



STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION



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 the Amendment of Section 22a-174-27 of the
Regulations of Connecticut State Agencies

Hearing Officer: Merrily A. Gere

Date of Hearing: December 23, 2003

On November 4, 2003, the Commissioner of the Department of Environmental Protection ("Commissioner" and "Department," respectively) signed a notice of intent to amend section 22a-174-27 of the Regulations of Connecticut State Agencies ("R.C.S.A."). Pursuant to such notice, a public hearing was held on December 23, 2003, with the public comment period for the proposed section closing on January 26, 2004, in response to a request by the Connecticut Department of Motor Vehicles ("DMV") for an extension from the published comment period deadline of December 23, 2003.

I. Hearing Report Content

As required by section 4-168(d) of the Connecticut General Statutes ("C.G.S."), this report describes the amendment as proposed for hearing; the principal reasons in support of the proposed amendment; the principal considerations presented in oral and written comments in opposition to the proposed amendment; all comments made and responses thereto regarding the proposed amendment; and the final wording of the proposed amendment. Commenters are identified in Attachment 1.

This report also includes a statement in accordance with C.G.S. section 22a-6(h).

II. Federal Standards Analysis in Compliance with Section 22a-6(h) of the General Statutes

Pursuant to the provisions of C.G.S. section 22a-6(h), as amended by section 5 of Public Act 03-276,¹ the Commissioner is authorized to adopt regulations pertaining to activities for which the

¹ Section 22a-6(h), as amended by section 5 of Public Act 03-276, states:

The commissioner may adopt regulations pertaining to activities for which the federal government has adopted standards or procedures. All provisions of such regulations which differ from the applicable federal standards or procedures shall be clearly distinguishable from such standards or procedures either on the face of the proposed

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federal government has adopted standards or procedures. At the time of public notice, the Commissioner must distinguish clearly all provisions of a proposed regulation or amendment that differ from *applicable* federal standards or procedures (*i.e.*, federal standards and procedures that apply to *the same persons* under the proposed state regulation or amendment). The Commissioner must distinguish any such provisions either on the face of such proposed regulation or amendment or through supplemental documentation accompanying the proposed regulation or amendment. 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 C.G.S. and make such explanation publicly available at the time of the notice of public hearing required under C.G.S. section 4-168.

In accordance with the requirements of C.G.S. section 22a-6(h), the following statement was available at the time of the notice of the public hearing and was entered into the administrative record in the matter of the proposed amendment of R.C.S.A. section 22a-174-27 ("Section 27"):

The Department has performed a comparison of the proposed amendment to Section 27 with applicable analogous federal provisions, namely standards and procedures in 40 Code of Federal Regulations ("CFR") 51 and 40 CFR 85. Based on its review of these federal regulations, the Department has determined that the requirements of C.G.S. section 22a-6(h) do not apply to any provisions of the proposed amendment for one of the following two reasons: (1) there are no applicable analogous federal standards or procedures; or (2) the provisions of the amendment are the same as analogous federal standards and procedures.

The proposed amendment updates the motor vehicle emissions inspection and maintenance program ("I/M program") standards implemented by the DMV Commissioner to conform to current requirements of the U.S. Environmental Protection Agency ("EPA"). The specific revisions made in the amendment and the relationship of such revisions to analogous federal standards and procedures are as follows:

- Defines new on-board diagnostic test requirements that are the same as federal requirements in 40 CFR 51 and 40 CFR 85 and procedures in 40 CFR 85.2222;
- Deletes unnecessary on-road testing standards for which the federal government has no analogous standards;
- Requires ASM 2525 exhaust emission standards consistent with federal guidance but for which the federal government has not adopted analogous standards;
- Adds new emission standards for vehicles subject to a pre-conditioned two speed idle exhaust emissions test procedure that, for light-duty trucks and vehicles, are the same as

regulation or through supplemental documentation accompanying the proposed regulation at the time of the notice concerning such regulation required under section 4-168. An explanation for all such provisions shall be included in the regulation-making record required under chapter 54 and shall be publicly available at the time of the notice concerning the regulation required under section 4-168. This subsection shall apply to any regulation for which a notice of intent to adopt is published on and after July 1, 1999.

federal standards in 40 CFR 85.2204. The federal government has adopted no analogous standards applicable to heavy-duty gasoline powered vehicles; and

- Adds new emissions standards for diesel vehicles subject to a modified snap-acceleration smoke opacity test for which there are no analogous federal standards or procedures.

