

**HEARING REPORT**

**Prepared Pursuant to Section 4-168(d)  
of the Connecticut General Statutes and  
Section 22a-3a-3(d)(5) of the Department of Environmental Protection Rules of Practice**

**Regarding Adoption of New Section 22a-174-36a of the  
Regulations of Connecticut State Agencies:  
Heavy-Duty Diesel Engines**

**Hearing Officer: Merrily A. Gere**

**Hearing Date: September 24, 2002**

**I. Introduction**

On July 2, 2002, the Deputy Commissioner of the Department of Environmental Protection ("Department") signed a notice of intent to propose new section 22a-174-36a of the Regulations of Connecticut State Agencies ("R.C.S.A.") concerning heavy-duty diesel engines. Pursuant to such notice, a public hearing was held on September 24, 2002. The public comment period for the proposed new section closed on September 24, 2002.

As required by section 4-168(d) of the Connecticut General Statutes ("C.G.S."), this report describes the section as proposed for hearing; the principal reasons in support of the Department's proposed section; the principal considerations presented in oral and written comments in opposition to the Department's proposed section; all comments and responses thereto on the proposed section; and the final wording of the proposed section. Those individuals who submitted timely comment are identified in Attachment 2.

This report also includes an explanation to comply with C.G.S. section 22a-6(h).

**II. Compliance with C.G.S. Section 22a-6(h)**

Section 22a-6(h) of the C.G.S. requires the Commissioner of the Department to distinguish clearly, at the time of public hearing, all provisions of a proposed regulation or revision thereto that differ from adopted federal standards and procedures, provided: (1) such proposed regulation pertains to activities addressed by adopted federal standards and procedures; and (2) such adopted federal standards and procedures apply to persons subject to the provisions of such proposed regulation. In addition, the Commissioner must provide an explanation for all such provisions in the regulation-making record required under Title 4, Chapter 54 of the Connecticut General Statutes.

In accordance with the requirements of C.G.S. section 22a-6(h), the Hearing Officer made a written statement available at the public hearing. Such statement, incorporated into the

administrative record for this matter, indicated that the Department intends that the requirements of proposed R.C.S.A. section 22a-174-36a ("Section 36a") are at least as stringent as any currently effective federal standard or procedure for the purpose of reducing air emissions from heavy-duty diesel engines ("HDDEs"). Adopted federal requirements include emission standards and test procedures for HDDEs that apply to manufacturers of 2007 and later model year engines.<sup>1</sup> In addition, the United States Environmental Protection Agency ("EPA") has adopted non-conformance penalties that allow an engine manufacturer to produce and sell a HDDE that does not comply with the federal emission standards if the manufacturer pays a monetary penalty.<sup>2</sup>

In relation to C.G.S. section 22a-6(h), it is important to note that while Section 36a intends to serve the same purpose as adopted federal engine emission standards, Section 36a does not require engine manufacturers to meet specific emission standards. Rather, through the state's police power, the proposed section prohibits the sale or transfer of a vehicle containing a 2005 or later model year HDDE in Connecticut unless the engine is certified for sale in California. California's certification requirements include engine emission standards and test procedures and apply to 2005 and later model year engines.

### **III. Summary, Background and Text of the Section as Proposed**

Section 36a establishes a program to reduce emissions from vehicles with HDDEs pursuant to C.G.S. Section 22a-174g. Any new vehicles equipped with HDDEs of model years 2005 and beyond sold or otherwise transferred in Connecticut must be approved for sale in California. The Department proposed Section 36a to fill a gap in federal regulation of HDDEs and to mitigate the potential harm that could result from increases in HDDE exhaust emissions during the gap.

#### ***Diesel Exhaust Emissions -- Environmental Health Impacts***

Diesel exhaust is a complex mixture of hundreds of constituents including carbon dioxide, nitrogen compounds, carbon monoxide, sulfur compounds, hydrocarbons and toxics. HDDE exhaust is also the third largest anthropogenic source of fine particulate matter in New England, which is highly respirable and able to reach the deep lung. Many of the organic compounds present on the particles in diesel exhaust and in the gases are individually known to have mutagenic and carcinogenic properties.

Short-term exposures to diesel exhaust emissions can cause eye irritation, nausea, contribute to lung damage and aggravate respiratory diseases such as asthma and bronchitis. People with existing heart or lung disease, asthma or other respiratory ailments are most sensitive along with children and the elderly. EPA recently released a comprehensive review of the possible health hazards associated with exposure to diesel engine exhaust based on HDDEs currently in use.<sup>3</sup> EPA concluded that long-term inhalation exposure poses a lung cancer hazard, damages the lung and contributes to premature death. A recent report by the United States Public Interest

---

<sup>1</sup> 65 Federal Register 59895 (2000).

<sup>2</sup> 67 Federal Register 51464 (2002).

<sup>3</sup> *Health Assessment Document for Diesel Exhaust*. US EPA EPA/600/8-90/057F (2002).

Research Group found, based on 1996 data, that Americans on average face more than a one-in-2,300 chance of developing cancer in their lifetimes as a result of breathing diesel exhaust emissions. Thirty-two percent of this added risk is from on-road diesel engines.<sup>4</sup> The California Air Resources Board, the National Institute for Occupational Health and Safety and the World Health Organization have also characterized diesel exhaust or diesel particulate matter as a probable or potential human carcinogen.<sup>5</sup>

### **Federal Regulation of HDDEs**

As knowledge of the negative health effects of diesel emissions has grown, EPA's regulation of diesel emissions has increased. EPA began regulating emissions of nitrogen oxides ("NOx") from HDDEs in 1984. EPA's NOx standards for HDDEs of model years 1998 through 2003 are more stringent, and manufacturers also must comply with associated federal test procedures.

Given the potential harm from diesel emissions, in 1998 EPA and the United States Department of Justice ("DOJ") assessed ***the largest civil penalty ever for a violation of an environmental law*** for the failure of seven HDDE manufacturers to comply with EPA's HDDE emission standards. The seven manufacturers together represented 60% of HDDE sales and 80-85% of the vehicle miles traveled by vehicles powered by HDDEs. The enforcement actions resulted in EPA and DOJ levying an \$83.4 million penalty against the seven manufacturers.

