State of California
AIR RESOURCES BOARD

Resolution 86-45

April 25, 1986

Agenda Item No.: 86-5-3

WHEREAS, Sections 39600 and 39601 of the Health and Safety Code authorize the Air Resources Board (the "Board") to adopt standards, rules and regulations necessary for the proper execution of the powers and duties granted to and imposed upon the Board by law;

WHEREAS, Sections 43013, 43101, and 43104 of the Health and Safety Code authorize the Board to adopt emissions standards and test procedures to control air pollution caused by motor vehicles;

WHEREAS, following an August 23, 1984 hearing, the Board adopted Section 1956.8, Title 13, California Administrative Code, which established exhaust emission standards and test procedures for 1985 and subsequent model heavy-duty diesel-powered engines and vehicles (the "Heavy-Duty Diesel Standards and Test Procedures");

WHEREAS, the Heavy-Duty Diesel Standards and Test Procedures generally incorporate the transient cycle test procedures established by the United States Environmental Protection Agency (EPA), include an exhaust emission standard of 5.1 grams per brake horsepower hour (g/bhp-hr) for oxides of nitrogen (NOx), and do not contain an exhaust emission standard for particulate (PM);

WHEREAS, in 1985 the EPA amended the federal exhaust emission standards for 1988 and subsequent model heavy-duty diesel-powered engines and vehicles to include standards for PM of 0.60 g/bhp-hr for 1988-1990 models, 0.25 g/bhp-hr for 1991-1993 models other than urban bus engines, 0.10 g/bhp-hr for 1991-1993 model urban bus engines, and 0.10 g/bhp-hr for the 1994 and later model years;

WHEREAS, the 1985 EPA amendments also established heavy-duty diesel NOx emission standards of 6.0 g/bhp-hr for 1988-1990 models and 5.0 g/bhp-hr for 1991 and subsequent models, and allowed emission averaging for both the PM and NOx standards for the 1991 and later model years;

WHEREAS, the staff has proposed amendments to the Heavy-Duty Diesel Standards and Test Procedures which would establish PM and NOx emission standards for the 1988 and subsequent model years reflecting the corresponding federal PM and NOx standards;

WHEREAS, the amendments proposed by staff would also contain an option for certifying to the 1988 PM and NOx standards one year early in 1987, permit particulate but not NOx averaging starting with the 1991 model year, incorporate the federal smoke and opacity standards, and incorporate recent changes to the federal test procedures;

WHEREAS, the California Environmental Quality Act and Board regulations require that an action not be adopted as proposed where it will have significant adverse environmental impacts and alternatives or feasible mitigation measures to the proposed action are available which would substantially reduce or avoid such impacts;

WHEREAS, a public hearing and other administrative proceedings have been held in accordance with the provisions of Chapter 3.5 (commencing with Section 11340), Part 1, Division 3, Title 2 of the Government Code;

WHEREAS, the Board finds that:

The proposed PM and NOx emission standards for 1988 and subsequent model year heavy-duty diesel-powered engines and vehicles, and the other amendments proposed by staff, as set forth in Attachments A and B, are technologically feasible and cost effective;

The proposed amendments will more closely align the California Heavy-Duty Diesel Standards and Test Procedures with the revised federal standards and test procedures, thereby helping to assure the continuation of California's waiver of preemption under Section 209 of the Clean Air Act;

The option of certification to the 1988 exhaust emission standards one year early will allow manufacturers designing new engines for the 1987 model year to avoid the need to retest the engines for the 1988 model year;

Particulate emissions averaging for 1991 through 1995 model engines will provide manufacturers with flexibility to certify engines that are more difficult to control, thereby lessening the potential rate of model unavailability;

The projected cost increases for heavy-duty diesel engines and vehicles resulting from the proposed amendments will be largely if not completely offset by associated fuel savings;

The proposed amendments will result in increasing overall reductions of PM emissions starting in 1988 and NOx emissions starting in 1996;

The proposed amendments will result in a significant adverse environmental impact, in that NOx emissions from 1987 or 1988 through 1990 engines will increase; this impact will be partially mitigated by the long-term NOx emissions reductions stemming from the 1991 and subsequent model standards;

The PM emissions reductions from 1988-1990 model heavy-duty diesel engines, when balanced with the NOx emissions increases from such vehicles, will result in an overall net environmental benefit; there are no feasible mitigation measures or alternatives available which would substantially reduce the significant adverse impacts from the NOx emissions increase while maintaining the benefits of the PM emissions reductions.

