order to achieve the 2004 standards.<sup>2</sup>

The final criteria for EPA to determine that an NCP should be established is that a technological laggard is likely to develop. There are several reasons to believe a technological laggard is likely, as discussed below.

First, during our recent discussions with a number of engine manufacturers, several manufacturers have indicated that they are not yet sure that will be able to make the necessary technological changes to meet the 2004 emission standards for a limited number of their high horsepower rated engines by model year 2004, and may need to use NCPs for a limited time

---

<sup>1</sup> NMHC stands for non-methane hydrocarbons, which is a measure of total hydrocarbons with the methane emissions subtracted out. For typical on-highway diesel fueled heavy-duty engines, methane emissions are on the order of 10 percent of the total hydrocarbon emissions.

<sup>2</sup> See press releases from Caterpillar Inc., Cummins, Detroit Diesel Corp. and Mack, available in EPA Air Docket A-2001-25.



period to certify these configurations in 2004. Nevertheless, manufacturers are exploring a number of technologies to address these limitations.

Second, during recent discussions with engine manufacturers, one manufacturer has indicated that a few low volume engine families currently available may not be ready by 2004. A low volume engine family may require specific and targeted research and development efforts in order to comply with the 2004 standards, and it is reasonable to expect that manufacturers may focus their efforts on these low volume products later in the development process, and time may be too short to bring the product into compliance for the 2004 model year.

Finally, in the final rule completed in 2000 which reaffirmed the 2004 NMHC+NO<sub>x</sub> standard, three engine manufactures as well as the Engine Manufacturers Association (EMA), commented that EPA should establish NCPs for the 2004 standards.<sup>3</sup> EMA commented the standards "*will be technology-forcing and likely will result in the inability of some engine manufacturers and/or engine families to comply with the standards.*" Detroit Diesel Corp. commented "*Meeting the 2004 standards will require the use of sophisticated new emission control technology and will require emission durability evaluation over a greatly extended useful life period..... Any development setbacks or misjudgement regarding the capability or durability of the new emission control technology could, at the last minute, put an engine manufacturer into a laggard position and prevent certification of an engine family. The likelihood of a technological laggard for 2004 is at least as great and probably much greater than for other standards for which NCPs have been provided.*" When we reaffirmed the 2004 NO<sub>x</sub>+NMHC standard in 2000 we agreed that the standards were technology-forcing and that sophisticated technologies would be required, and thus, that the first two eligibility criteria were likely met. However, we concluded at the time that it was too early to determine the likelihood of a technological laggard, and further, that it was not necessary to attempt to make such a judgement at that time. Now we are a year closer to implementation of the 2004 standards, and manufacturers have not withdrawn their claims that the likelihood of a technological laggard is high. The fact that several engine manufacturers as well as a major trade organization have indicated they believe a technological laggard is likely to develop is a relevant indicator for the Agency regarding the technological laggard criteria.

It is clear that most companies and most engine configurations will be able to comply with the standards in 2004. However, based on the discussion above, the Agency believes it is reasonable to conclude that a technological laggard is likely to develop for the 2004 NMHC+NO<sub>x</sub> heavy-duty diesel standard.

## **B. Penalty Rates**

This final rule is the most recent in a series of NCP rulemakings. The discussion of penalty rates in the Phase IV rulemaking (58 FR 68532, December 28, 1993), Phase III rulemaking (55 FR 46622, November 5, 1990), the Phase II rulemaking (50 FR 53454, December 31, 1985) as well as the Phase I rulemaking (50 FR 35374, August 30, 1985) are

---

<sup>3</sup> See EPA Air Docket A-98-32, comments from Navistar (item IV-D-29), Mack Truck (IV-D-06), Detroit Diesel Corp. (IV-D-28), and EMA (IV-D-05).

incorporated by reference. This section briefly reviews the penalty rate formula and discusses how EPA arrived at the penalty rates in this final rule.

As in the previous NCP rules, the NCP formula for the 2004 model year standard uses the following parameters:  $COC_{50}$ ,  $COC_{90}$ ,  $MC_{50}$ ,  $F$ , and  $UL$ . This rule specifies the value for these parameters. The NCP formula for the 2004 model year standard is the same as that promulgated in the Phase I rule. As was done in previous NCP rules, costs include additional manufacturer costs and additional owner costs, but do not include certification costs because both complying and noncomplying manufacturers must incur certification costs.  $COC_{50}$  is an estimate of the industry-wide average incremental cost per engine (references to engines are intended to include vehicles as well) associated with meeting the standard for which an NCP is offered, compared with meeting the upper limit. More precisely, the values of  $COC_{50}$  presented here are estimates of the sales weighted mean incremental cost.

$COC_{90}$  is EPA's best estimate of the 90th percentile incremental cost per-engine associated with meeting the standard for which an NCP is offered, compared with meeting the associated upper limit.  $MC_{50}$  is an estimate of the industry-wide average marginal cost of compliance per unit of reduced pollutant associated with the least cost effective emission control technology installed to meet the new standard.  $MC_{50}$  is measured in dollars per g/bhp-hr for HDEs.  $F$  is a factor used to derive  $MC_{90}$ , the 90th percentile marginal cost of compliance with the NCP standard for engines in the NCP category.  $MC_{90}$  defines the slope of the penalty rate curve near the standard and is equal to  $MC_{50}$  multiplied by  $F$ .  $UL$  is the upper limit above which no engine may be certified.  $UL$  is specified for each of the four service classes for which NCPs are promulgated.

Table 1 displays the parameter values to be used in the NCP formula for the 2004 and later model year NMHC+NO<sub>x</sub> standard of 2.5 g/bhp-hr for diesel heavy-duty engines and diesel urban bus engines at full useful life. The derivation of the NCP cost parameters is described in a support document entitled "Technical Support Document: Nonconformance Penalties for 2004 Highway Heavy-Duty Diesel Engines," (TSD) which is available in the public docket for this rulemaking. All costs are presented in 2001 dollars. Because we are trying to account for cost differences over time, all costs were converted to net present value (NPV) for calendar year 2004 using a discount rate of seven percent.

**Table 1: NCP Calculation Parameters**

<b>Parameter</b>	<b>Light Heavy-Duty Diesel Engines (LHDDE)</b>	<b>Medium Heavy-Duty Diesel Engines (MHDDE)</b>	<b>Heavy Heavy-Duty Diesel Engines (HHDDE)</b>	<b>Urban Bus Engines</b>
COC <sub>50</sub>	\$1,240	\$2,740	\$6,810	\$3,930
COC <sub>90</sub>	\$2,710	\$4,930	\$12,210	\$6,660
MC <sub>50</sub>	\$2,000 per g/bhp-hr	\$1,400 per g/bhp-hr	\$5,600 per g/bhp-hr	\$3,800 per g/bhp-hr
F	1.3	1.3	1.3	1.3
UL (NO <sub>x</sub> +NMHC)	4.5 g/bhp-hr	4.5 g/bhp-hr	6.0 g/bhp-hr	4.5 g/bhp-hr

The calculation parameters listed in Table 1 are used to calculate the actual penalty rates for each heavy-duty service class. These parameters are used in the penalty rate formulas which are defined in the existing NCP regulations (See 40 CFR 86.1113(a)(1) and (2)). Figures 1-4 below show the approximate first-year penalties for different compliance levels for each service class. These curves were determined using the parameters in Table 1, and the general equations in the regulations. To determine actual penalties you would also need to include the annual adjustment factors specified in the regulations and the inflation adjustment. Thus, these figures, which are shown here for illustrative purposes only, cannot be used to determine the actual penalty amount to be paid by a manufacturer.

