

Attachment A

Supporting Documentation for 110(I) Rule Removal Georgia Chapter 391-3-1-.02(2)(ooo), "Heavy-Duty Diesel Engine Requirements"

BACKGROUND

California is the only state that has the authority to establish new mobile source emission standards and/or test procedures that differ from federal standards and test procedures (Federal Clean Air Act §209(b)). §177 of the Clean Air Act, however, allows other states to adopt standards and test procedures identical to California's. In 1977 the Clean Air Act was written so that other states could promulgate regulations requiring new vehicles for sale in their state to be in compliance with California emission standards. The Clean Air Act Amendments of 1990 added a revision to the last paragraph of § 177 that prohibits a state from taking action that would create a car different from those produced to meet either federal or California emission standards, or a "third vehicle." Additionally, California standards and test procedures must be, in the aggregate, at least as protective of public health and welfare as applicable federal standards and test procedures.

In 1994, the California Air Resources Board (CARB) approved a State Implementation Plan (SIP) that called for emission standards for highway heavy-duty diesel vehicles beginning in 2004. In June of 1995, CARB, the United States Environmental Protection Agency (U.S. EPA), and the manufacturers of heavy-duty vehicle engines signed a statement of principles (SOP) calling for the harmonization of CARB and U.S. EPA heavy-duty vehicle regulations.

In 1998, the federal government and seven heavy-duty diesel engine (HDDE) manufacturers entered into consent decrees after enforcement actions were brought against the manufacturers that a majority of the diesel engine manufacturers had programmed their engines to defeat federal test procedures (FTP) through the use of a "defeat device". The manufacturers were using this device because it was thought to provide an increase in fuel economy. A negative consequence to the increase in fuel economy from the device was that the engines produced higher NOx emissions at highway or cruising speeds. As a part of the consent decree, the majority of the settling manufacturers agreed to produce engines by October 1, 2002, that would meet supplemental test procedures including the Not-To-Exceed (NTE) test and the EURO III European Stationary Cycle (ESC) test. These requirements were to be met for a period of two years.

Recognizing the effectiveness of the supplemental tests, the U.S. EPA published a Notice of Proposed Rulemaking [64 FR 58472] on October 29, 1999 proposing to adopt the supplemental standards and test procedures for 2004 and subsequent model year HDDEs. However, because of statutory and legal timing constraints imposed on the U.S. EPA, the NTE and ESC standards and test procedures were not to be required until the 2007 model year. Therefore, once the consent decree requirements expired in 2004, diesel engine manufacturers would no longer be obligated to comply with the supplemental test procedures in 2005, and could forgo the supplemental testing until the 2007 model year, when the Federal Rules came into effect.

Because of this, on December 8, 2000 a rule was finalized under California's §1956.8, of the California Code of Regulations requiring heavy-duty diesel engine manufacturers to perform the NTE and the ESC supplemental test procedures in addition to the existing FTP. In December of 2004, Georgia EPD along with twelve other states adopted the California standards to

prevent possible “backsliding” and potential significant increases in diesel exhaust emissions due to the absence of these test procedures in the federal regulations for the 2005 and 2006 model years.

On October 6, 2000, EPA’s *Final Rule on the Control of Emissions of Air Pollution from 2004 and Later Model Year Heavy-Duty Highway Engines and Vehicles; Revision of Light-Duty On-Board Diagnostics Requirements* [65 FR 59896] was issued and did not include the NTE standards for model years 2005 and 2006. EPA, therefore, addressed this by proposing a new rule [69 FR 34326] on June 21, 2004 that included a two-phase NTE testing scheme for all pollutants. The final rule adopting these requirements for 2005 and newer model year HDDE and heavy-duty on-highway (HDOH) vehicles was published in the Federal Register on June 14, 2005 [70 FR 34594]. This alleviated the original reason for Georgia to require CARB-certified heavy-duty diesel engines, since the new federal standards required the manufacturers to meet emission limits that were equivalent to the California standards.

As shown in the table on Page 3, EPA emission standards for heavy-duty diesel engines have consistently become increasingly more stringent over time. Georgia Rule 391-3-1-.02(2)(ooo), as approved in the Georgia SIP is equivalent to EPA emission standards for 2004 through 2006. The removal of Georgia Rule 391-3-1-.02(2)(ooo) will allow the current more stringent EPA emission standards to replace the old December 8, 2000 California standard §1956 in the Georgia SIP.