NOW, THEREFORE, BE IT RESOLVED that the Board hereby approves the amendments to Section 1956.8 of Title 13, California Administrative Code, as set forth in Attachment A hereto.

BE IT FURTHER RESOLVED that the Board hereby approves the amendments to the "California Exhaust Emission Standards and Test Procedures for 1985 and Subsequent Model Heavy-Duty Diesel-Powered Engines and Vehicles" as set forth in Attachment B hereto.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to adopt Section 1956.8, Title 13, California Administrative Code, and the incorporated test procedures, as set forth in Attachments A and B, after making them available to the public for a period of 15 days, provided that the Executive Officer shall consider such written comments as may be submitted during this period, shall make such modifications as may be appropriate in light of the comments received, and shall present the regulations to the Board for further consideration if he determines that this is warranted.

BE IT FURTHER RESOLVED that the Board hereby determines that the amendments approved herein will not cause the California emission standards, in the aggregate, to be less protective of public health and welfare than applicable federal standards, will not cause the California requirements to be inconsistent with Section 202(a) of the Clean Air Act, and raise no new issues affecting previous waiver determinations of the Administrator of the Environmental Protection Agency pursuant to Section 209(b) of the Clean Air Act.

BE IT FURTHER RESOLVED that the Executive Officer shall forward the amended regulation to the Environmental Protection Agency with a request either for confirmation that the amendments are within the scope of an existing waiver, or for issuance of a new waiver, pursuant to Section 209(b)(1) of the Clean Air Act.

BE IT FURTHER RESOLVED that the Board hereby directs the staff to further evaluate more stringent standards for 1991 and later heavy-duty diesel engines, and to report back to the Board with its recommendations as soon as feasible.

BE IT FURTHER RESOLVED that the staff is directed to take appropriate action to credit the emissions reductions provided by this action to California's commitment to reasonable extra efforts to attain the national ambient air quality standards for ozone in the South Coast Air Basin, in Ventura County, and in other parts of the state for which it is shown that reductions in the emissions of nitrogen oxides will reduce ambient ozone concentrations.

I hereby certify that the above is a true and correct copy of Resolution 86-45, as adopted by the Air Resources Board.

Harold Holmes, Board Secretary

Amend Title 13, California Administrative Code, Section 1956.8 to read as follows:[1/]

1956.8 Exhaust Emission Standards and Test Procedures--1985 and Subsequent Model Heavy-Duty Engines and Vehicles.

(a) The exhaust emissions from new 1985 and subsequent model heavy-duty diesel-powered engines, except engines used in medium-duty vehicles, shall not exceed:

Exhaust Emission Standards
(grams per brake horsepower-hour)

Model Year	Hydrocarbons	Carbon Monoxide	Oxides of Nitrogen	Particulates
~~1985 and subsequent~~ 1985-1986	1.3	15.5	5.1	--
1987*	1.3	15.5	5.1	--
1988-1990	1.3	15.5	6.0	0.60
1991-1993	1.3	15.5	5.0	0.25** 0.10***
1994 and subsequent	1.3	15.5	5.0	0.10**

* As an option a manufacturer may elect to certify to the 1988 model year emisson standards one year early, for the 1987 model year.

** Emissions averaging may be used to meet this standard, through the 1995 model year only. ~~However, averaging~~ Averaging is ~~restricting~~ restricted to within each useful life subclass. Emissions from engines used in urban buses shall not be included in the averaging program.

*** This standard applies to urban bus engines only.

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1. The Board is also scheduled to consider on April 24, 1986 separately noticed amendments to Section 1956.8 regarding heavy-duty gasoline-powered engines and vehicles. The amendments would add new subsections (c) and (d), reletter existing subsections (c) and (d), and make a change to existing subsection (d) not affecting diesel-powered engines and vehicles. Any amendments made pursuant to the separate notice would be included in the regulation.