Figure 1 - Approximate Light-Heavy Penalty Rates

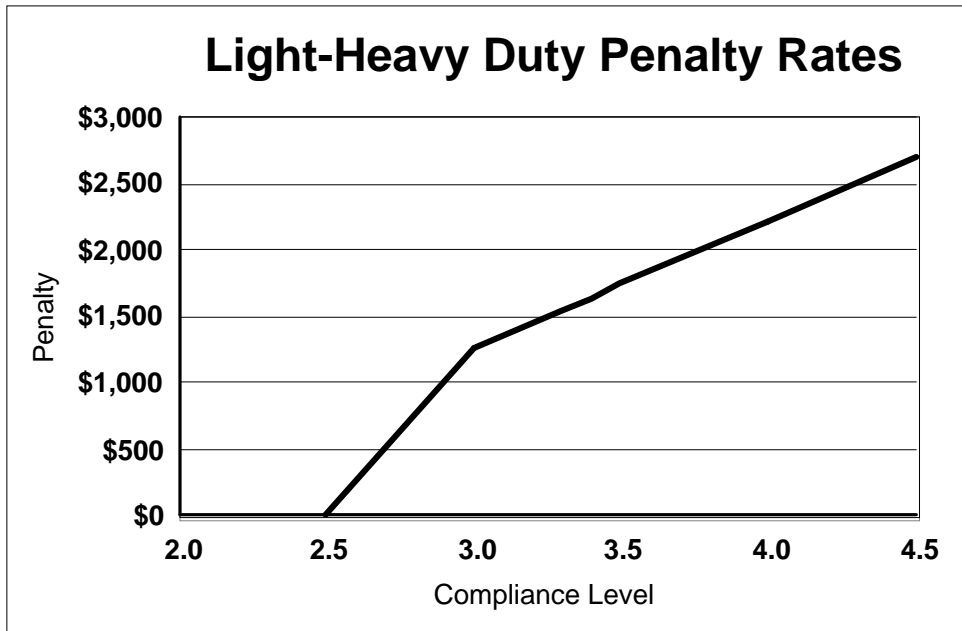


Figure 2 - Approximate Medium-Heavy Penalty Rates

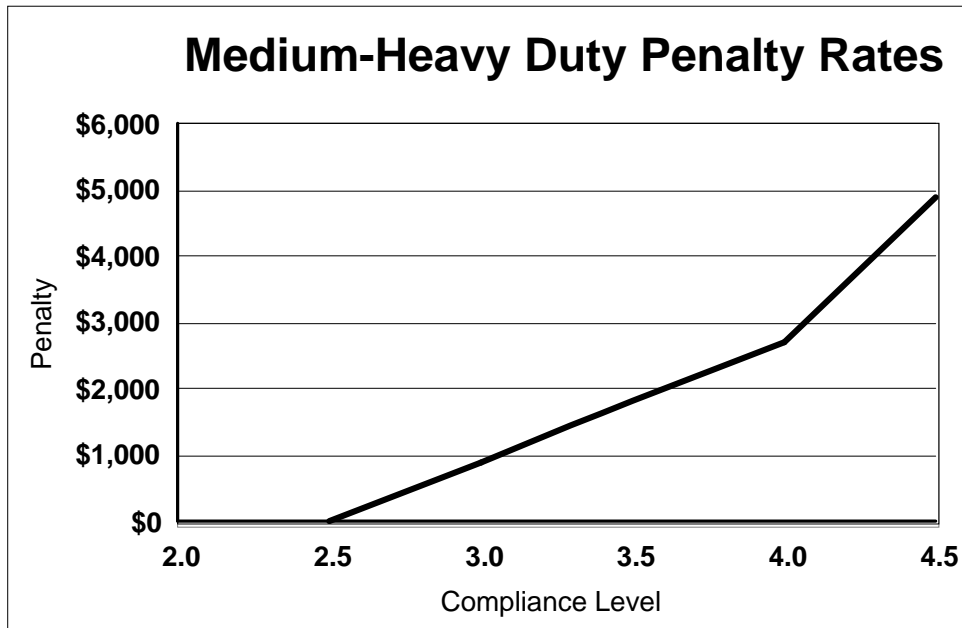


Figure 3 - Approximate Heavy-Heavy Penalty Rates

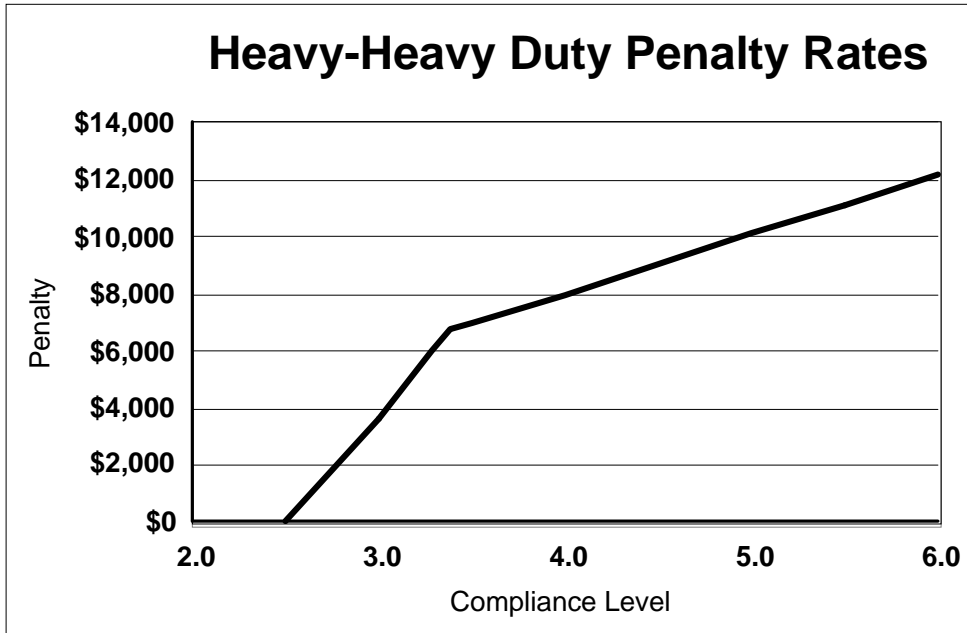
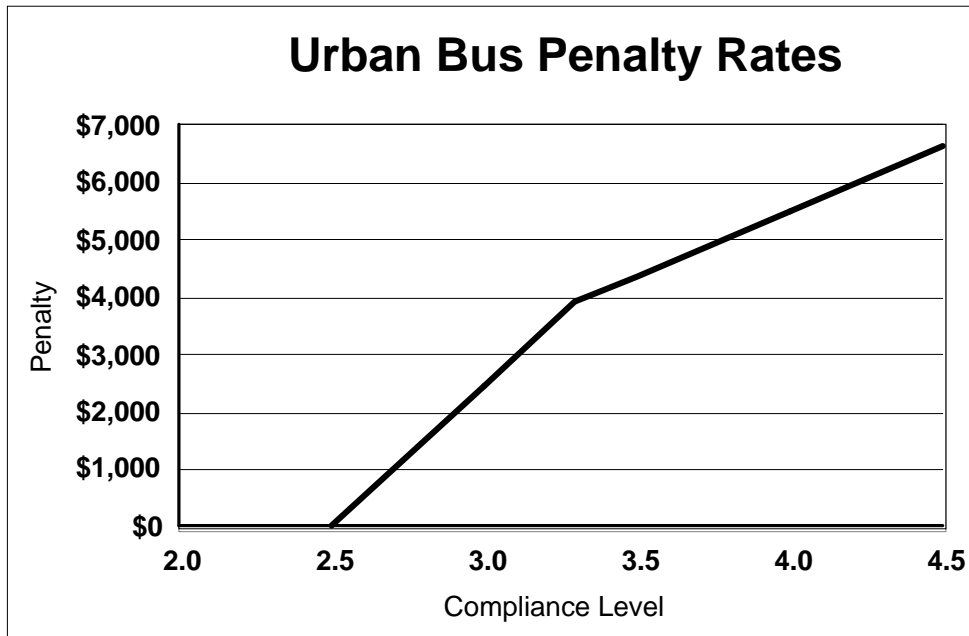