III. Summary and Text of the Amendment as Proposed

Connecticut is required to implement an enhanced I/M program pursuant to Sections 182(c)(3) and (d) of the federal Clean Air Act Amendments of 1990 ("CAA") based on Connecticut's noncompliance with the national ambient air quality standard for ground level ozone. The amendment to Section 27 conforms the I/M program standards implemented by the DMV Commissioner to current EPA requirements and current DMV program procedures. Specifically, the amendment: (1) defines new on-board diagnostic test requirements; (2) deletes unnecessary on-road testing standards; (3) adds new emissions standards for vehicles subject to a pre-conditioned two speed idle exhaust emissions test procedure; (4) requires ASM 2525 exhaust emission standards consistent with federal guidance but for which the federal government has not adopted analogous standards; and (5) adds new emissions standards for diesel vehicles subject to a modified snap-acceleration smoke opacity test.

The text of the proposed amendment is located in Attachment 2 to this report.

IV. Principal Reasons in Support of the Proposed Amendment

The revisions described in Section III accomplish four objectives: 1) satisfy a commitment made to EPA in January 2002 by the Department and DMV to submit a regulatory amendment to revise the I/M program to include on-board diagnostic check requirements that conform to the requirements of 40 CFR 85.2222; 2) delete on-road testing standards that are not necessary under EPA's requirements; 3) revise exhaust emissions standards to match final standards in EPA's 2003 guidance document "Acceleration Simulation Mode Test Procedures, Emission Standards, Quality Control Requirements and Equipment Specifications" (EPA420-B-03-008) and standards required in the Connecticut motor vehicle emissions testing program; and (4) comply with the CAA and Connecticut's federally approved State Implementation Plan ("SIP") for motor vehicle inspection and maintenance.

V. Principal Considerations in Opposition to the Proposed Amendment

No comments opposed the adoption of the proposed amendment. However, comments submitted by DMV suggest revision to certain portions of the proposed amendment in order to conduct the state's I/M program in a manner that is consistent with federal requirements, respond to the change from a centralized to a decentralized emissions testing program and satisfy air quality goals. All comments submitted are addressed in detail in Section VI of this report.

VI. Summary of Comments

All comments submitted are summarized below with the Department's responses. Commenters are identified by abbreviation in this section and are identified fully in Attachment 1 to this report. When changes to the proposed text are indicated in response to comment, new text is in bold font and deleted text is in strikethrough font.

1. Comment: EPA comments in support of this amendment as a first step in the effort to revise Connecticut's SIP, which is now substantially different than the version that is federally approved. EPA offers assistance in preparing future SIP revisions.

Response: The Department notes EPA's offer of assistance as Connecticut's I/M program was revised significantly this year to switch from a centralized to a decentralized emissions testing program. To implement this decentralized program, Connecticut chose and entered into a contract with a new emissions testing vendor. As a result of this change, DMV is making significant revisions to its regulations, which will be submitted as a future revision to the SIP.

2. Comment: DMV recommends that the Department revise the proposed pre-conditioned two speed idle test standards to those recommended by Rob Klausmeier in his January 14, 2004 memo, "Revised Cutpoints for Heavy-Duty Gasoline Powered Vehicle (HDGV) Class" for the light-duty vehicle and light-duty truck categories, but recommends slightly different, and less stringent, standards for certain newer vehicles in the HDGV vehicle class. *See* Attachment 4 to this report. These recommendations for vehicles by weight category are consistent with current federal standards for 1981 and newer model year vehicles less than or equal to 8500 pounds gross vehicle weight rating ("GVWR") and take into account the emission control technologies available to older vehicles. DMV notes there are no federal recommended standards for vehicles in the 8500 pounds GVWR and heavier class, which is also called the HDGV class. The DMV recommended standards for this HDGV vehicle class are the same as those recommended by the Rob Klausmeier memo, except that DMV recommends that the standards for the HDGV 1988 and newer model year vehicle class be changed to 300 ppm hydrocarbon ("HC") and 1.6% carbon monoxide ("CO"). DMV's recommended revision takes into account the emissions control technology utilized by these vehicles and the experiences of other states that test this class of vehicles. This revision will provide a realistic goal for repairers of failed vehicles and yet still identify the gross polluters, so that the Connecticut Emissions Test Program will continue to meet anticipated air pollution reduction goals. Also, DMV notes that it may be necessary to add definitions of vehicle types to Section 27.

Response: As recommended by DMV, the Department should revise the standards for light-duty trucks and vehicles in subsection (c)(1) to be consistent with Mr. Klausmeier's January 14, 2004 memo and current federal standards. Also, for HDGVs for which there are no federal standards, the Department should use the standards indicated in the Klausmeier memo only for 1987 and earlier model year vehicles. For 1988 and later model year vehicles, the Department should use the standards recommended by DMV of 300 ppm HC and 1.6 vol. % CO.