(b) The test procedures for determining compliance with standards applicable to 1985 and subsequent heavy-duty diesel models are set forth in the "California Exhaust Emission Standards and Test Procedures for 1985 and Subsequent Model Heavy-Duty Diesel-Powered Engines and Vehicles," adopted April 8, 1985, as last amended _____.

(c) A manufacturer may elect to certify heavy-duty diesel vehicles of less than 10,000 pounds maximum gross vehicle weight rating as medium-duty vehicles under Section 1960.1 of this chapter, in which event the heavy-duty emission standards and test procedures in this section shall not apply.

(d)(1) In 1985 and future years, the executive officer may authorize use of engines certified to meet federal emission standards, or which are demonstrated to meet appropriate federal emission standards, in up to a total of 100 heavy-duty vehicles, including both gasoline- and diesel-powered heavy-duty vehicles, in any one calendar year when the executive officer has determined that no engine certified to meet California emission standards exists which is suitable for use in the vehicles.

(2) In order to qualify for an exemption, the vehicle manufacturer shall submit, in writing, to the executive officer the justification for such exemption. The exemption request shall show that, due to circumstances beyond the control of the vehicle manufacturer, California certified engines are unavailable for use in the vehicle. The request shall further show that redesign or discontinuation of the vehicle will result in extreme cost penalties and disruption of business. In evaluating a request for an exemption, the executive officer shall consider all relevant factors, including the number of individual vehicles covered by the request and the anti-competitive effect, if any, of granting the request. If a request is

denied, the executive officer shall state in writing the reasons for the denial.

(3) In the event the executive officer determines that an applicant may meet the criteria for an exemption under this subsection, but that granting the exemption will, together with previous exemptions granted, result in over 100 vehicles being permitted under this subsection to use non-California engines in heavy-duty vehicles in any one calendar year, the exemption may be granted only by the state board, under the criteria set forth herein.

NOTE: Authority cited: Section 39600 and 39601, Health and Safety Code. Reference: Sections 39002, 39003, 43000, 43013, 43100, 43101 and 43104, Health and Safety Code.

PROPOSED

State of California
AIR RESOURCES BOARD

CALIFORNIA EXHAUST EMISSION STANDARDS AND TEST PROCEDURES FOR 1985 AND SUBSEQUENT MODEL HEAVY-DUTY DIESEL-POWERED ENGINES AND VEHICLES

Adopted: April 8, 1985
Amended: _____

NOTE: This document is printed in a style to indicate proposed changes to the version as adopted April 8, 1985. Proposed new language is underlined, and proposed deletions are indicated by strikeouts.

The document incorporates by reference various sections of the Code of Federal Regulations, some with modifications. California provisions which replace specific federal provisions are denoted by the words "DELETE" for the federal language and "REPLACE WITH" for the new California language. The symbols "*****" and "..." mean that the remainder of the federal text for a specific section, which is not shown in these procedures, has been included by reference, with only the printed text changed. For those portions of the referenced federal provisions that are proposed to be changed by the present amendments, and for those portions only, proposed deletions from the federal language are indicated by slashes and proposed additions are indicated by double underline. Federal regulation sections which are not listed have not been proposed as part of the procedures.

Additional language has been added pursuant to a modification approved by the Board on April 25, 1986. The additional language is included in the second paragraph of text and is both underlined and enclosed in brackets.

CALIFORNIA EXHAUST EMISSION STANDARDS AND
TEST PROCEDURES FOR 1985 AND SUBSEQUENT MODEL
HEAVY-DUTY DIESEL-POWERED ENGINES AND VEHICLES

The following provisions of Subparts A, I, and N, Part 86, Title 40, Code of Federal Regulations, as adopted or amended by the U.S. Environmental Protection Agency on the date listed, and only to the extent they pertain to heavy-duty diesel-powered engines and vehicles, are adopted and incorporated herein by this reference as the California Exhaust Emission Standards and Test Procedures for 1985 and Subsequent Model Heavy-Duty Diesel-Powered Engines and Vehicles, except as altered or replaced by the provisions set forth below.