Figure 4 - Approximate Urban Bus Penalty Rates



During the rulemaking we asked for comment on all aspects of our analysis including the cost information used and the manner in which we analyzed it. We received only a small amount of additional information after the proposal and we incorporated this information into the overall analysis. Beyond that, we held in-depth discussions with several manufacturers to determine whether the information they provided for the NPRM was still current and the best available in the context of ongoing business decisions, projected technological progress, and cost reduction efforts. Based on the comments and other new information, we have updated our analysis from that used in the NPRM . These changes are described in the Technical Support Document. While most of the changes were relatively minor, we made four adjustments to the methodology that are more significant:

For heavy heavy-duty engines, we estimated that by the 2004, the average fuel consumption would be about one-half percent better than current manufacturer estimates. Manufacturers made it clear that fuel economy improvement was a top priority and are making public projections about further improvements by 2004. In the NPRM we based our diesel fuel price on the 2000 average of about \$1.50 per gallon and asked for comment on using a 3-5 year average as opposed to a one year value. As is discussed below, we are using a fuel price of \$1.29 per gallon, which is the average diesel fuel price for 1997 through 2001.

A review with the manufacturers revealed that in providing their cost estimates for 2004 they did not incorporate manufacturing learning from the consent decree pull ahead engines. We included a learning curve benefit of 10 percent for heavy-heavy duty engines.

Manufacturer warranty cost estimates varied by more than a factor of ten. In the NPRM we used a sales-weighted average. Through discussions with manufacturers, we learned that the broad range in estimates was a result of different approaches used by companies to address warranty costs, such that a straight average of the estimates is not the appropriate way to project actual costs. Thus for the final rule we based warranty on a flat percentage of the average rather than the average itself for most service classes.

The table below compares the COC<sub>50</sub> and COC<sub>90</sub> values for the NPRM and FRM.

**Table 2: NCP Parameter Comparisons**

Service Class	COC <sub>50</sub> NPRM	COC <sub>50</sub> FRM	COC <sub>90</sub> NPRM	COC <sub>90</sub> FRM
LHDDE	\$1,080	\$1,240	\$2,610	\$2,710
MHDDE	\$3,360	\$2,740	\$6,870	\$4,930
HHDE	\$8,940	\$6,810	\$14,790	\$12,210
Urban Bus	\$4,400	\$3,930	\$7,120	\$6,660

### **III. Significant Issues Raised in this Rulemaking**

This section discusses several significant issues raised in this rulemaking, including comments on the proposal. Additional issues are also discussed in the Technical Support Document and Response to Comments documents.

#### **A. Relation of NCP Costs to Rulemaking Costs**

Traditionally, NCP costs are different than those presented in the rulemaking analysis which implemented the standards. This occurs for several reasons:

NCP costs represent first year costs and thus generally do not include the effects of manufacturing learning that occurs in reality and is included in the rulemaking cost analysis, but do include the full amortized annual fixed costs which are eliminated after the first few years of production

Cost information gathered from manufacturers and vendors during the NCP rulemaking process reflects a more complete understanding of the optimum technology path for compliance and the operating costs and savings which occur over the life of the vehicle/engine as compared to the information that existed during the standard-setting rulemaking

The NCP is by statute intended to protect the complying manufacturer and thus it is important to avoid underestimating reasonably projected actual costs.

However, this specific case is unique. The analysis presented in the NCP TSD results in costs that differ from the estimated costs presented in the rulemaking that initially established the 2004 standards (62 FR 54694, October 21, 1997), as well as the rulemaking that affirmed the 2004 standards and updated the cost analysis (65 FR 59896 October 6, 2000). There are several key reasons that account for these differences. The most important reason is the difference in the emission characteristics of the baseline engine used in the analysis. When the rulemaking costs were determined in 1997, the agency assumed a 1998 model year engine in full compliance with the 4.0 g/bhp-hr NO<sub>x</sub> level as the baseline for the 2004 standard. As discussed above, after that rule was promulgated, it became evident that all manufacturers were not fully complying with the 4.0 g/bhp-hr NO<sub>x</sub> level and in fact in some cases were emitting at levels far in excess of the standard during significant periods of operation. We proposed an upper limit of 6.0 g/bhp-hr NMHC+NO<sub>x</sub> for the 2004 NCP for heavy heavy-duty diesel engines because that baseline value reasonably represents the current emissions characteristics of nearly all 2001 heavy-heavy duty engines. This distinction between baselines is critical to the cost analysis and creates a fundamental difference between the estimated costs presented in this NCP final rule and the estimated costs presented in the standard-setting rulemaking.

The compliance costs estimated in the standards setting rulemaking for the heavy heavy-duty engine service class were intended to reflect the cost associated with bringing an engine in full compliance with the current standard of 4.0 g/bhp-hr NO<sub>x</sub> into full compliance with the 2004 NMHC+NO<sub>x</sub> standard of 2.5 g/bhp-hr. In this NCP rulemaking, however, the penalty rate factors for heavy-heavy duty were based on the costs required to bring an engine at the 6.0

g/bhp-hr Upper Limit (e.g., a 2001 model year engine) into compliance with the 2004 model year standard. The fundamental properties of the existing engines in 2001, however, are not what was envisioned by or incorporated into the analyses performed for the rulemakings that established and confirmed the 2004 standards. This important distinction between the baselines engines impacts every cost category considered in the NCP rule. Much of the cost associated with the heavy heavy-duty service class NCPs are attributable to those costs required to remedy the non-compliance with the current 4.0 g/bhp-hr NO<sub>x</sub> standard while reducing emission to meet the 2004 standards, and are not attributable solely to the 2004 standards. Consider the following:

A heavy heavy-duty diesel engine in full compliance with the current 4.0 g/bhp-hr NO<sub>x</sub> standard would likely have sustained little or no increased fuel costs relative to an engine meeting the 2004 standard of 2.5 g/bhp-hr NMHC+NO<sub>x</sub>. The fuel economy "penalty" associated with bringing an Upper Limit engine into compliance with the 2004 standards is probably equivalent to the penalty that would have resulted from bringing a current non-complying engine into compliance with the defeat device prohibition. Thus, the cost of reduced fuel economy is incorporated into the NCP costs, but not into the estimated long-term rulemaking costs.