The seven manufacturers violated federal HDDE regulations by selling 1.3 million HDDEs containing illegal "defeat devices" that allowed an engine to pass an EPA emissions test, but then turned off emission control equipment to save fuel when the engine reached highway speeds. As a result, these engines emitted up to three times the legal limit of NOx. EPA estimates that the illegal activity of the seven manufacturers caused *over 1 million tons of excess NOx emissions in 1998 alone -- almost 16 million tons over the span of the violation*. The excess 1998 NOx emissions are equivalent to an additional 65 million cars being on the road. Such NOx emissions contribute to smog and acid rain, cause adverse health effects and aggravate respiratory problems such as bronchitis and asthma.

DOJ, EPA and the seven manufacturers resolved the cases through settlement agreements. In 1998, they agreed to judicial consent decrees that imposed substantial penalties on the manufacturers and required them to achieve additional emissions reductions. According to EPA, the total settlement:

- Imposed \$83.4 million in civil penalties – the largest civil penalty ever for violating an environmental law;
- Resulted in the manufacturers spending at least \$850 million to produce significantly cleaner engines by October 1, 2002;<sup>6</sup> and
- Increased funding for additional environmental projects like development of new emission

<sup>4</sup> U.S. PIRG, *Dangers of Diesel: How Diesel Soot and Other Air Toxics Increase Americans Risk of Cancer* (October 2002), at 18.

<sup>5</sup> *Id.*

<sup>6</sup> However, EPA has not met its October 1, 2002 deadline to certify that the newly produced HDDEs are as clean as the consent decrees required. EPA granted all subject new HDDEs conditional approval through December 2002, by which time EPA anticipates resolving issues that prevented timely testing and approval.

control technologies by \$109.5 million.

The individual manufacturers were assessed the following violations and settlements:

- Caterpillar Inc. produced 320,000 engines with defeat devices resulting in 2.1 million tons of excess NOx emissions. This company paid a civil penalty of \$25 million and will conduct environmental projects costing \$35 million;
- Cummins Engine Company produced 400,000 engines with defeat devices resulting in 3.6 million tons of excess NOx emissions. This company paid a civil penalty of \$25 million and will conduct environmental projects costing \$35 million;
- Detroit Diesel Corp. produced 430,000 engines with defeat devices resulting in 9.0 million tons of excess NOx emissions. This company paid a civil penalty of \$12.5 million and will conduct environmental projects costing \$12 million;
- Mack Trucks, Inc. and its business partner, Renault Vehicules Industriels, s.a., produced 90,000 engines with defeat devices resulting in 860,000 tons of excess NOx emissions. These companies paid a civil penalty of \$13 million and will conduct environmental projects costing \$18 million;
- Navistar International Transportation Company produced 78,000 engines with defeat devices resulting in 40,000 tons of excess NOx emissions. This company paid a civil penalty of \$2.9 million; and
- Volvo Truck Corporation produced 10,000 engines with defeat devices resulting in 148,000 tons of excess NOx emissions. This company paid a civil penalty of \$5 million and will conduct environmental projects costing \$9 million.

In addition to penalties, the consent decrees required the settling manufacturers to produce HDDEs that comply with more stringent emissions standards and supplemental test procedures as of October 1, 2002.<sup>7</sup> Conforming engines are 50% cleaner than previously produced engines. The supplemental test procedures, known as the Not-to-Exceed ("NTE") test and the Euro III Stationary Cycle ("ESC") test, ensure that emissions are properly controlled during real world operation. However, the NTE and ESC tests only apply to 2003 and 2004 model years.

### **The Federal Regulatory Gap**

At the time the consent decrees were signed, EPA anticipated that its new HDDE rules, which included the NTE and ESC tests, would begin to apply to model year 2004 HDDEs. However, the application of the new federal rules was delayed until 2007, creating a two model year gap between the expiration of the consent decree test requirements and EPA's 2007 HDDE rules. The gap creates an opportunity for serious "backsliding" in which the settling manufacturers use less efficient emissions controls to boost fuel economy in 2005 and 2006 model year HDDEs. As a result of backsliding, diesel exhaust emissions could increase significantly above the consent decree levels -- perhaps over 800,000 tons over the lifetime of the engines, or the equivalent of nearly 30 million cars on the road.

Further contributing to the risk of HDDE emissions increases, EPA announced in September 2002 that it would not meet the October 1, 2002 deadline to test and approve new model HDDEs

---

<sup>7</sup> See note 6 *supra*.

under the consent decrees. EPA granted all subject HDDE manufacturers conditional certification of new engines through December 2002, by which time EPA anticipates resolving issues that prevented timely testing and approval.

### **California and Other States Regulations Fill the Gap**

In order to prevent backsliding, the California Air Resources Board ("CARB") filled the federal gap with a rule requiring 2005 and 2006 model year HDDEs to comply with the NTE and ESC tests. *See* Title 13, Section 1956.8 of the California Code of Regulations. The California NTE and ESC test requirements are intended to be identical in stringency to the testing provisions of the consent decrees and therefore allow settling manufacturers to continue to manufacture lower emitting consent decree engines beyond 2004. Other states have the authority to require the same procedures as California under Clean Air Act ("CAA") Section 177, a method known as "opting in." CAA Section 177 prohibits a state from adopting motor vehicle emissions standards that differ from those of California.<sup>8</sup>

Recognizing the need to reduce emissions from diesel vehicles and the opportunity to close the gap in federal HDDE regulation using the California HDDE requirements, two multi-state organizations endorsed state adoption of California's HDDE requirements. On December 11, 2000, Connecticut along with the eleven other states and District of Columbia composing the Ozone Transport Commission signed a memorandum of understanding supporting the adoption of HDDE standards. The memorandum of understanding is included as Attachment 4 to this report. In November 2000, the State and Territorial Air Pollution Program Administrators and the Association of Local Air Pollution Control Officials ("STAPPA/ALAPCO") launched a multi-state clean diesel initiative to facilitate the efforts of states' exercising their authority under CAA Section 177 to opt in to California's requirements for new on-road heavy-duty diesel engines. STAPPA/ALAPCO developed model rules and support materials to assist States interested in adopting California's NTE and ESC test procedures for new HDDEs and achieve the associated reductions in NOx and other air pollutants. Thirteen states have adopted the California HDDE requirements. STAPPA/ALAPCO estimates that these thirteen states account for over 40% of HDDE sales. Multi-state adoption of the HDDE requirements not only allows realization of the anticipated air quality benefits, but also reduces the per engine cost of producing cleaner HDDEs by increasing the size of the market. Section 36a achieves the same goal as these state regulations that adopt the California HDDE requirements pursuant to CAA Section 177 -- minimization of backsliding and associated pollutant emissions.