The federal regulations contained in the Subparts identified above which pertain to oxides of nitrogen emission averaging shall not be applicable to these procedures. [The federal regulations contained in the Subparts identified above which pertain to particulate emission averaging shall not be applicable to these procedures for 1996 and later model engines and vehicles.] The smoke exhaust test procedures shall be applicable to California heavy-duty diesel-powered engines and vehicles for 1988 and later model years.

Subpart A, General Provisions for Emission Regulations for 1977 and Later Model Year New Light-Duty Vehicles, 1977 and Later Model Year New Light-Duty Trucks, and for 1977 and Later Model Year New Heavy-Duty Engines.

§86.085-1 General Applicability. ~~May 19, 1983~~ March 15, 1985.

* * * * *

(b) ...GVWR or less to the ~~light-duty truck~~ medium-duty vehicle exhaust emission standards. Heavy-duty...

* * * * *

(e) ... projected combined California sales of passenger cars, light-duty trucks, medium-duty vehicles and heavy-duty engines in its product line are fewer than 3000 units for the model...

* * * * *

§86.085-2 Definitions. November 16, 1983.

* * * * *

"Administrator" DELETE
REPLACE WITH:
"Administrator" means the Executive Officer of the Air Resources Board.

* * * * *

"Certificate of Conformity" DELETE
REPLACE WITH:
"Certificate of Conformity" means "Executive Order" certifying vehicles for sale in California.

"Certification" DELETE
REPLACE WITH:
"Certification" means certification as defined in Section 39018 of the Health and Safety Code.

* * * * *

"Heavy-Duty Engine" DELETE
REPLACE WITH:
"Heavy-duty engine" means an engine which is used to propel a heavy-duty vehicle.

"Heavy-Duty Vehicle" DELETE
REPLACE WITH:
"Heavy-duty vehicle" means any motor vehicle having a manufacturer's gross vehicle weight rating greater than 6,000 pounds, except passenger cars.

* * * * *

"Medium-duty vehicle" means any heavy-duty vehicle having a manufacturer's gross vehicle weight rating of 8500 pounds or less.

* * * * *

"Useful life" means:

* * * * *

(f) DELETE
REPLACE WITH:
(f) The useful-life period for purposes of the emissions defect warranty shall be a period of 5 years/100,000 miles, whichever first occurs, for all heavy-duty diesel-powered engines. However, in no case may this period be less than the manufacturer's basic mechanical warranty period for the engine family.

* * * * *

§86.088-2 Definitions. March 15, 1985.

§86.091-2 Definitions. March 15, 1985.

§86.078-3 Abbreviations. January 21, 1980.

§86.084-4 Section numbering; construction. September 25, 1980.

§86.084-5 General Standards; increase in emissions; unsafe conditions. November 2, 1982.

§86.078-7 Maintenance of records; submittal of information; right of entry. November 2, 1982.

§86.085-11 Exhaust emissions from new 1985 and later model year diesel heavy-duty engines. November 16, 1983.

* * * * *

(a)(1)(iii) Oxides of Nitrogen. 5.1 grams per ...

* * * * *

(b) DELETE
REPLACE WITH:
(b) At the option of the manufacturer, the standards set forth in Section 86.088-11, paragraph (a)(1) can replace the standards set forth in paragraph (a)(1), applicable to new 1987 model year diesel heavy-duty engines only.

* * * * *

(d) ... in Subpart N of this part to ascertain...

* * * * *

§86.088-11 Emission standards for 1988 and later model year diesel heavy-duty engines. March 15, 1985.

§86.091-11 Emission standards for 1991 and later model year diesel heavy-duty engines. March 15, 1985.

* * * * *

(a)(1)(iv)(C)...family particulate limits may not exceed 0.60 gram per brake horsepower-hour. Heavy-duty diesel engines converted to methanol fuel may be used to comply with the urban bus particulate standard and may be used in the averaging program. Such engines must comply with all applicable heavy-duty diesel engine emission standards and test procedures in this Part.

* * * * *

§86.094-11 Emission standards for 1994 and later model year diesel heavy-duty engines. March 15, 1985.