To accomplish these changes, proposed subsection (c)(1) should be revised as follows:

(1) PRE-CONDITIONED TWO SPEED IDLE TEST STANDARDS SHALL BE AS FOLLOWS:

(A) MAXIMUM ALLOWABLE EMISSIONS FOR ANY LIGHT-DUTY

TRUCK OR LIGHT-DUTY VEHICLE SUBJECT TO A PRE-CONDITIONED TWO SPEED IDLE TEST PROCEDURE ADMINISTERED BY THE COMMISSIONER OF MOTOR VEHICLES OR HIS DESIGNEE SHALL BE AS IDENTIFIED PER VEHICLE MODEL YEAR IN THE FOLLOWING TABLE 27-1; AND

TABLE 27-1. PRE-CONDITIONED TWO SPEED IDLE TEST STANDARDS FOR LIGHT-DUTY TRUCKS AND LIGHT-DUTY VEHICLES.

Vehicle Model Year	CO (Vol. %)	HC (ppm)
[1968-69	5.00	500
1970	4.75	475
1971	4.40	450
1972	4.25	425
1973	4.00	390
1974	3.80	350
1975	3.00	300
1976	2.80	300
1977	2.70	300
1978	2.40	275]
1979	2.10 3.00	250 600
1980	2.10 3.00	225 600
[1981	1.20	200
1982	1.20	200

1983	1.00	175
1984	1.00	150
1985	1.00	150
1986	1.00	150
1987	1.00	150
1988 and later	1.00	125]
1981 AND LATER	1.20	220

(B) **MAXIMUM ALLOWABLE EMISSIONS FOR ANY HEAVY-DUTY GASOLINE POWERED VEHICLE SUBJECT TO A PRE-CONDITIONED TWO SPEED IDLE TEST PROCEDURE ADMINISTERED BY THE COMMISSIONER OF MOTOR VEHICLES OR HIS DESIGNEE SHALL BE AS IDENTIFIED PER VEHICLE MODEL YEAR IN TABLE 27-2.**

TABLE 27-2. PRE-CONDITIONED TWO SPEED IDLE TEST STANDARDS FOR HEAVY-DUTY GASOLINE POWERED VEHICLES.

VEHICLE MODEL YEAR	CO (VOL. %)	HC (ppm)
1980 AND EARLIER	3.0	600
1981 THROUGH 1987	1.6	450
1988 AND LATER	1.6	300

In order that the revisions to the proposed standards in subsection (c)(1) be associated with the appropriate vehicle categories, the Department should revise the proposed definition of "light-duty truck" in subsection (b) and add a definition of "heavy-duty gasoline powered vehicle," as follows:

(b) **Definitions.** As used in this section:

.....

(6) **"HEAVY-DUTY GASOLINE POWERED VEHICLE" MEANS ANY MOTOR VEHICLE FUELED BY GASOLINE THAT IS RATED AT GREATER THAN EIGHT THOUSAND FIVE HUNDRED (8500) POUNDS GVWR AND LESS THAN OR EQUAL TO TEN THOUSAND (10,000) POUNDS GVWR;**

(7) **"Light-duty truck" or "LDT" means a motor vehicle rated at ten thousand (10,000) EIGHT THOUSAND FIVE HUNDRED (8500) pounds GVWR or less and is designed:**

(A) To transport property or ten (10) or more persons, not including the operator; or

(B) With features enabling off-street or off-highway operation and use;

.....

The other definitions in subsection (b) should be re-ordered to be alphabetical and numbered consecutively.

3. Comment: DMV recommends that the cutpoints for "composite" motor vehicles proposed in subsection (e) should be revised to 800 ppm HC and 4% CO. For 2006 and later model year composite vehicles, the applicable cutpoints should be 220 ppm HC and 1.2% CO. These changes will require composite vehicles to comply with more stringent standards as newer emissions technologies are incorporated into composite vehicles. The two-step standards also alert manufacturers of composite vehicles of the need to comply with the federally recommended standards as of the 2006 model year.