A heavy heavy-duty diesel engine in full compliance with the current 4.0 g/bhp-hr NO<sub>x</sub> standard would have incorporated different, more advanced emission control techniques and hardware to comply with the 4.0 g/bhp-hr standard than have been incorporated on current 6.0 g/bhp-hr engines that do not fully comply with the current regulations. Thus, additional costs associated with implementing additional control technologies for 6.0 g/bhp-hr engines, which are incorporated into the NCP costs, include some hardware and development costs that would not have been applicable for the rulemaking analysis where the baseline was a compliant 4.0 g/bhp-hr engine.

A heavy heavy-duty diesel engine in full compliance with the current 4.0 g/bhp-hr NO<sub>x</sub> standard would possibly have had more frequent oil change intervals, resulting in higher baseline maintenance costs than the current 6.0 g/bhp-hr non-complying engines. The NCP costs presented in this rule incorporate the lower operating costs of today's engines in the baseline, with an associated increase in operating costs to comply with the 2.5 g/bhp-hr standard. However, the operating costs estimated in the rulemakings that established the 2004 standards were based on engines in full compliance with the 4.0 g/bhp-hr NO<sub>x</sub> standard.

Thus, the use of fundamentally different baselines accounts for a substantial amount of the difference between the resulting cost estimates for heavy heavy-duty diesel engines. In addition, as is described in the Technical Support Document, even for the other service classes that have Upper Limits based directly on the 4.0 g/bhp-hr NO<sub>x</sub> standard, the impact on engine designs of the alleged defeat device strategies used by a number of engine manufacturers over the past decade makes comparison between the standard-setting rule cost analysis and this analysis difficult.

While the baseline issue described above is the most important reason for the differences between the NCP costs and the rulemaking costs, there is a second major reason for the difference. Unlike the case with a rulemaking analysis, it is the objective of this NCP analysis to focus solely on the compliance costs associated with the first year of production. This has been the historical approach to incorporating cost parameters into the determination of the NCP.



Regulatory actions that establish emission standards require analyses with a longer term view, projecting costs out into future years and decades and not focusing solely on the costs in the first year. As one would expect, the immediate costs associated with the first year of production are higher than the long-term costs and are not representative of long-term costs because manufacturers often make significant progress in reducing certain costs over time. This is especially true for costs associated with hardware, reliability, and fuel consumption.

Finally, in the process of conducting our cost analysis for this NCP rule, some new information was provided that was not brought to our attention during the prior rulemaking processes. For example, the NCP analysis includes costs attributable to the truck manufacturer (as opposed to the engine manufacturer) that result from having to accommodate new engine configurations with increased size and/or weight in their trucks. We have also included the negative impact on revenue due to the increased weight of the engine and the resulting loss in freight capacity, as well as the impact of post-warranty repair costs. We believe that incorporation of this information is appropriate to include in the NCP cost estimation analysis as it represents industries' most current perspective on compliance costs.

## **B. Discount Rate**

In the NPRM, we derived the factors for the NCP formula using the net present value (NPV) of manufacturer and user costs. Consistent with other EPA rulemaking analyses, a compounding/discount rate of seven percent was used in these calculations. We also presented the values using a rate of three percent and asked for comment on the issue including input on which of two values was more appropriate or if another value or set of values was more representative of industry practice. As is discussed in the Response to Comments document, the response was mixed. Some commenters supported seven percent, some three percent, and one commenter supported using different rates for compounding pre-production costs and discounting user costs but did not suggest values for these industry sectors. Given this mixed response, EPA has decided to continue to use the seven percent value as it is clear from the comments that this rate is adequately representative of industry practice and thus will protect the complying manufacturers. Nonetheless, EPA will continue to seek more information on this issue for consideration in future rule analyses.

## **C. Upper Limit**

The upper limit is the emission level established by regulation above which NCPs are not available and a heavy duty engine cannot be certified or introduced into commerce. CAA section 206(g)(2) refers to the upper limit as a percentage above the emission standard, set by regulation, that corresponds to an emission level EPA determines to be "practicable." The upper limit is an important aspect of the NCP regulations not only because it establishes an emission level above which no engine can be certified, but it is also a critical component of the cost analysis used to develop the NCP factors. The regulations specify that the relevant NCP costs for determining the COC<sub>50</sub> factors are the difference between an average engine at the upper limit and one that meets the new standards (see 40 CFR 86.1113-87).

The regulatory approach adopted under the first NCP rule sets the Upper Limit (UL) at the prior emission standard when a prior emission standard exists and that standard is changed and becomes more stringent. EPA concluded that the UL should be reasonably achievable by all manufacturers with vehicles in the relevant class. It should be within reach of all manufacturers of HDEs or HDVs that are currently allowed so that they can, if they choose, pay NCPs and continue to sell their engines and vehicles while finishing their development of complying engines. A manufacturer of a previously certified engine or vehicle should not be forced to immediately remove an HDE or HDV from the market when an emission standard becomes more stringent. In past NCP rules, the prior emissions standard meet these goals, because manufacturers had already certified their vehicles to that standard. In the first NCP rule, EPA rejected a suggestion that the upper limit should be more stringent than the prior emission standard, because it would be very difficult to identify a limit that would be within reach of, and could be met by, all manufacturers.

In this final action, we have established an Upper Limit for light-heavy, medium-heavy and urban bus engines of 4.5g/bhp-hr NMHC+NO<sub>x</sub>, and for the heavy-heavy service class we have established an Upper Limit of 6.0 g/bhp-hr NMHC+NO<sub>x</sub>. These final rule Upper Limit values are identical to the proposed values.

In this case, the new standard is a limit on the combination of NO<sub>x</sub>+NMHC, while the prior regulatory standards are separate limits, one for NO<sub>x</sub> and one for total HC. In addition, in establishing the Upper Limit we took into consideration that for a large portion of the industry, there are also emissions limits set under judicial Consent Decrees (CD), many of which vary from the regulatory standards, in particular for the heavy-heavy service class as discussed latter in this section. The Consent Decrees establish legally binding requirements on the manufacturers that directly affect the way engine manufacturers design their engines. In many cases it is the CD limits, and not the regulatory standards, that are the controlling factor and dictate the level of emissions control required on engines produced during the term of the Decrees. Since the purpose of an NCP is to address the real world problems associated with a transition from a prior emissions requirement to a new more stringent requirement, it is appropriate to take the CD requirements into account where the levels required under the CDs are in fact the controlling factor in establishing the prior level of control.

For light heavy-duty, medium heavy-duty, and urban bus engines, the CD requirements are consistent with the regulatory requirements for the current FTP-based standards and the defeat device prohibition. Manufacturers are currently certifying to the emissions levels provided under the CD. An examination of model year 2001 certification data shows that for both CD and non-CD engine manufacturers, engines are generally being certified with HC emissions below 0.3 g/bhp-hr, and no engines in these service classes certified to the 4.0 g/bhp-hr NO<sub>x</sub> standard have a combined NO<sub>x</sub> plus HC emission level greater than 4.5 g/bhp-hr.<sup>4</sup> Therefore, an UL of 4.5 g/bhp-hr NO<sub>x</sub>+NMHC on the FTP is most consistent with the policy approach embodied in 40 CFR 86.1104-91, allowing continued production of current engines, but not allowing backsliding. We received only supportive comments on the proposal to

---

<sup>4</sup> EPA Memorandum "Summary of Model Year 2001 Heavy-duty Diesel Engine HC and NO<sub>x</sub> Certification Data", copy available in the docket for this rulemaking.

establish an Upper Limit of 4.5 g/bhp-hr NMHC+NOx for the light heavy-duty, medium heavy-duty, and urban bus engines.