* * * * *

(a)(1)(iv)(B)...family particulate limits may not exceed 0.60 gram per brake horsepower-hour. Heavy-duty diesel engines converted to methanol fuel may be used to comply with the urban bus particulate standard and may be used in the averaging program. Such engines must comply with all applicable heavy-duty diesel engine emission standards and test procedures in this Part.

* * * * *

§86.080-12 Alternative certification procedures. April 17, 1980.

~~§86.082-14~~ §86.084-14 Small-volume manufacturers certification procedures. ~~November 2, 1982~~ January 31, 1985.

* * * * *

(b)(1) ... produced by manufacturers with California sales (for the model year in which certification is sought) of fewer than 3,000 units (PC, LDT, MDV, and HDE combined).

* * * * *

(c)(4)~~(i)~~ DELETE
REPLACE WITH:
(c)(4)~~(i)~~ ~~The manufacturer~~ Small volume manufacturers shall include in its records all of the information that EPA requires in ~~§86.082-21~~ §86.084.21 ~~of this subpart~~. This information will be considered part of the manufacturer's application for certification.

* * * * *

(c)(7)(i)~~(B)~~(C) ... determines and prescribes based on design specifications or sufficient control over design specifications, development data, in-house testing procedures, and in-use experience. However, ...

* * * * *

(c)(11)(ii)(D)(1)...We project the total California sales of vehicles (engines) subject to this subpart to be fewer than 3,000 units.

* * * * *

~~(c)(11)(ii)(D)(5) DELETE~~
~~REPLACE WITH:~~
~~(c)(11)(ii)(D)(5) A statement that based on the manufacturers emission testing the vehicles sold comply with the high altitude emission requirements.~~

* * * * *

(c)(13)(ii)...affect vehicle emissions. All running changes which do not adversely affect emissions or the emissions control system durability are deemed approved unless disapproved by the Executive Officer within 30 days of the implementation of the running change. This ...

* * * * *

§86.085-20 Incomplete vehicles, classification. January 12, 1983.

§86.085-21 Application for certification. ~~November 16, 1983~~ December 10, 1984.

§86.087-21 Application for certification. November 16, 1983.

§86.088-21 Application for certification. March 15, 1985.

§86.091-21 Application for certification. March 15, 1985.

§86.085-22 Approval of application for certification; test fleet selections; determinations of parameters subject to adjustment for certification and Selective Enforcement Audit, adequacy of limits, and physically adjustable ranges. ~~November 16, 1983~~ August 30, 1985.

DELETE any reference to Selective Enforcement Audit.

§86.085-23 Required data. ~~November 16, 1983~~ March 15, 1985.

* * * * *

(b)(1)(ii) ... useful life of the engine. Such data shall be submitted to the executive officer for review. If the durability test method is accepted by EPA, it shall also be accepted by ARB, subject to the following condition. If, after certification for the first model year in which the method is used, the executive officer determines that a manufacturer's durability test procedures do not conform with good engineering practices, the executive officer may require changes to that manufacturer's durability test procedures for subsequent model years. The manufacturer's revised durability test procedures shall be submitted to the executive officer for review and approval.

* * * * *

§86.087-23 Required data. ~~November 16, 1983~~ March 15, 1985.

* * * * *

(b)(1)(ii) ... useful life of the engine. Such data shall be submitted to the executive officer for review. If the durability test method is accepted by EPA, it shall also be accepted by ARB, subject to the following condition. If, after certification for the first model year in which the method is used, the executive officer determines that a manufacturer's durability test procedures do not conform with good engineering practices, the executive officer may require changes to that manufacturer's durability test procedures for subsequent model years. The manufacturer's revised durability test procedures shall be submitted to the executive officer for review and approval.

* * * * *

§86.088-23 Required data. July 19, 1985.

* * * * *

(b)(1)(ii) ... useful life of the engine. Such data shall be submitted to the executive officer for review. If the durability test method is accepted by EPA, it shall also be accepted by ARB, subject to the following condition. If, after certification for the first model year in which the method is used, the executive officer determines that a manufacturer's durability test procedures do not conform with good engineering practices, the executive officer may require changes to that manufacturer's durability test procedures for subsequent model years. The manufacturer's revised durability test procedures shall be submitted to the executive officer for review and approval.