Rather than adopt the California requirements pursuant to CAA Section 177, Section 36a uses a sales requirement and prohibition to achieve the same result as Section 177 state rules. In requiring that any new vehicles with HDDEs of model year 2005 and beyond sold or otherwise transferred in Connecticut are approved for sale in California, Section 36a makes use of the knowledge and expertise of CARB, which is recognized by the federal government as the authority on emissions reductions strategies for the mobile source sector. Such reliance makes

---

<sup>8</sup> Note that Section 36a does not fall within the applicability of CAA Section 177 because it does not adopt emissions standards or test procedures.

best use of limited state resources and expertise, avoids duplication in effort and avoids potential regulatory inconsistency.

A copy of the Section 36a as proposed at public hearing is in Attachment 1 to this report.

#### **IV. Principal Reasons in Support of the Proposed Section**

Section 36a is proposed to meet commitments made by the Department to EPA in the SIP to reduce emissions of ozone precursors in order to make progress towards achievement of EPA's national ambient air quality standard ("NAAQS") for ozone. As explained in Section III of this report, Section 36a addresses the potential for "backsliding" from HDDE emissions requirements by manufacturers in the production of model year 2005 and 2006 HDDEs. The potential for such backsliding results from a gap in federal regulation of HDDEs between the expiration in 2004 of consent decrees between EPA and the large engine manufacturers and new federal HDDE standards scheduled to become effective with model year 2007. In conjunction with similar requirements recently adopted by other states in the Northeast region, Section 36a will fill the federal regulatory gap, increase the market for cleaner HDDEs and aid the successful reduction of emissions from HDDEs.

According to EPA data, highway diesel engines in Connecticut account for as much as twenty-four percent of total NOx emissions and seven percent of particulate matter emissions in the state. Reductions in NOx and other ozone precursors are particularly important to Connecticut to reduce levels of ground-level ozone, the only pollutant for which Connecticut has not achieved the NAAQS. Given the high levels of ozone that Connecticut experienced in this year's ozone season, the Department must exercise every opportunity to reduce diesel emissions and any harmful result to human health and the environment. NOx and other diesel emission reductions also achieve environmental benefits such as reductions in particulate matter levels, acid rain and eutrophication, a particular concern in Long Island Sound. The Department recognizes reductions in emissions from HDDEs as a priority strategy to maintain and improve Connecticut's air quality in its *2002 Environmental Quality Branch Strategic Plan*.

#### **V. Principal Considerations in Opposition to the Proposed Section**

Comments in opposition to Section 36a fall into four categories: Section 36a is contrary to federal law, in part because California's engine certification requirements are contrary to federal law; Section 36a will require the use of California low aromatic hydrocarbon diesel fuel, and the Department has not assured the availability of such fuel; the regulation of HDDE emissions by the Department is unnecessary and will achieve little air quality benefit at too great a cost; and Section 36a cedes too much authority to CARB. Such comments and the Department's responses are set forth in detail in Section VI of this report.

#### **VI. Summary of Comments**

All individuals submitting timely comment on Section 36a are identified in Attachment 2 to this report. Late-filed comments were not considered in preparation of this report. Summaries of the comments submitted and the Department's responses are as follows:

Comment by the Environmental Protection Agency ("EPA")

**1. Comment:** EPA supports the proposal of Section 36a as a supplement to federal requirements in order to achieve emissions reductions expected from HDDEs as credited in the SIP.

**Response:** The Department appreciates EPA's support for the proposal of Section 36a.

Comments by State Environmental Agencies: Delaware Department of Natural Resources and Environmental Control, Georgia Department of Natural Resources, Massachusetts Department of Environmental Protection, New Jersey Department of Environmental Protection, Pennsylvania Department of Environmental Protection

**2. Comment:** The above-identified state environmental agencies support the proposal of Section 36a. Each of the states has adopted similar requirements due to concern about the potential for backsliding by HDDE manufacturers during the gap in federal regulation between the expiration of consent decrees between EPA and the large engine manufacturers in 2004 and new federal standards scheduled to become effective in 2007. If a sufficient number of states adopt such requirements, the opportunity for backsliding by HDDE manufacturers will be reduced. The state agencies further note the importance of multi-state adoption of HDDE requirements to the successful reduction of emissions from HDDEs in the Northeast region, which will allow for states to continue to progress towards meeting CAA goals.

**Response:** The Department appreciates the support of the surrounding states. The reasons expressed by the surrounding states are in agreement with those that resulted in the proposal of Section 36a.

Comment by Environment Northeast ("ENE")

**3. Comment:** ENE supports the proposal of Section 36a to fill the gap in federal regulation HDDEs between the expiration of the 1998 consent decrees between EPA and the major manufacturers and the 2007 federal HDDE standards. If Section 36a is adopted and enforced along with similar state rules in the other thirteen states in the Ozone Transport Region, 62 tons of NOx emissions are projected to be avoided in the year 2006.

**Response:** The Department appreciates the support of ENE.

**4. Comment:** Section 36a does not include specific reporting, enforcement or penalty provisions. Without such provisions, Section 36a may not be effective at achieving the intended emission reductions.

**Response:** The Department of Motor Vehicles ("DMV") will ensure compliance through the vehicle registration process. DMV will make registration of HDDEs contingent on the registrant possessing a valid manufacturer's certificate of origin stating that the subject engine is approved by CARB for sale in the State of California. Thus, the state will ensure reporting and enforcement of the requirements of Section 36a. The penalty for failure to possess the necessary documentation is a denial of registration.

**5. Comment:** The applicability requirements in subsection (b) and prohibitions of subsection (c) do not clearly apply to an existing heavy-duty motor vehicle with a new HDDE. Section 36a

should clearly state its applicability to a 2005 or later model year HDDE in an existing vehicle.

**Response:** I recommend the Department revise subsections (b) and (c) of Section 36a by deleting the word "new" and, in subsection (b), adding the word "all" prior to "heavy-duty motor vehicles." Through these changes, the section will clearly apply to 2005 and later model year HDDEs in any motor vehicle, as follows:

**(b) Applicability.**

This section shall apply to all heavy-duty diesel engines produced for the model year 2005 and subsequent model years and to ~~new~~ all heavy-duty motor vehicles containing such engines that are sold, leased, offered for sale or lease, imported, delivered, purchased, rented, acquired or received, in the State of Connecticut except that this section shall not apply to such engines in vehicles listed in subsection (d).