For heavy heavy-duty engines, however, the CDs provides a significantly different approach. For these engines, limits are set for Euro III and not-to-exceed (NTE) levels that allow for significantly higher emissions off the FTP than EPA would expect to allow under the defeat device prohibition. While the CDs, like the regulations, require the use of the FTP to measure emissions, it is the level of off-cycle control (e.g., control of emissions during operation not fully represented during the FTP, but which are captured by the supplemental tests contained in the CDs, the Euro III and NTE tests) that drives the design requirements for the engine manufacturers. They are the legal requirements that drive the level of control embodied in the engine design. Model year 2001 certification data shows that combined HC and NOx emissions for these engines are at or below 6.0 g/bhp-hr when measured using the Euro III test.<sup>5</sup>

This NCP rulemaking focuses on technological laggards, which would be those heavy-duty engines that need more lead time to comply with the 2004 NOx+NMHC standard. For heavy heavy-duty engines, the prior actual level of control that many manufacturers are now achieving and certifying to is established by the CDs and not by the 1998 regulatory emission standards. As such, an UL at the level of control required under the CD would set a level that is within the reach of all manufacturers, including the technological laggards. It would be reasonably achievable by all manufacturers in this class, and would avoid forcing the technical laggards to remove an engine from the market when the 2004 emissions standards go into effect. It would allow continued production of current engines but would not allow backsliding. A 6.0 g/bhp-hr Upper Limit, therefore, is consistent with the policy embodied in the NCP regulations.

EPA recognizes that under the CD this group of heavy-duty engines is also required to achieve the 2004 emissions levels by October 2002. However, as discussed before, EPA has determined that there is likely to be a technological laggard for purposes of meeting the 2004 standards. The prior deadline in the CD does not change this determination, and means only that some manufacturers would also be subject to the requirements in the CD, including its compliance and enforcement provisions. The CDs allow manufacturers to pay penalties to produce engines which emit above the October 2002 emission limits defined in the CDs, thus the CDs also provide a mechanism for technological laggards to continue to produce today's engines.

EPA also recognizes that the CD calls for compliance with a 4.0 NOx standard on the FTP and with a 6.0 NOx limit for the Euro III test procedure for today's engines, and the 6.0 g/bhp-hr UL we are proposing is for the FTP. 2004 MY engines eligible for certification under this NCP rule will need to meet the applicable FTP standard and will also need to comply with the defeat device prohibition. However, a 2004 MY engine with EURO III levels significantly higher than its FTP levels would raise significant concerns about compliance with the defeat device prohibition. While the Euro III is not a regulatory emissions standard in 2004, it is representative of typical highway cruise operation and EPA uses EURO III emissions levels as a screening tool in evaluating compliance with the defeat device prohibition. See Advisory

---

<sup>5</sup> EPA Memorandum "Summary of Model Year 2001 Heavy-duty Diesel Engine HC and NOx Certification Data", copy available in the docket for this rulemaking.

Circular 24-3. If EPA sets the UL at 6.0 g/bhp-hr NO<sub>x</sub>+NMHC for the FTP, continued production of engines with EURO III levels comparable to 2001 MY levels of 6.0 g/bhp-hr would not be expected to raise significant defeat device concerns. However, if EPA were to set the UL at 4.5 g/bhp-hr NO<sub>x</sub>+NMHC for the FTP, an engine with EURO III emissions levels of approximately 6.0 g/bhp-hr, like current CD engines, would raise very significant concerns about defeat device compliance, based on the disparity between FTP and EURO III levels, EPA would not expect that such an engine could be certified. Setting an UL at 6.0 g/bhp-hr is therefore appropriate as it should allow for the continued production of engines with EURO III levels comparable to those allowed under the CD for MY 2001.

We received comments both supporting and opposing an Upper Limit of 6.0 g/bhp-hr for the heavy-heavy service class. One commenter who opposed the 6.0 value suggested that an UL of 4.5 was appropriate for the heavy-heavy engines. However, an UL of 4.5 NO<sub>x</sub> +NMHC would require that CD engine manufacturers significantly reduce the level of off-cycle emissions for these engines. Such an emission reduction would require significant design changes for existing engines at the same time design work is underway to meet the 2.5 standard. This approach is inconsistent with the policy EPA has used in past NCP rulemakings, where the Upper Limit has been established at a level which would allow engine manufacturers to continue to focus on developing the technology necessary to comply with the new emission standards rather than diverting resources to comply with an intermediate emission level more stringent than existing products but not at the level of the new standard. A more detailed discussion of the comments we received and our response to those comments is contained in the Response to Comments document for this final rule.

#### **D. Use of Penalty Funds**

Some of the comments on the proposed rule suggested that the revenues generated by the NCPs should be used for clean air projects, such as regional PM and toxics reduction projects and diesel retrofit projects. It is not within EPA's authority or ability to direct the use of the penalty monies. Section 206(g) of the Clean Air Act, 42 U.S.C. §7525(g), authorizes EPA to establish nonconformance penalties, but it does not authorize EPA to retain and use any penalty monies paid by a manufacturer. Absent such authority to retain and use penalty monies received, the Miscellaneous Receipts Act, 31 U.S.C. §3302(b), requires that such monies be deposited in the General Revenue Fund of the U.S. Treasury. Funds deposited in the General Revenue Fund may then be appropriated by Congress.

#### **E. Incorporating Factors Not Provided For In The NCP Regulations**

In the NPRM EPA invited comment on whether an adjustment to the NCP level should be added to account for the potential competitive benefits gained by producing an engine that has better performance characteristics compared to a complying engine. EPA invited comment on whether the current cost factors used to develop the NCP levels, such as warranty and related costs, fully reflected the competitive benefits gained in the marketplace by such a non-complying engine. EPA indicated there was significant uncertainty in this regard, and that in any case it would be hard to quantify this competitive benefit with adequate certainty.