* * * * *

(f) DELETE

* * * * *

§ 86.091-23 Required data. July 19, 1985.

* * * * *

(b)(1)(ii) ... useful life of the engine. Such data shall be submitted to the executive officer for review. If the durability test method is accepted by EPA, it shall also be accepted by ARB, subject to the following condition. If, after certification for the first model year in which the method is used, the executive officer determines that a manufacturer's durability test procedures do not conform with good engineering practices, the executive officer may require changes to that manufacturer's durability test procedures for subsequent model years. The manufacturer's revised durability test procedures shall be submitted to the executive officer for review and approval.

* * * * *

§86.085-24 Test vehicles and engines. ~~January 12, 1983~~ January 31, 1985.

* * * * *

(e)(1)(i) DELETE
REPLACE WITH:
(e)(1)(i) a combined total of 3000 California passenger cars, light-duty trucks, medium-duty vehicles, and heavy-duty engines,
(e)(1)(ii) DELETE
(e)(1)(iii) DELETE
(e)(1)(iv) DELETE
(e)(1)(v) DELETE
(e)(1)(vi) DELETE
(e)(2)...total sales of fewer than 3,000...

* * * * *

(f) ...submitted. Durability data submitted may be from engines previously certified by the EPA or the Air Resources Board.

* * * * *

§86.085-25 Maintenance. November 16, 1983.

§86.087-25 Maintenance. March 15, 1985.

§86.088-25 Maintenance. March 15, 1985.

§86.084-26 Mileage and service accumulation; emission measurements.

~~February 18, 1983~~ October 19, 1983.

§86.085-27 Special test procedures. January 12, 1983.

§86.085-28 Compliance with emission standards. ~~November 16, 1983~~ January 24, 1985.

* * * * *

~~(c)(4)(ii)...CO, and NOx.~~

* * * * *

~~(c)(4)(iii)(B)(3) DELETE~~

* * * * *

§86.087-28 Compliance with emission standards. ~~November 16, 1983~~ March 15, 1985.

§86.088-28 Compliance with emission standards. March 15, 1985.

§86.091-28 Compliance with emission standards. March 15, 1985.

§86.085-29 Testing by the Administrator. ~~November 16, 1983~~ January 24, 1984.

§86.087-29 Testing by the Administrator. January 24, 1984.

§86.088-29 Testing by the Administrator. March 15, 1985.

§86.091-29 Testing by the Administrator. March 15, 1985.

§86.085-30 Certification. ~~January 12, 1983~~ January 24, 1984.

§86.087-30 Certification. August 30, 1985.

§86.088-30 Certification. March 15, 1985.

§86.091-30 Certification. March 15, 1985.

§86.079-31 Separate certification. September 8, 1977.

§86.079-32 Addition of a vehicle or engine after certification. September 8, 1977.

§86.079-33 Changes to a vehicle or engine covered by certification. September 8, 1977.

§86.082-34 Alternative procedure for notification of additions and changes. November 2, 1982.

§86.085-35 Labeling. Labels shall comply with the requirements set forth in the "California Tune-Up Label Specifications", as last amended April 8, 1985.

§86.085-37 Production vehicles and engines. January 12, 1983.

§86.085-38 Maintenance instructions. November 16, 1983.

§86.087-38 Maintenance Instructions. March 15, 1985.

~~§86.084-39 Automatic expiration of reporting and record-keeping requirements. January 21, 1980.~~

§86.084-40 Automatic expiration of reporting and recordkeeping requirements. September 25, 1980.

~~§86.087-21 Application for certification.--November 16, 1983.~~

~~§86.087-23 Required data.--November 16, 1983.~~
~~§86.087-28 Compliance with emission standards.--November 16, 1983.~~

* * * * *

~~(c)(4)(iii)(B)(3)--DELETE~~

* * * * *

~~§86.087-35 Labeling.--Engine labels shall comply with the requirements set forth in the "California Tune-Up Label Specifications", as last amended on April 8, 1986.~~

Subpart I - Emission Regulations for New Diesel-Fueled Heavy-Duty Engines; Smoke Exhaust Test Procedure

§86.884-1 General Applicability. November 16, 1983.