**(c) Prohibitions.**

(1) No person shall sell, lease, rent, import, deliver, or offer for sale, lease or rental a ~~new~~ heavy-duty motor vehicle in the State of Connecticut containing a heavy-duty diesel engine that is subject to this section unless the owner or lessor possesses documentation for such vehicle showing that such ~~new~~ heavy-duty diesel engine is approved by CARB for sale in the State of California.

(2) No person shall purchase, acquire or receive a ~~new~~ heavy-duty motor vehicle in the State of Connecticut containing a heavy-duty diesel engine that is subject to this section unless such person possesses documentation for such vehicle showing that such ~~new~~ heavy-duty diesel engine is approved by CARB for sale in the State of California.

(3) Documentation sufficient to satisfy subdivisions (1) and (2) of this subsection shall include an executive order or a valid manufacturer's certificate of origin stating that the subject engine is approved by CARB for sale in the State of California.

I also recommend that the Department delete the definitions of "new motor vehicle" and "ultimate consumer" in subsection (a) as those terms are not necessary given the above-recommended revision of subsections (b) and (c).

**6. Comment:** The exemption in subsection (d) for "special mobile equipment" is not necessary, as such equipment appears to consist of non-road vehicles. Any "special mobile equipment" that is designed for on-road use should meet the requirements of Section 36a.

**Response:** The exemption for "special mobile equipment" clarifies that the section will not apply to heavy equipment designed primarily for off-road use. The exemption

conforms to other requirements of the Department of Motor Vehicles.

**7. Comment:** Subsection (d) does not include an exemption for "ultra-small volume manufacturers," which is defined in California regulations as those manufacturers producing fewer than 300 engines per year for sale in California.

**Response:** Section 36a does not include exemptions for HDDEs that are exempt from California's HDDE requirements under Title 13, Section 1956.8 of the California Code of Regulations. The statement in a manufacturer's certificate of origin concerning compliance with California's motor vehicle requirements is based on California's requirements as applied. Section 36a does not apply to and will not be enforced against HDDEs exempt from California's HDDE regulations.

Comment by Engine Manufacturers Association ("EMA"), International Truck and Engine Corporation ("International"), Motor Transport Association of Connecticut ("MTAC"), Atlantic Detroit Diesel-Allison ("Detroit Diesel"), Connecticut Bus Association ("CBA")

Comments by the above-listed organizations that represent manufacturers and operators of HDDEs fall into four general categories: legality under the Clean Air Act; fuel requirements and availability; costs versus benefits; and reliance on CARB requirements. Comments in each category are addressed below.

**Legality under the Clean Air Act**

**8. Comment:** California failed to demonstrate that its requirements are technologically feasible, as required by the CAA. (EMA and International)

**Response:** The commenters question the legality of Section 36a based on an assertion that the California regulations that purportedly form the basis of Section 36a are contrary to the requirements of the CAA. This objection to Connecticut's proposal of Section 36a is based on the interpretation that Section 36a "adopt[s] certain California vehicle emissions regulations, including the California Not-to-Exceed ('NTE') and other supplemental emissions standards and test procedures." (International at page 1)

However, Section 36a as drafted does not adopt California's emission standards or test procedures. Rather, Section 36a requires only that engines sold in Connecticut are certified for sale in California under Title 13, Section 1956.8 of the California Code of Regulations. Since Section 36a does not adopt "any model year standards relating to control of emissions from new motor vehicles or new motor vehicle engines," the "opt-in" requirements of CAA Section 177 are not applicable. Thus, the legality of Section 36a is based on California law only to the extent that California followed the required state administrative procedures to adopt Title 13, Section 1956.8 of the California Code of Regulations. California did exactly that, and CARB's amendments to Section 1956.8 which were proposed on December 7, 2000 and approved by CARB on December 8, 2000, became effective in the State of California on July 25, 2001 when the regulation was filed with the Secretary of the State of California.

While the status of California's NTE rule under the CAA is not pertinent to the adoption of Section 36a, the comment is based on the additional misconception that California's December 2000 HDDE amendments include new emission standards. California's December 2000 amendments did not change emissions standards established prior to the amendments. *See CARB's Final Statement of Reasons for Rulemaking, Including Summary of Comments and Agency Responses.*

**9. Comment:** The NTE and ESC provisions that California has adopted are not merely add-on tests to enforce HDDE emissions standards, but are effectively standards in and of themselves and are subject to Section 209(b) of the CAA. (EMA and International)

**Response:** The status of California's NTE rule under the CAA is not pertinent to the adoption of Section 36a. As explained above in response to Comment 8, Section 36a does not adopt California's motor vehicle engine emission standards or test procedures.

**10. Comment:** The adoption by Connecticut of the California NTE test procedures and other emissions standards at this time is inconsistent with Section 177 of the CAA, which provides that states may adopt California emissions standards only after California has obtained a waiver of preemption from EPA under CAA Section 209(b). California has not yet applied for or received this waiver. (EMA, International and MTAC)

**Response:** As explained above in response to Comment 8, Section 36a does not adopt California's emission standards or test procedures. Rather, Section 36a requires only that engines sold in Connecticut are certified for sale in California under Title 13, Section 1956.8 of the California Code of Regulations. Since Section 36a does not adopt emission standards for HDDEs, the "opt-in" requirements of CAA Section 177 are not applicable.

**11. Comment:** California failed to meet the lead time and stability requirements under CAA Section 202(a) for adoption of new standards. (EMA and International)

**Response:** As explained above in response to Comment 8, Section 36a is not subject to the CAA requirements for a state's adoption of California's motor vehicle engine emission standards because Section 36a does not adopt such emissions standards. Therefore, the comment does not apply to Section 36a.

**12. Comment:** California's December 8, 2000 NTE regulations are the subject of a legal challenge filed in federal district court in California. Given the pendency of litigation concerning these regulations, Connecticut's adoption of such standards would be premature. (EMA, International and MTAC)

**Response:** As explained above in response to Comment 8, California's NTE regulations were duly adopted under California administrative law. Furthermore, the Department is not aware of any finding from a court that the California NTE regulations are unlawful.