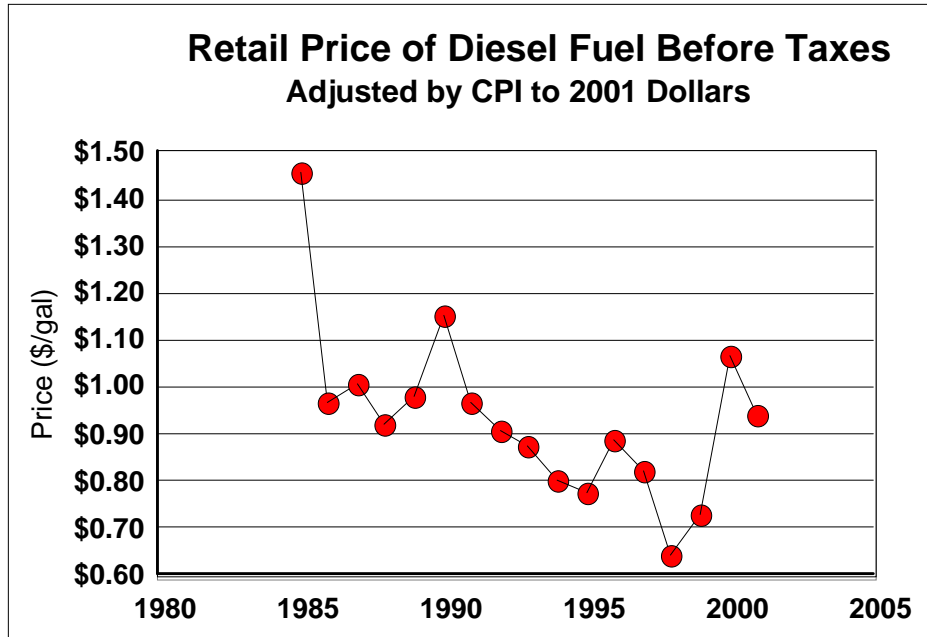
EPA asked for comment on this issue and for input on how to accommodate it in protecting the complying manufacturer. Two companies supported this concern and one suggested an approach based on including the lost profit margin in the NCP. EPA sees no practical way to implement this comment. It would require proprietary profit margin, cost, price, and perhaps other economic analysis information for this industry (e.g., price elasticity) not available to EPA even to evaluate it, and even at that it is difficult to judge the degree to which the purchaser perception will affect purchase decisions (i.e., how many engine purchases will switch to NCP engines based solely on this concern). The comments did not provide adequate information to evaluate the incorporation of an additional adjustment. Given the uncertainty and difficulty in quantifying the purchaser perception element EPA cannot incorporate an additional element in the NCP formula at this time. Nonetheless, we will continue to consider this issue in the future, including evaluating whether there is usable data available to quantify this factor for future NCP rules.

## **F. Fuel Cost**

One of the most significant categories of cost is the cost related to the impact of the standards on fuel consumption rates. However, this cost element is difficult to estimate because actual fuel costs will vary based on the price of the fuel and on the vehicle operation. We proposed to use the current fuel price, but we also requested comment on the use of an average fuel price. As described below, we now believe that a five-year average best approximates future actual fuel costs considering the economic significance of changes in fuel consumption rates.

Fuel price varies with time and with location. According to the Energy Information Administration (EIA), the national average highway diesel fuel price in February of 1999 was 95 cents per gallon (with taxes), but in October of 2000 it was \$1.67 per gallon (with taxes). That represents a 76 percent increase in the fuel price within a two year period. Figure 5 shows the variation in diesel fuel prices adjusted for inflation. In terms of constant dollars, the price of diesel fuel in the late 1990s was unusually low. We believe that a five-year average most appropriately addresses the longer term trends of fuel prices. Thus, we calculated the fuel consumption impacts using a fuel price of \$1.29 per gallon for calendar years 2004 and 2005, which represents the five-year average retail price of on-highway diesel fuel for 1997 through 2001 (EIA estimate) adjusted using the Consumer Price Index (CPI) to be equivalent to 2001 dollars, plus 44 cents for federal and state tax. We use a fuel price of \$1.34 per gallon for later calendar years to account for the introduction of lower sulfur fuel.

**Figure 5: Diesel Fuel Price Variation**



Another important factor in estimating fuel cost is how much fuel a model year 2004 vehicle will use over its lifetime. This is most important for heavy-heavy duty engines. Some vehicles may be scrapped after their regulatory useful life (435,000 miles) while others may be rebuilt more than once and not be scrapped until after 2 million miles. Thus, the fuel cost could vary by a factor of four from one vehicle to another. We addressed this by using estimated average lifetime mileages of each service class for our COC<sub>50</sub> analysis, and high mileage estimates for the COC<sub>90</sub> analysis. The mileage estimates that we used in our analysis are shown in the table below. The Technical Support Document provides more information about how we used these mileage estimates (see Chapter III).

Estimates of Lifetime Vehicle Miles Traveled (VMT) Used in Cost Analysis		
	VMT for Average Vehicle	VMT Used for COC <sub>90</sub> Analysis
Light Heavy	209,000	280,000
Medium Heavy	262,000	343,000
Heavy Heavy	767,000	1,000,000

#### **IV. Economic Impact**

Because the use of NCPs is optional, manufacturers have the flexibility and will likely choose whether or not to use NCPs based on their ability to comply with emissions standards. If no HDE manufacturer elects to use NCPs, these manufacturers and the users of their products will not incur any additional costs related to NCPs. NCPs remedy the potential problem of having a manufacturer's engines forced out of the marketplace due to that manufacturer's inability to conform to new, strict emission standards in a timely manner. Without NCPs, a manufacturer which has difficulty certifying HDEs in conformance with emission standards or whose engines fail a Selective Enforcement Audit has only two alternatives: fix the nonconforming engines, perhaps at a prohibitive cost, or do not introduce them into commerce. The availability of NCPs provides manufacturers with a third alternative: upon payment of a penalty, continue production and introduce into commerce an engine that exceeds the standard until an emission conformance technique is developed. Therefore, NCPs represent a regulatory mechanism that allows affected manufacturers to have increased flexibility. A decision to use NCPs may be a manufacturer's only way to continue to introduce HDEs into commerce. The NCP rates promulgated in this rule will also be used to set the per engine penalty under the October 1998 consent decrees between several heavy-duty diesel engine manufacturers and the EPA. EPA recognizes that if we did not set this rule the per engine penalty under fallback provisions in the consent decrees would be less. We expect the net difference in effect between the rule and the fallback provisions (assuming the rule becomes final before October 1, 2002) would be less than \$100 million in total for any year in which the consent decree penalties are an option for the manufacturers.

## **V. Environmental Impact**

When evaluating the environmental impact of this rule, one must keep in mind that, under the Act, NCPs are a consequence of enacting new, more stringent emissions requirements for heavy duty engines. Emission standards are set at a level that most, but not necessarily all, manufacturers can achieve by the model year in which the standard becomes effective. Following *International Harvester v. Ruckelshaus*, 478 F. 2d 615 (D.C. Cir. 1973), Congress realized the dilemma that technology-forcing standards might cause for motor vehicle manufacturers, and allowed manufacturers of heavy-duty engines to certify nonconforming vehicles/engines upon the payment of an NCP, under certain conditions. This mechanism would allow manufacturer(s) who cannot meet technology-forcing standards immediately to continue to manufacture these nonconforming engines while they tackle the technological problems associated with meeting new emission standard(s). Thus, as part of the statutory structure to force technological improvements while avoiding driving manufacturers out of the market, NCPs provide flexibility that fosters long-term emissions improvement through the setting of lower emission standards at an earlier date than might otherwise be possible. By design, NCPs encourage the technological laggard that is using NCPs to reduce emission levels to the more stringent standard as quickly as possible.

However, we believe that the potential exists for there to be more widespread use of the NCPs in this rule in comparison to prior NCPs, thus indicating the possibility for an environmental impact somewhat greater in magnitude than we have suggested in prior NCP

rules. Nevertheless, we believe that any such impacts would be short-term in nature. By including an annual adjustment factor that increases the levels of the penalties, the NCP program is structured such that the incentives to produce engines that meet the standards increase year-by-year. The practical impact of this adjustment factor is that the NCPs will rapidly become an unattractive option for non-complying manufacturers. However, we are not able to predict at this time how many manufacturers will make use of the NCPs, how many engine families would be subject to the NCP program, or what level of emissions the engines will exhibit. Because of these uncertainties we are unable to accurately quantify the potential impact the NCPs might have on emission inventories, although, as stated above, any impacts are expected to be short-term in nature.