CONCLUSION

The Georgia Environmental Protection Division (EPD) is submitting for approval and incorporation, this proposed revision to Georgia’s State Implementation Plan (SIP), a request to remove its “Heavy-Duty Diesel Engine Requirements”, Georgia Rule 391-3-1-.02(2)(ooo), in a manner consistent with the requirements of 110(l).

Section 110(l) of the CAA, governs EPA’s ability to approve all SIP revisions. Specifically, section 110(l) states:

Each revision to an implementation plan submitted by a State under this chapter shall be adopted by such State after reasonable notice and public hearing. The Administrator shall not approve a revision of a plan if the revision would interfere with any applicable requirement concerning attainment and reasonable further progress (as defined in section 171 of this title), or any other applicable requirement of this chapter.

The 2007 standards shown in Table 1. are clearly more stringent than the December 8, 2000 California standards currently approved in Georgia’s SIP. Removal of Georgia Rule 391-3-1-.02(2)(ooo) will not interfere with attainment or reasonable further progress, or any other applicable requirement of the act. EPD can assert that this action is consistent with the requirements of 110(l) of the act and that the Federal diesel emission standards are a clear substitute measure for Georgia Rule 391-3-1-.02(2)(ooo).

EPA EMISSION STANDARDS

Table 1. EPA Emission Standards 1998 – 2007 and later.

Year	Hydrocarbon (g/bhp-hr)	Non-Methane Hydrocarbon (g/bhp-hr)	Non-Methane Hydrocarbon plus NOx (g/bhp-hr)	NOx (g/bhp-hr)	PM (g/bhp-hr)	CO (g/bhp-hr)	Idle CO (percent exhaust gas flow)	Smoke ^a (Percentage)	Useful Life (hours/years/miles)	Warranty Period (years/miles)
1998-2003	1.3	-	-	4.0 [ABT]	0.1 [ABT] 0.05 ^c	15.5	0.5 ^b	20 / 15 / 50	10 / 110,000 MHDDE: - / 10 / 185,000 HHDDE: - / 10 / 290,000	5 / 100,000 ^m
2004-2006 ^d	-	-	2.4 (or 2.5 with a limit of 0.5 on NMHC) ^k [ABT ^{e,f}]	-	0.1 0.05 ^c	15.5	0.5	20 / 15 / 50	For all pollutants: LHDDE: - / 10 / 110,000 MHDDE: - / 10 / 185,000 HHDDE: 22,000 / 10 / 435,000	LHDDE: 5 / 50,000 All other HDDE: 5 / 100,000 ^m
2007+ ^{d,g,h,i,j}	-	0.14 ^k	2.4 (or 2.5 with a limit of 0.5 on NMHC) [ABT]	0.2 ^k	0.01	15.5	0.5	20 / 15 / 50		

Notes: The test procedures are the EPA Transient Test Procedure and the EPA Smoke Test Procedure.

a Percentages apply to smoke opacity at acceleration/lug/peak modes.

b This standard applies to the following fueled engines for the following model years: methanol - 1990+, natural gas and liquefied petroleum gas (LPG) - 1994+.

c Certification standard for urban buses from 1996 and later. The in-use standard is 0.07.

d Load Response Test certification data submittal requirements take effect for heavy-duty diesel engines beginning in model year 2004. The following requirements take effect with the 2007 model year: steady-state test requirement and Not-to-Exceed (NTE) test procedures for testing of in-use engines. On-board diagnostic requirements applicable to heavy-duty diesel vehicles and engines up to 14,000 pounds gross vehicle weight rating (GVWR) phase in from the 2005 through 2007 model years.

e The modified averaging, banking, and trading program for 1998 and later model year engines applies only to diesel cycle engines. Credits generated under the modified program may be used only in 2004 and later model years.

f For heavy-duty diesel engines, there are three options to the measurement procedures currently in place for alternative fueled engines: (1) use a THC measurement in place of a non-methane hydrocarbon (NMHC) measurement; (2) use a measurement procedure specified by the manufacturer with prior approval of the Administrator; or (3) subtract two percent from the measured THC value to obtain an NMHC value. The methodology must be specified at time of certification and will remain the same for the engine family throughout the engines' useful life. For natural gas vehicles, EPA allows the option of measuring NMHC through direct quantification of individual species by gas chromatography.

g Starting in 2006, refiners must begin producing highway diesel fuel that meets a maximum sulfur standard of 15 parts per million (ppm).

h Subject to a Supplemental Emission Test (1.0 x Federal Test Procedure [FTP] standard (or Family Emission Limit [FEL]) for nitrogen oxides [NOx], NMHC, and particulate matter [PM]) and a NTE test (1.5 x FTP standard [or FEL] for NOx, NMHC, and PM).