### **Fuel Requirements and Availability**

**13. Comment:** Connecticut will not have California low aromatic hydrocarbon diesel fuel available for vehicles with HDDE subject to Section 36a and does not include requirements to ensure such fuel availability. A vehicle operating on federal in-use fuel could be in violation of its California certification, which could be interpreted as a misfueling violation under Section 211(g) of the CAA and the identity requirements of Section 177. (International)

**Response:** Section 36a only requires that the applicable engines are certified as meeting California's NTE standards and does not include requirements as to the fuel used for such certification. Further, Section 36a does not specify an in-use fuel requirement.

Currently, California certified vehicles registered in California are not prohibited from crossing state boundaries and fueling with federal fuel nor does this put the person who fuels a California certified vehicle in another state in violation of Section 211(g) of the CAA. The requirements of CAA Section 211(g) are even more clearly inapplicable to vehicles operating under Section 36a since Section 36a includes no engine emission standards.

#### **Costs Versus Air Quality Benefits**

**14. Comment:** Regulation of HDDE emissions by CARB and EPA is sufficient. Section 36a is an unnecessary addition to California and federal regulation and will realize little measurable air quality benefit, particularly when compared to the administrative costs to adopt the section and the costs of compliance by engine manufacturers. (EMA, Detroit Diesel, CBA)

**Response:** As explained in Section III of this report, state regulation of 2005 and later model year HDDEs is crucial to prevent increases in NOx emissions that may result from manufacturer backsliding during the federal gap in HDDE regulation. Regulation by the State of California alone during the 2005 and 2006 model years is not sufficient to minimize the risk of backsliding. Multi-state adoption of CARB's NTE and ESC requirements creates a market share large enough to minimize backsliding and reduce the per engine costs. This is the underlying premise of all the OTC member-states signing the memorandum of understanding located at Attachment 4 to this report. In addition to supporting the multi-state effort and increasing the market share for cleaner HDDEs, Section 36a is a necessary and vital component to Connecticut's programs to control emissions of sulfur, NOx, particulate matter and toxics and would particularly assist in plans to attain and maintain the national ambient air quality standards ("NAAQS") for ozone. According to EPA data, highway diesel engines account for as much as twenty-four percent of total NOx emission in the state. Reductions in such NOx emissions will assist Connecticut's efforts to bring the severe ozone nonattainment area, of which southwestern Connecticut is a portion, to attainment. Furthermore, the Department has identified reduction in HDDE emissions as a high-priority strategy to maintain and improve the state's air quality.

The Department assessed the air quality impacts of adopting Section 36a as compared to having the federal HDDE requirements with the 2005 and 2006 model year gap apply in Connecticut. Over the lifetime of a single model year 2005 or 2006 HDDE, the amount

of excess NOx emissions is approximately five tons.<sup>9</sup> If Section 36a is not implemented, Connecticut will realize an increase of approximately three tons of NOx per day in calendar years 2005 and 2006, a total of approximately 1200 tons of excess NOx emissions in calendar years 2005 and 2006 combined.<sup>10</sup> Additional substantial increases in NOx emissions would be expected for as long as 2005 and 2006 model year engines remained in use, approximately thirty years. Since NOx is an ozone precursor, such reductions in NOx emissions are particularly important in Connecticut to assist Connecticut to achieve and maintain the NAAQS for ozone. As explained in Section III above, Section 36a will also reduce the levels of other components of diesel exhaust emissions that are linked to adverse human health effects including lung damage, lung cancer and aggravation of respiratory illnesses. Furthermore, with numerous other and neighboring states adopting the California regulations using Section 177 of the CAA, Connecticut expects to realize the estimated emissions gains of this multi-state effort.

The cost effectiveness of the NOx reductions from Section 36a is anticipated to be at the lower range of those from other measures adopted by Connecticut to reduce NOx emissions. CARB calculated the cost-effectiveness of the California NTE and ESC test procedures for all heavy-duty vehicles based on predicted California sales at \$0.17 per pound of NOx reduced for all heavy-duty vehicles. Assuming a similar per pound cost in Connecticut, reductions anticipated from Section 36a are a fraction of the estimated cost of several dollars per pound of NOx removed for recent state stationary source control measures such as the NOx Budget Program under R.C.S.A. section 22a-174-22b.

As explained in response to Comment 16 below, the costs to engine manufacturers are not anticipated to be unduly burdensome. CARB and EPA estimate the lifetime cost to manufacturers per 2005 and 2006 model year HDDE of the NTE and ESC supplemental tests to be approximately \$800.<sup>11</sup> Furthermore, manufacturers are required to produce conforming engines for 2005 and later model year engines under state regulations in California and thirteen other states, including many states in the Northeast (*i.e.*, Pennsylvania, New Jersey, New York, Massachusetts, Maine and Rhode Island), and several manufacturers have already demonstrated engines that comply with the state requirements. Therefore, the anticipated costs in Connecticut would not be fully realized.

**15. Comment:** The regulation is not necessary at all given that new federal emissions standards for HDDEs take effect October 1, 2002. (CBA)

**Response:** The emissions standards to which CBA refers are required under the federal

---

<sup>9</sup> As estimated in CARB's *Staff Report and Initial Statement of Reasons on Amendment to Adopt NTE and ESC Emission Test Procedures for the 2005 and Subsequent Model Year Heavy-Duty Diesel Engines* (October 20, 2000). Also, the same estimate is used in the Massachusetts Department of Environmental Protection emissions analysis on adoption of 310 CMR 7.40.

<sup>10</sup> Excess emissions were calculated as a percent of the total tons per day of excess NOx emissions estimated in California for the 2005 and 2006 model years based on the heavy-duty diesel vehicle miles traveled in California compared to those in Connecticut, and adjusting the result to an annual basis.

<sup>11</sup> CARB Staff Report at 34.

consent decrees between EPA and the seven HDDE manufacturers who violated federal engine certification regulations. As explained in Section III of this report, these consent decrees are scheduled to expire and the requirement to comply with the NTE and ESC test procedures will not apply to HDDEs of model years 2005 and 2006; new federal standards for HDDEs are not scheduled to take effect until 2007. Section 36a and regulations adopted in other states are necessary to fill this gap in federal regulation of the large manufacturers and the potential for "backsliding" by the manufacturers and associated increases in NO<sub>x</sub> emissions of up to 800,000 tons over the life of the model year 2005 and 2006 HDDEs.