§86.884-2 Definitions. November 16, 1983.

§86.884-3 Abbreviations. November 16, 1983.

§86.884-4 Section numbering. November 16, 1983.

§86.884-5 Test Procedures. November 16, 1983.

§86.884-6 Diesel fuel specifications. November 16, 1983.

§86.884-7 Dynamometer operation cycle for smoke emission tests. November 16, 1983.

§86.884-8 Dynamometer and engine equipment. November 16, 1983.

§86.884-9 Smoke measurement system. November 16, 1983.

§86.884-10 Information. November 16, 1983.

§86.884-11 Instrument checks. November 16, 1983.

§86.884-12 Test run. November 16, 1983.

§86.884-13 Data analysis. November 16, 1983.

§86.884-14 Calculations. November 16, 1983.

Subpart N, Emission Regulations for New Gasoline- and Diesel-Fueled Heavy-Duty Engines; Gaseous Exhaust Test Procedures

§86.1301-84 Scope; applicability. November 16, 1983.

§86.1301-88 Scope; applicability. March 15, 1985.

§86.1302-84 Definitions. November 16, 1983.

§86.1303-84 Abbreviations. November 16, 1983.

§86.1304-84 Section numbering; construction. November 16, 1983.

§86.1305-84 Introduction; structure of subpart. November 16, 1983.

§86.1306-84 Equipment required and specifications; overview. November 16, 1983.

§86.1306-88 Equipment required and specifications; overview. March 15, 1985.

§86.1308-84 Dynamometer and engine equipment specifications. ~~November 16, 1983~~ December 10, 1984.

§86.1309-84 Exhaust gas sampling system; gasoline-fueled engines. November 16, 1983.

§86.1310-84 Exhaust gas sampling and analytical system; diesel-fueled engines. ~~November 16, 1983~~ March 15, 1985.

§86.1310-88 Exhaust gas sampling and analytical system; diesel engines. March 15, 1985.

§86.1311-84 Exhaust gas analytical system; CVS bag sample. November 16, 1983.

§86.1312-88 Weighing chamber and microgram balance specifications. March 15, 1985.

§86.1313-84 Fuel specifications. December 10, 1984.

~~§86.1313-84~~ 86.1314-84 Analytical gases. ~~November 16, 1983~~ December 10, 1984.

§86.1316-84 Calibration; frequency and overview. ~~November 16, 1983~~ December 10, 1984.

§86.1318-84 Engine dynamometer system calibrations. ~~November 16, 1983.~~ December 10, 1984.

§86.1319-84 CVS calibration. ~~November 16, 1983~~ December 10, 1984.

§86.1320-88 Gas meter or flow instrumentation calibration, particulate measurement. March 15, 1985.

§86.1321-84 Hydrocarbon analyzer calibration. ~~November 16, 1983~~ December 10, 1984.

§86.1322-84 Carbon monoxide analyzer calibration. November 16, 1983.

§86.1323-84 Oxides of nitrogen analyzer calibration. ~~November 16, 1983.~~ December 10, 1984.

§86.1324-84 Carbon dioxide analyzer calibration. November 16, 1983.

§86.1326-84 Calibration of other equipment. November 16, 1983.

§86.1327-84 Engine dynamometer test procedures; overview. ~~November 16, 1983.~~ December 10, 1984.

§86.1327-88 Engine dynamometer test procedures; overview. March 15, 1985.

§86.1330-84 Test sequence, general requirements. November 16, 1983.

§86.1332-84 Engine mapping procedures. ~~November 16, 1983~~ December 10, 1984.

§86.1333-84 Transient test cycle generation. November 16, 1983.

§86.1334-84 Pre-test engine and dynamometer preparation. ~~November 16, 1983~~ December 10, 1984.

§86.1335-84 Optional forced cool-down procedure. November ~~16, 1983.~~ December 10, 1984.

§86.1336-84 Engine starting and restarting. ~~November 16, 1983~~ March 15, 1985.