i EPA adopted the lab-testing and field-testing specifications in 40 CFR Part 1065 for heavy-duty highway engines, including both diesel and Otto-cycle engines. These procedures replace those previously published in 40 Code of Federal Regulations (CFR) Part 86, Subpart N. Any new testing for 2010 and later model years must be done using the 40 CFR Part 1065 procedures.

j Two-phase in-use NTE testing program for heavy-duty diesel vehicles. The program begins with the 2007 model year for gaseous pollutants and 2008 for PM. The requirements apply to diesel engines certified for use in heavy-duty vehicles (including buses) with GVWRs greater than 8,500 pounds. However, the requirements do not apply to any heavy-duty diesel vehicle that was certified using a chassis dynamometer, including medium-duty passenger vehicles with GVWRs of between 8,500 and 10,000 pounds.

k NOx and NMHC standards will be phased in together between 2007 and 2010. The phase-in will be on a percent-of-sales basis: 50 percent from 2007 to 2009 and 100 percent in 2010.

l Note that for an individual engine, if the useful life hours interval is reached before the engine reaches 10 years or 100,000 miles, the useful life shall become 10 years or 100,000 miles, whichever occurs first, as required under Clean Air Act section 202(d).

m Years or miles, whichever comes first but never less than the basic mechanical warranty for the engine family.

Code of Federal Regulations (CFR) Citations:

- 40 CFR 86.099-11 Emission standards for 1999 and later model year diesel heavy-duty engines and vehicles.
- 40 CFR 86.004-11 Emission standards for 2004 and later model year diesel heavy-duty engines and vehicles.
- 40 CFR 86.007-11 Emission standards and supplemental requirements for 2007 and later model year diesel heavy-duty engines and vehicles.

REFERENCES:

State of California, Air Resources Board; Staff Report: Initial Statement of Reason; "Proposed Amendments to Heavy-Duty Vehicle Regulations: 2004 Emission Standard; Averaging, Banking and Trading; Optional Reduced Emission Standards; Certification Test Fuel; Labeling; Maintenance Requirements and Warranties" Date of Release: March 6, 1998

State of California, Air Resources Board; Final Statement of Reasons for Rulemaking, Including Summary of Comments and Agency Response; "Public Hearing to Consider Amendments to Heavy-Duty Vehicle Regulations: 2004 Emission Standards; Averaging, Banking and Trading; Optional Reduced-Emission Standards; Certification Test Fuel; Labeling; Maintenance Requirements and Warranties"

Public Hearing Date: April 23, 1998 Agenda Item No.: 98-4-1 Date of Release: March 6, 1998.

State of California Air Resources Board; Staff Report: Initial Statement of Reasons; "Public Hearing to Consider Amendments to Adopt NOT-TO-EXCEED and EURO II European Stationary Cycle Emission Test Procedures for the 2005 and Subsequent Model Year Heavy-Duty Diesel Engines" Date of Release: October 20, 2000. Scheduled for Consideration: December 7, 2000

State of California, Air Resources Board; Staff Report: Final Statement of Reasons for Rulemaking, Including Summary of Comments and Agency Responses; "Public Hearing to Consider Amendments to Adopt NOT-TO-EXCEED and EURO II European Stationary Cycle Emission Test Procedures for the 2005 and Subsequent Model Year Heavy-Duty Diesel Engines" Public Hearing Date: December 8, 2000

Date of Release: October 20, 2000.

40 CFR 85 - Control of Emissions of Air Pollution From 2004 and Later Model Year Heavy-Duty Highway Engines and Vehicles; Revision of Light-Duty Truck Definition. Proposed Rule, October 29, 1999 [64 FR 58472]

40 CFR 85 and 86 - Control of Emissions of Air Pollution from 2004 and Later Model Year Heavy-Duty Highway Engines and Vehicles; Revision of Light-Duty On-Board Diagnostics Requirements. Final Rule, October 6, 2000 (Effective December 5, 2000) [65 FR 59896]

40 CFR 86 - Control of Air Pollution from New Motor Vehicles: In-Use Testing for Heavy-Duty Diesel Engines and Vehicles. Notice of Proposed Rule, Correction, June 21, 2004 [69 FR 34326]

40 CFR 9 and 86 - Control of Emissions of Air Pollution from New Motor Vehicles: In-Use Testing for Heavy-Duty Diesel Engines and Vehicles, Final Rule, June 14, 2005 [70 FR 34594]