Furthermore, as also explained in Section III of this report, EPA has not met its deadline to certify HDDEs as conforming to the October 1, 2002 consent decree standards and has granted conditional approval through December 2002 to all subject HDDEs. EPA's conditional approval increases the risk of new HDDEs failing to achieve the emissions reductions anticipated under the consent decrees. Furthermore, the risk for further delay in EPA's certification of new HDDEs exists if EPA does not resolve the issues that prevented timely approval with due haste.

**16. Comment:** Manufacturers will pass the compliance costs of Section 36a to end-users, which include the costs from decreased fuel economy resulting from the weight of the emission control equipment. Increased fuel costs are a particular burden given current high fuel prices and increasing fuel taxes. (Detroit Diesel)

**Response:** As stated in response to Comment 14, the need to produce HDDEs with lower emissions is not created by the promulgation of Section 36a. Rather, Section 36a is one addition to state regulations already adopted in thirteen other states that account for approximately 40% of HDDE sales. If enough states adopt the HDDE regulations, HDDE manufacturers will be effectively subject to nationwide emissions requirements for model years 2005 and 2006. This will minimize the likelihood of backsliding and allow Connecticut and all states to progress towards meeting air quality goals, while also reducing the per engine cost of manufacturing cleaner HDDEs by increasing the size of the market.

Detroit Diesel estimates that the costs of state HDDE requirements will result in additional retail costs per vehicle of \$4,500 to \$8,000, which is a relatively small percent of the average retail cost of approximately \$108,000 per heavy-duty vehicle as estimated by the Massachusetts Department of Environmental Protection in its *Background Document and Technical Support for Proposal and Adoption of HDDE requirements, 310 CMR 7.40*.<sup>12</sup> With the market created by the Ozone Transport Region states and other states adopting 2005 and 2006 model year HDDE requirements, any potential burden on Connecticut business is significantly decreased. Furthermore, any price disadvantage would last for only two years, until EPA's 2007 HDDE requirements

---

<sup>12</sup> Also as estimated in EPA's *Final Regulatory Impact Analysis: Control of Emissions of Air Pollution from Highway Heavy-Duty Engines* (July 2000). Costs are in year 2000 dollars.

became effective.

The market prices for fuel vary over time and are outside of the control of the Department. Likewise, fuel taxes are outside of the control of the Department.

**17. Comment:** Section 36a will have an adverse impact on HDDE manufacturers since users, fearful of investing in new engines with undemonstrated reliability, will delay new engine purchases. This will cause reductions in production and workforce. This "wait and see" attitude will also negatively impact the environment since older HDDEs will remain in-use. (Detroit Diesel, CBA)

**Response:** Many of the states that have adopted or have expressed a commitment to adopt HDDE requirements are located in the northeastern Ozone Transport Region of which Connecticut is included. This group of states represents a large portion of the HDDE and vehicle market, and the Department believes that this will be a sufficient market share for the realization of a *de facto* national program.

The reluctance of users to purchase new HDDEs adds more weight to the importance of state regulations that address the 2005 and 2006 gap in federal regulation. Without such state regulation, the manufacturer's "wait and see" approach would persist until 2007. Widespread state adoption of HDDE rules will stabilize the market and achieve the intended health and environmental benefits sooner rather than later. Concerns related to the reliability of new HDDEs are short-term. The Department views the anticipated air quality benefits over time to justify the costs of compliance.

#### **Reliance on CARB Requirements**

**18. Comment:** Section 36a relies too heavily on an out-of-state appointed board (*i.e.*, CARB) to determine the HDDEs suitable for sale in Connecticut. (MTAC, CBA) The regulation "transfers, for all time," the Department's authority "to adopt, amend or repeal, heavy-duty diesel regulations to the California Air Resources Board." (MTAC at page 2)

**Response:** To the extent that the Department is relying on CARB to determine requirements to control pollutant emissions from HDDEs, such reliance is appropriate as California is the recognized authority on emissions reduction strategies for the mobile source sector. The federal government recognizes the experience and judgement of CARB in this arena by limiting state regulation of motor vehicles and engines to either federal law or that of California. *See, e.g.*, CAA Sections 177 and 209. No other state or organization is considered to have the combination of knowledge and experience necessary to determine motor vehicle engine emission requirements.

Reliance on the demonstrated expertise of CARB makes good sense, particularly in difficult economic times marked by constraints in state budgets. Such reliance leverages limited resources and expertise, avoids duplication in effort and avoids potential regulatory inconsistency that burdens the regulated community and inhibits compliance efforts.

The concern that Connecticut is transferring from this day forward all of its regulatory authority over to CARB is a general misconception about the status of an administrative regulation. First, any changes that CARB may make to the requirements in Title 13, Section 1956.8 of the California Code of Regulations as they are in effect on the date that Section 36a becomes effective are not automatic requirements of Section 36a. Section 36a is limited to the law in effect in California at the time Section 36a is adopted. Furthermore, the Department is free in the future to amend or repeal Section 36a as may be necessitated by changes in the federal or California regulation of HDDs or the relative importance of emissions from regulated HDDs. The authority of Connecticut administrative agencies to propose regulatory amendments and the Connecticut legislature to approve regulations is in no way altered or eliminated by Section 36a.

## **VII. Final Text of Proposed Section**

The final text of Section 36a revised as indicated in this hearing report is located at Attachment 3 to this report.

## **VIII. Conclusion**

Based upon the comments submitted by interested parties and addressed in this Hearing Report, I recommend the proposed final regulation, as contained herein in Attachment 3, be submitted by the Commissioner of Environmental Protection for approval by the Attorney General and the Legislative Regulations Review Committee. Based upon the same considerations, I also recommend this proposed regulation, upon promulgation, be submitted to the U.S. Environmental Protection Agency as a revision to the Connecticut State Implementation Plan for Air Quality.

---

/s/ Merrily A. Gere  
Hearing Officer

October 15, 2002  
Date

**Attachment 1**  
**Section 36a as Proposed at Public Hearing**

The Regulations of Connecticut State Agencies are amended by adding section 22a-174-36a, as follows:

**(NEW)**

**Sec. 22a-174-36a. Heavy-duty diesel engines.**

**(a) Definitions.** For purposes of this section, the following definitions shall apply:

(1) “Approved by CARB for sale in the State of California” means, with respect to a heavy-duty diesel engine and a heavy-duty motor vehicle containing such engine, CARB has made a finding that such heavy-duty diesel engine meets all applicable standards for certification and sale in California.

(2) “CARB” means the California Air Resources Board.