## **VII. Administrative Requirements**

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

Under Executive Order 12866 (58 FR 51735, Oct. 4, 1993), the Agency is required to determine whether this regulatory action would be "significant" and therefore subject to review by the Office of Management and Budget (OMB) and the requirements of the Executive Order. The order defines a "significant regulatory action" as any regulatory action that is likely to result in a rule that may:

Have an annual effect on the economy of \$100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities;

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

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

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

Pursuant to the terms of Executive Order 12866, the Office of Management and Budget (OMB) has notified EPA that it considers this a "significant regulatory action" within the meaning of the Executive Order. This action was submitted to OMB for review as required by Executive Order 12866. For this reason, written comments from OMB on today's action and documents submitted to OMB are in the public docket for this rulemaking.

### **B. Regulatory Flexibility Analysis**

EPA has determined that it is not necessary to prepare a regulatory flexibility analysis in connection with this final rule. EPA has also determined that this rule will not have a significant economic impact on a substantial number of small entities. For purposes of assessing the impact of today's rule on small entities, small entities are defined as: (1) a small business that has no



more than 1,000 employees; (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.

After considering the economic impacts of today's final rule on small entities, EPA has concluded that this action will not have a significant economic impact on a substantial number of small entities. This final rule will not impose any requirements on small entities. The NCPs that are established by this final rule are for emission standards that pertain to heavy-duty diesel engines. When these emission standards were established, the final rulemaking (65 FR 59895, October 6, 2000) noted that only two small entities were known to be affected. Those entities were small businesses that certify alternative fuel engines or vehicles, either newly manufactured or modified from previously certified gasoline engines. The emission standards for heavy-duty diesel engines, for which NCPs are promulgated in this final rule, do not pertain to the engines manufactured by these businesses.

### **C. Compliance with the 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.* An Information Collection Request (ICR) document has been prepared by EPA (ICR No. 1285.05) and a copy may be obtained from Susan Auby by mail at U.S. Environmental Protection Agency (2822), Office of Environmental Information, Collection Strategies Division, 1200 Pennsylvania Avenue., NW, Washington, DC 20460, by email at [auby.susan@epamail.epa.gov](mailto:auby.susan@epamail.epa.gov), or by calling (202)566-1672. A copy may also be downloaded off the internet at <http://www.epa.gov/icr>. The following ICR document has been prepared by EPA:

EPA ICR #	Title
1285.05	Nonconformance Penalties for Heavy-Duty Engines and Heavy-Duty Vehicles, Including Light-Duty Trucks; Reporting and Recordkeeping Requirements

The Agency will collect information related to nonconformance penalties. This information will be used to ensure compliance with and enforce the provisions in this rule. Responses will be mandatory in order to complete the certification process. Section 206(g) of the Clean Air Act (Act) contains the nonconformance penalty provisions. Section 208(a) of the Clean Air Act requires that manufacturers provide information the Administrator may reasonably require to determine compliance with the regulations; submission of the information is therefore mandatory. EPA will consider confidential all information meeting the requirements of section 208(c) of the Clean Air Act.

This collection of information affects an estimated 2 respondents with a total of 52 responses per year and an total hour burden of 1,178 hours, for an estimated 23 hours per response, with estimated total annualized costs of \$18,200.00 per year. The hours and annual cost of information collection activities by a given manufacturer depends on manufacturer-

specific variables, such as the number of engine families, production changes, and so forth. Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information.

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

Comments are requested on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques. Send comments on the ICR to the Director, Collection Strategies Division, Office of Environmental Information, U.S. Environmental Protection Agency (2822); 1200 Pennsylvania Ave., NW, Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, 725 17th St., N.W., Washington, DC 20503, marked "Attention: Desk Officer for EPA." Include the ICR number 1285.05 in any correspondence.

#### **D. Unfunded Mandates Reform Act**

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), Public Law 104-4, establishes requirements for Federal agencies to assess the effects of their regulatory actions on State, local, and tribal governments and the private sector. Under section 202 of the UMRA, EPA generally must prepare a written statement, including a cost-benefit analysis, for proposed and final rules with "Federal mandates" that may result in expenditures to State, local, and tribal governments, in the aggregate, or to the private sector, of \$100 million or more in any one year. Before promulgating an EPA rule for which a written statement is needed, section 205 of the UMRA generally requires EPA to identify and consider a reasonable number of regulatory alternatives and adopt the least costly, most cost-effective or least burdensome alternative that achieves the objectives of the rule. The provisions of section 205 do not apply when they are inconsistent with applicable law. Moreover, section 205 allows EPA to adopt an alternative other than the least costly, most cost-effective or least burdensome alternative if the Administrator publishes with the final rule an explanation why that alternative was not adopted.

Before EPA establishes any regulatory requirements that may significantly or uniquely affect small governments, including tribal governments, it must have developed under section 203 of the UMRA a small government agency plan. The plan must provide for notifying potentially affected small governments, enabling officials of affected small governments to have meaningful and timely input in the development of EPA regulatory proposals with significant Federal intergovernmental mandates, and informing, educating, and advising small governments on compliance with the regulatory requirements.

This final rule contains no Federal mandates (under the regulatory provisions of Title II of the UMRA) for State, local, or tribal governments or the private sector. The final rule will impose no enforceable duty on any State, local or tribal governments or the private sector.

EPA has determined that this rule does not contain a Federal mandate that may result in expenditures of \$100 million or more for State, local, and tribal governments, in the aggregate, or the private sector in any one year. Because the use of NCPs is optional, manufacturers have the flexibility and will likely choose whether or not to use NCPs based on their ability to comply with emissions standards. Without NCPs, manufacturers must either modify the engine to be in compliance with the standards or withdraw the engine from the marketplace. The availability of NCPs provides manufacturers with a third alternative: continue production and introduce into commerce upon payment of a penalty an engine that exceeds the standard until an emission conformance technique is developed. Therefore, NCPs represent a regulatory mechanism that allows affected manufacturers to have increased flexibility. Thus, today's rule is not subject to the requirements of sections 202 and 205 of the UMRA.

EPA has determined that this rule contains no regulatory requirements that might significantly or uniquely affect small governments. The requirements of this rule apply only to the manufacturers of heavy-duty diesel engines.

#### **E. Executive Order 13175: Consultation and Coordination with Indian Tribal Governments**

Executive Order 13175, entitled "Consultation and Coordination with Indian Tribal Governments" (65 FR 67249, November 6, 2000), requires EPA to develop an accountable process to ensure "meaningful and timely input by tribal officials in the development of regulatory policies that have tribal implications."

This final rule does not have tribal implications as specified in Executive Order 13175. The non-conformance penalties and associated requirements in this final rule apply only to heavy-duty diesel engine manufacturers.

#### **F. National Technology Transfer and Advancement Act**

Section 12(d) of the National Technology Transfer and Advancement Act of 1995 (NTTAA), Section 12(d) of Public Law 104-113, 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) developed or adopted by voluntary consensus standards bodies. The NTTAA directs EPA to provide Congress, through OMB, explanations when the Agency decides not to use available and applicable voluntary consensus standards.

This final rule does not involve technical standards. Therefore, EPA did not consider the use of any voluntary consensus standards.