§86.1337-84 Engine dynamometer test run. November 16, 1983.

§86.1337-88 Engine dynamometer test run. March 15, 1985.

§86.1338-84 Emission measurement accuracy. November 16, 1983.

§86.1339-88 Diesel particulate filter handling and weighing. March 15, 1985.

§86.1340-84 Exhaust sample analysis. ~~November 16, 1983~~ December 10, 1984.

§86.1341-84 Test cycle validation criteria. ~~November 16, 1983~~ March 15, 1985.

§86.1342-84 Calculations; exhaust emissions. ~~November 16, 1983~~ March 15, 1985.

§86.1343-88 Calculations; particulate exhaust emissions (diesels only). March 15, 1985.

§86.1344-84 ~~Information required~~ Required information. November 16, 1983.

§86.1344-88 Required information. March 15, 1985.

Appendix I - Urban Dynamometer Schedules.

(f)(2) EPA Engine Dynamometer Schedule for Heavy-Duty Diesel Engines. ~~November 16, 1983~~ December 10, 1984.

Additional Requirements

1. Any reference to vehicle or engine sales throughout the United States shall mean vehicle or engine sales in California.
2. Regulations concerning EPA hearings, EPA inspections, and specific language on the Certificate of Conformity, shall not be applicable to these procedures.

~~3. If a gasoline-powered engine requires the use of unleaded fuel, a statement will be required that the engine and transmission combinations for which certification is requested are designed to operate satisfactorily on a gasoline having a research octane number not greater than 91.~~

3. Any reference made to Selective Enforcement Auditing (SEA) shall not be applicable to these procedures.

State of California
AIR RESOURCES BOARD

Response to Significant Environmental Issues

Item: Public Hearing to Consider Amendments to Regulations Regarding Certification of Heavy-Duty Diesel-Powered Engines and Vehicles

Agenda Item No.: 86-5-3

Public Hearing Date: April 25, 1986

Response Date: June 4, 1986

Issuing Authority: Air Resources Board

Comment: The Staff Report, Final Statement of Reasons, and Resolution 86-45 are incorporated by reference.

The Staff Report identified beneficial and adverse environmental impacts resulting from the proposed amendments (see particularly Staff Report Sections VI.A and III.A.). The amendments will result in significant emissions reductions of particulate starting in 1988 and oxides of nitrogen (NOx) starting in 1996. The amendments to the 1987-1990 model-year NOx standards will result in a significant adverse environmental impact, in that NOx emissions from 1987 or 1988-1990 model-year engines will increase.

Various public comments were received identifying environmental issues pertaining to this item. These comments are summarized and responded to in the Final Statement of Reasons.

Response: The Board determined that the particulate emissions reductions from 1987-1990 heavy-duty gasoline engines, when balanced with the NOx emissions increases from such vehicles, will result in an overall net health benefit. The Board further determined that the adverse environmental impact resulting from the 1987-1990 NOx standards will be partially mitigated by the long-term NOx reductions stemming from the 1991 and subsequent model standards. The Board determined that there are no feasible mitigation measures or alternatives available which would substantially reduce the adverse impact from the 1987-1990 NOx emissions increase while maintaining the concomitant benefits of the particulate emissions reductions. The alternative of retaining the existing NOx standard through 1991, in conjunction with the particulate standards, is infeasible because with currently available control methods, decreasing particulate emissions generally increases NOx emissions and vice versa due to the fundamental nature of diesel combustion.

Certified: Harold Holmes
Board Secretary

Date: August 5, 1986

State of California

Memorandum

To : Gordon Van Vleck
Secretary
Resources Agency

Date : August 27, 1986

Subject : Filing of Notice of Decisions of the Air Resources Board

From : Harold Holmes
Board Secretary
Air Resources Board

Pursuant to Title 17, Section 60007 (b), and in compliance with Air Resources Board certification under Section 21080.5 of the Public Resources Code, the Air Resources Board hereby forwards for posting the attached notice of decisions and response to environmental comments raised during the comment period.

ATTACHMENTS
85-77
85-78
85-80
86-4
86-25
86-43
86-44
86-45