(3) “Certification” means a finding by CARB that a heavy-duty diesel engine or heavy-duty diesel engine family has satisfied the criteria adopted by CARB for the control of specified air contaminants contained in Title 13, Section 1956.8 of the California Code of Regulations.

(4) “Executive order” means a document issued by CARB stating that a specified heavy-duty diesel engine family or model year heavy-duty diesel engine meets all applicable requirements of Title 13 of the California Code of Regulations for certification and sale in California.

(5) “Heavy-duty diesel engine” means a diesel engine that is used to propel a motor vehicle with a gross vehicle weight rating of 14,001 pounds or greater.

(6) “Heavy-duty motor vehicle” means a motor vehicle with a gross vehicle weight rating of 14,001 pounds or greater.

(7) “Manufacturer’s certificate of origin” means “manufacturer’s or importer’s certificate of origin” as defined in Section 14-165 of the Connecticut General Statutes.

(8) “Model year” means “model year” as defined in Section 22a-174-36 of the Regulations of Connecticut State Agencies.

(9) “New motor vehicle” means “new motor vehicle” as defined in Section 14-1 of the Connecticut General Statutes.

(10) “Ultimate consumer” means “ultimate consumer” as defined in Section 14-1 of the Connecticut General Statutes.

**(b) Applicability.**

This section shall apply to all heavy-duty diesel engines produced for the model year 2005 and subsequent model years and to new heavy-duty motor vehicles containing such engines that are sold, leased, offered for sale or lease, imported, delivered, purchased, rented, acquired or received, in the State of Connecticut except that this section shall not apply to such engines in vehicles listed in subsection (d).

**(c) Prohibitions.**

(1) No person shall sell, lease, rent, import, deliver, or offer for sale, lease or rental a new heavy-duty motor vehicle in the State of Connecticut containing a heavy-duty diesel engine that is subject to this section unless the owner or lessor possesses documentation for such vehicle showing that such new heavy-duty diesel engine is approved by CARB for sale in the State of California.

(2) No person shall purchase, acquire or receive a new heavy-duty motor vehicle in the State of Connecticut containing a heavy-duty diesel engine that is subject to this section unless such person possesses documentation for such vehicle showing that such new heavy-duty diesel engine is approved by CARB for sale in the State of California.

(3) Documentation sufficient to satisfy subdivisions (1) and (2) of this subsection shall include an executive order or a valid manufacturer's certificate of origin stating that the subject engine is approved by CARB for sale in the State of California.

**(d) Exemptions.**

The following heavy-duty motor vehicles shall not be subject to this section:

(1) A vehicle transferred by inheritance;

(2) A vehicle transferred by decree of divorce, dissolution or legal separation entered by a court of competent jurisdiction;

(3) A vehicle purchased by a nonresident or nonresident business prior to establishing residency in the State of Connecticut;

(4) A vehicle sold for the purpose of being scrapped or dismantled;

(5) A vehicle sold directly from one dealer to another dealer;

(6) A vehicle sold for registration out of state;

(7) A vehicle designed and sold exclusively for use as "special mobile equipment" as defined in Section 14-165 of the General Statutes;

- (8) A vehicle which has been designated to meet the standards promulgated pursuant to the authority contained in 42 U.S.C. 7521 and that is either:
- (a) In the possession of a rental agency in Connecticut and is next rented with a final destination outside of Connecticut; or
  - (b) Registered by a rental agency in a state other than Connecticut and rented for use in Connecticut until return to the state of registration; or
- (9) A vehicle that is an ambulance or emergency medical service organization vehicle, a fire department vehicle or a state or local police vehicle driven entirely or primarily in the course of providing medical, fire protection or police services.

**Statement of Purpose:** This section establishes a program to reduce emissions from heavy-duty diesel vehicles pursuant to Section 22a-174g of the general statutes. Any new vehicles equipped with heavy-duty diesel engines of model years 2005 and beyond sold or otherwise transferred in Connecticut must be approved for sale in California.

**Attachment 2**  
**List of Individuals Submitting Comment**

1. David B. Conroy, Manager  
Air Quality Planning Unit  
United States Environmental Protection Agency  
Region 1  
1 Congress Street, Suite 1100  
Boston, MA 02114-2023
2. Nicholas A. DiPasquale, Secretary  
State of Delaware  
Department of Natural Resources and Environmental Control  
89 Kings Highway  
Dover, Delaware 19901
3. Ron Methier, Air Branch Chief  
Georgia Department of Natural Resources  
4244 International Parkway, Suite 120  
Atlanta, GA 30354
4. James C. Colman, Assistant Commissioner  
Commonwealth of Massachusetts  
Executive Office of Environmental Affairs  
Department of Environmental Protection  
One Winter Street  
Boston, MA 02108
5. Chris N. Salmi, Acting Administrator  
Office of Air Quality Management  
New Jersey Department of Environmental Protection  
401 E. State Street, 7th Floor  
P.O. Box 418  
Trenton, New Jersey 08625-0418
6. Joyce E. Epps, Director  
Pennsylvania Department of Environmental Protection  
Rachel Carson State Office Building  
P.O. Box 8468  
Harrisburg, PA 17057
7. Engine Manufacturers Association  
By Lisa A. Stegink, Legal Counsel

Neal, Gerber & Eisenberg  
Two North LaSalle Street  
Suite 2400  
Chicago, Illinois 60602

8. International Truck and Engine Corporation  
By Andrew R. Stewart  
Latham & Watkins  
555 Eleventh Street, N.W.  
Suite 1000  
Washington, D.C. 20004-1304
9. Danae Dwyer  
Michael Stoddard  
Environment Northeast  
28 Grand Street  
Hartford, CT 06106
10. Brian J. Mullarney  
Marketing Manager  
Atlantic Detroit Diesel-Allison  
300 Smith Street  
Middletown, CT 06457
11. Michael J. Riley, President  
Motor Transport Association of Connecticut  
60 Forest Street  
Hartford, CT 06105-3200
12. Jean M. Cronin  
Assistant Director  
Connecticut Bus Association  
700 Plaza Middlesex  
Middletown, CT 06457

**Attachment 3**  
**Final Text of Section 36a**

The Regulations of Connecticut State Agencies are amended by adding section 22a-174-36a, as follows:

(NEW)

**Sec. 22a-174-36a. Heavy-duty diesel engines.**

(a) **Definitions.** For purposes of this section, the following definitions shall apply:

(1) “Approved by CARB for sale in the State of California” means, with respect to a heavy-duty diesel engine and a heavy-duty motor vehicle containing such engine, CARB has made a finding that such heavy-duty diesel engine meets all applicable standards for certification and sale in California.