#### **G. Executive Order 13045: Children's Health Protection**

Executive Order 13045: "Protection of Children from Environmental Health Risks and Safety Risks" (62FR19885, April 23, 1997) applies to any rule that: (1) is determined to be "economically significant" as defined under Executive Order 12866, and (2) concerns an environmental health or safety risk that EPA has reason to believe may have a disproportionate effect on children. If the regulatory action meets both criteria, the Agency must evaluate the environmental health or safety effects of the planned rule on children, and explain why the planned regulation is preferable to other potentially effective and reasonably feasible alternatives considered by the Agency.

EPA interprets Executive Order 13045 as applying only to those regulatory actions that are based on health or safety risks, such that the analysis required under section 5-501 of the Order has the potential to influence the regulation. This final rule is not subject to Executive Order 13045 because it does not establish an environmental standard intended to mitigate health or safety risks and because it is not economically significant as defined in Executive Order 12866.

#### **H. 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 final rule does not have federalism implications. It will not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132. This final rule adopts NCPs for national emission standards for certain categories of motor vehicles. Thus, Executive Order 13132 does not apply to this rule.

#### **I. Executive Order 13211: Energy Effects**

This final rule is not a "significant energy action" as defined in Executive Order 13211, "Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use" (66 FR 28355, May 22, 2001) because it is not likely to have a significant adverse effect on the supply, distribution, or use of energy. As described in the 2000 final rule in which we affirmed the 2004 standard (65 FR 59896, Oct. 6, 2000), we have concluded that there would be no net long-term change in the fuel consumption performance of heavy-duty diesel engines as a result of the 2004 model year emission standards. However, there may be the potential for higher fuel consumption rates in the short term as diesel engine manufacturers work to balance the inherent tradeoff between control of NOx emissions and fuel consumption. The availability of NCPs for the 2004 and later model years provides manufacturers with another option for balancing this tradeoff and working towards optimizing fuel consumption and emissions - they would be able to

use NCPs to emit somewhat higher NO<sub>x</sub> levels than they would otherwise be allowed, while at the same time avoiding undesirable fuel consumption impacts. Thus, we have concluded that this final rule is not likely to have any significant adverse energy effects.

## **J. 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(a).

**List of Subjects in 40 CFR Part 86**

Administrative practice and procedure, Confidential Business Information, Motor vehicle pollution, Reporting and recordkeeping requirements.

Dated: August 1, 2002\_\_\_\_\_

---

Christine Todd Whitman,  
Administrator.

For the reasons set forth in the preamble, chapter I, title 40 of the Code of Federal Regulations is amended as follows:

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

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

**Authority:** 42 U.S.C. 7401 - 7521(l) and 7521(m) - 7671q.

2. Section 86.1105-87 is amended by revising paragraph (e) and by adding paragraph (i), to read as follows:

**§ 86.1105-87 Emission standards for which nonconformance penalties are available.**

\* \* \* \* \*

(e) The values of  $COC_{50}$ ,  $COC_{90}$ , and  $MC_{50}$  in paragraphs (a) and (b) of this section are expressed in December 1984 dollars. The values of  $COC_{50}$ ,  $COC_{90}$ , and  $MC_{50}$  in paragraphs (c) and (d) of this section are expressed in December 1989 dollars. The values of  $COC_{50}$ ,  $COC_{90}$ , and  $MC_{50}$  in paragraph (f) of this section are expressed in December 1991 dollars. The values of  $COC_{50}$ ,  $COC_{90}$ , and  $MC_{50}$  in paragraphs (g) and (h) of this section are expressed in December 1994 dollars. The values of  $COC_{50}$ ,  $COC_{90}$ , and  $MC_{50}$  in paragraph (i) of this section are expressed in December 2001 dollars. These values shall be adjusted for inflation to dollars as of January of the calendar year preceding the model year in which the NCP is first available by using the change in the overall Consumer Price Index, and rounded to the nearest whole dollar in accordance with ASTM E29-67 (reapproved 1980), Standard Recommended Practice for Indicating Which Places of Figures are to be Considered Significant in Specified Limiting Values. The method was approved by the director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. This document is available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, and is also available for inspection as part of Docket A-91-06, located at the Central Docket Section, EPA, 401 M Street, SW, Washington, DC or at the office of the Federal Register, 800 North Capitol Street, NW, suite 700, Washington, DC. This incorporation by reference was approved by the Director of the Federal Register on January 13, 1992. These materials are incorporated as they exist on the date of the approval and a notice of any change in these materials will be published in the Federal Register.

\* \* \* \* \*

(i) Effective in the 2004 model year, NCPs will be available for the following emission standard:

(1) Diesel heavy-duty engine non-methane hydrocarbon plus oxides of nitrogen standard of 2.4 grams per brake horsepower-hour (or alternatively, 2.5 grams per brake horsepower-hour with a limit on non-methane hydrocarbon emissions of 0.5 grams per brake horsepower-hour), in § 86.004-11(a)(1)(i).

(i) For light heavy-duty diesel engines:

(A) The following values shall be used to calculate an NCP in accordance with § 86.1113-87(a):

(1) COC<sub>50</sub>: \$1,240.

(2) COC<sub>90</sub>: \$2,710.

(3) MC<sub>50</sub>: \$2,000 per gram per brake horsepower-hour.

(4) F: 1.3.

(5) UL: 4.5 grams per brake horsepower-hour; notwithstanding § 86.1104-91.

(B) The following factor shall be used to calculate the engineering and development component of the NCP for the standard set forth in § 86.004-11(a)(1)(i) in accordance with § 86.1113-87(h): 0.403.

(ii) For medium heavy-duty diesel engines:

(A) The following values shall be used to calculate an NCP in accordance with § 86.1113-87(a):

(1) COC<sub>50</sub>: \$2,740.

(2) COC<sub>90</sub>: \$4,930.

(3) MC<sub>50</sub>: \$1,400 per gram per brake horsepower-hour.

(4) F: 1.3.

(5) UL: 4.5 grams per brake horsepower-hour; notwithstanding § 86.1104-91.

(B) The following factor shall be used to calculate the engineering and development component of the NCP for the standard set forth in § 86.004-11(a)(1)(i) in accordance with § 86.1113-87(h): 0.197.

(iii) For heavy heavy-duty diesel engines:

(A) The following values shall be used to calculate an NCP in accordance with § 86.1113-87(a):

(1) COC<sub>50</sub>: \$6,810.

(2) COC<sub>90</sub>: \$12,210.

(3) MC<sub>50</sub>: \$5,600 per gram per brake horsepower-hour

(4) F: 1.3.

(5) UL: 6.0 grams per brake horsepower-hour; notwithstanding § 86.1104-91.

(B) The following factor shall be used to calculate the engineering and development component of the NCP for the standard set forth in § 86.004-11(a)(1)(i) in accordance with § 86.1113-87(h): 0.090.

(iv) For diesel urban bus engines:

(A) The following values shall be used to calculate an NCP in accordance with § 86.1113-87(a):

(1) COC<sub>50</sub>: \$3,930.

(2) COC<sub>90</sub>: \$6,660.

(3) MC<sub>50</sub>: \$3,800 per gram per brake horsepower-hour

(4) F: 1.3.

(5) UL: 4.5 grams per brake horsepower-hour; notwithstanding § 86.1104-91.

(B) The following factor shall be used to calculate the engineering and development component of the NCP for the standard set forth in § 86.004-11(a)(1)(i) in accordance with § 86.1113-87(h): 0.155.

(2) [Reserved]