(2) “CARB” means the California Air Resources Board.

(3) “Certification” means a finding by CARB that a heavy-duty diesel engine or heavy-duty diesel engine family has satisfied the criteria adopted by CARB for the control of specified air contaminants contained in Title 13, Section 1956.8 of the California Code of Regulations.

(4) “Executive order” means a document issued by CARB stating that a specified heavy-duty diesel engine family or model year heavy-duty diesel engine meets all applicable requirements of Title 13 of the California Code of Regulations for certification and sale in California.

(5) “Heavy-duty diesel engine” means a diesel engine that is used to propel a motor vehicle with a gross vehicle weight rating of 14,001 pounds or greater.

(6) “Heavy-duty motor vehicle” means a motor vehicle with a gross vehicle weight rating of 14,001 pounds or greater.

(7) “Manufacturer’s certificate of origin” means “manufacturer’s or importer’s certificate of origin” as defined in Section 14-165 of the Connecticut General Statutes.

(8) “Model year” means “model year” as defined in Section 22a-174-36 of the Regulations of Connecticut State Agencies.

(b) **Applicability.**

This section shall apply to all heavy-duty diesel engines produced for the model year 2005 and subsequent model years and to all heavy-duty motor vehicles containing such engines that are sold, leased, offered for sale or lease, imported, delivered, purchased, rented, acquired or received, in the State of Connecticut except that this section shall not apply to such engines in vehicles listed in subsection (d).

**(c) Prohibitions.**

(1) No person shall sell, lease, rent, import, deliver, or offer for sale, lease or rental a heavy-duty motor vehicle in the State of Connecticut containing a heavy-duty diesel engine that is subject to this section unless the owner or lessor possesses documentation for such vehicle showing that such heavy-duty diesel engine is approved by CARB for sale in the State of California.

(2) No person shall purchase, acquire or receive a heavy-duty motor vehicle in the State of Connecticut containing a heavy-duty diesel engine that is subject to this section unless such person possesses documentation for such vehicle showing that such heavy-duty diesel engine is approved by CARB for sale in the State of California.

(3) Documentation sufficient to satisfy subdivisions (1) and (2) of this subsection shall include an executive order or a valid manufacturer's certificate of origin stating that the subject engine is approved by CARB for sale in the State of California.

**(d) Exemptions.**

The following heavy-duty motor vehicles shall not be subject to this section:

(2) A vehicle transferred by inheritance;

(2) A vehicle transferred by decree of divorce, dissolution or legal separation entered by a court of competent jurisdiction;

(3) A vehicle purchased by a nonresident or nonresident business prior to establishing residency in the State of Connecticut;

(4) A vehicle sold for the purpose of being scrapped or dismantled;

(5) A vehicle sold directly from one dealer to another dealer;

(6) A vehicle sold for registration out of state;

(7) A vehicle designed and sold exclusively for use as "special mobile equipment" as defined in Section 14-165 of the General Statutes;

(8) A vehicle which has been designated to meet the standards promulgated pursuant to the authority contained in 42 U.S.C. 7521 and that is either:

(c) In the possession of a rental agency in Connecticut and is next rented with a final destination outside of Connecticut; or

(d) Registered by a rental agency in a state other than Connecticut and rented for use in Connecticut until return to the state of registration; or

(9) A vehicle that is an ambulance or emergency medical service organization vehicle, a fire department vehicle or a state or local police vehicle driven entirely or primarily in the course of providing medical, fire protection or police services.

**Statement of Purpose:** This section establishes a program to reduce emissions from heavy-duty diesel vehicles pursuant to Section 22a-174g of the general statutes. Any vehicles equipped with heavy-duty diesel engines of model years 2005 and beyond sold or otherwise transferred in Connecticut must be approved for sale in California.

**Attachment 4**  
**Memorandum of Understanding Among the States of the OTC**  
**Supporting the Adoption of Heavy-Duty Engine and Vehicle**  
**Emission Standards**

**MEMORANDUM OF UNDERSTANDING AMONG THE STATES  
OF THE OZONE TRANSPORT COMMISSION SUPPORTING THE ADOPTION  
OF HEAVY-DUTY ENGINE AND VEHICLE EMISSION STANDARDS**

WHEREAS heavy-duty diesel trucks are a major source of pollutants that cause ozone, as well as particulate pollution; and

WHEREAS seven heavy-duty diesel engine manufacturers were found to be employing defeat devices over a multi-year period in the 1990s that resulted in more than nine million excess tons of airborne emissions of nitrogen oxides (NO<sub>x</sub>); and

WHEREAS NO<sub>x</sub> emissions are a significant cause of regional concentrations of groundlevel ozone; and

WHEREAS the seven manufacturers signed a series of consent decrees with the U.S. Environmental Protection Agency (EPA) in 1998 that require them to pay monetary fines and other environmental penalties and to meet “not-to-exceed” (NTE) test limits for new engine certification through 2004; and

WHEREAS national NTE limits may not become effective until model year 2007, thus allowing the production of model year 2005 and 2006 engines that will not meet NTE limits, and the State of California has proposed to adopt NTE limits for model years 2005 and 2006 to close the NTE limit gap; and

WHEREAS Congress, through Section 177 of the Clean Air Act, empowered States to adopt new motor vehicle standards identical to those promulgated by California; and

WHEREAS the Ozone Transport Commission (OTC) has consistently emphasized the need to reduce emissions from diesel-fueled vehicles;

THEREFORE, BE IT RESOLVED THAT the OTC is committed to protecting the public by encouraging the adoption of the most effective motor vehicle emission control programs available; and

FURTHERMORE that the OTC supports the enforcement of the NTE requirements contained in the consent decrees referenced above; and

FURTHERMORE that OTC supports California's efforts to adopt NTE requirements under State law; and

FURTHERMORE that OTC support efforts by its States to adopt similar requirements under Section 177 of the Clean Air Act; and

FURTHERMORE that the undersigned OTC States, pursuant to Section 177 of the Clean Air Act, are committed to proposing to adopt the California NTE requirements with adequate lead time to cover the 2005 and 2006 model years.

Signed this 11<sup>th</sup> day of December 2000:

[Signatures of representatives of each state and the District of Columbia composing the Ozone Transport Commission]