Response: The Department should revise the emissions standards for composite motor vehicles in subsection (e) as recommended by DMV, as follows:

(e) **Composite motor vehicles.** [Where the vehicle is designated "COMPO" in the "make" field of the registration certificate, the emission standards for model year 1968 shall apply.] ~~FOR COMPOSITE MOTOR VEHICLES, THE LEAST STRINGENT EMISSION STANDARDS FOR VEHICLES LESS THAN TWENTY FIVE YEARS OLD OF SUBSECTION (e)(1) OF THIS SECTION SHALL APPLY. FOR 2005 AND EARLIER MODEL YEAR COMPOSITE MOTOR VEHICLES, THE MAXIMUM ALLOWABLE EMISSIONS SHALL BE 4.0 VOL. % CO AND 800 PPM HC. FOR 2006 AND LATER MODEL YEAR COMPOSITE MOTOR VEHICLES, THE MAXIMUM ALLOWABLE EMISSIONS SHALL BE 1.2 VOL. % CO AND 220 PPM HC.~~

4. Comment: DMV notes that the EPA document referenced in subsection (c)(2) is not the

most recent version that was published in October 2003 and is designated as EPA420-B-008. In late-filed comment, DMV specified that Section 27(c)(2) should refer to both subdivisions (a)(2) and (a)(3) of the October 2003 EPA technical guidance document to state clearly that either original final or revised final ASM standards for light duty vehicles may be used.

Response: The Department should revise proposed subsection (c)(2) to reference subdivisions (a)(2) and (a)(3) of the most recent version of EPA's technical guidance for ASM 2525 exhaust emission standards, as follows:

(2) ASM 2525 exhaust emission standards. Maximum allowable emissions for any vehicle subject to an ASM 2525 exhaust emission test administered by the Commissioner of Motor Vehicles or a designee of the Commissioner of Motor Vehicles shall be as published by the United States Environmental Protection Agency in [subdivision (a)(1) of section 85.1 of the "Acceleration Simulation Mode Test Procedures, Emission Standards, Quality Control Requirements, and Equipment Specifications, Technical Guidance" EPA-AA-RPSD-IM-96-2 (July, 1996). After December 31, 2001, maximum allowable emissions for any vehicle subject to an ASM 2525 exhaust emission test administered by the Commissioner of Motor Vehicles or a designee of the Commissioner of Motor Vehicles shall be as published by the United States Environmental Protection Agency in subdivision (a)(2) of section 85.1 of the "Acceleration Simulation Mode Test Procedures, Emission Standards, Quality Control Requirements, and Equipment Specifications, Technical Guidance" EPA-AA-RPSD-IM-96-2 (July, 1996).] **SUBDIVISION SUBDIVISIONS (a)(2) AND (a)(3) OF SECTION 85.1 OF THE "ACCELERATION SIMULATION MODE TEST PROCEDURES, EMISSION STANDARDS, QUALITY CONTROL REQUIREMENTS, AND EQUIPMENT SPECIFICATIONS," EPA420-P-03-001 (2003)-FINAL TECHNICAL GUIDANCE, EPA420-B-03-008 (OCTOBER 2003).**

Furthermore, although EPA's 2003 technical guidance for ASM 2525 exhaust emission standards clearly allows DMV to choose either original final or revised final ASM 2525 exhaust emission standards, DMV should notify the Commissioner of the Department, EPA and the public regarding its choice of standards prior to implementing testing using such standards. In making the joint EPA submission of the SIP revision regarding this amendment of Section 27, the Department and DMV should include a commitment by DMV to make such notification.

VII. Additional Comment by the Hearing Officer

In addition to the above-recommended revisions, the Department should make the following revision in the final version of Section 27:

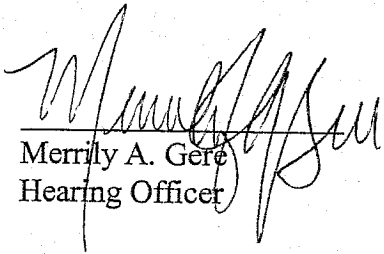
- The term "THC" is unnecessary and confusing and should be replaced by the term "HC." "THC" is defined in subsection (b) as "total hydrocarbons." "HC" is defined in subsection (b) as "hydrocarbon." The definition of "pre-conditioned two speed idle test procedure" refers to an analysis of "HC." However, the standards associated with this test procedure are stated in the table in subsection (c)(1) as standards for "THC." The federal standards on which the standards in subsection (c)(1) are based refer to "HC," and DMV refers to and measures "HC" in conducting the I/M program. Therefore, for clarity and consistency, the definition of "THC" should be eliminated from subsection (b), and the term "THC" in the table in proposed (c)(1) should be replaced with "HC."

VIII. Final Text of Proposed Amendment

The final text of Section 27, inclusive of the changes recommended in this report, is located at Attachment 3 to this report.

IX. Conclusion

Based upon the comments submitted by interested parties and addressed in this Hearing Report, I recommend the final amendment, as contained in Attachment 3 to this report, be submitted by the Commissioner for approval by the Attorney General and the Legislative Regulations Review Committee. Based upon the same considerations, I also recommend that upon promulgation this amendment be submitted to EPA as a revision to the SIP concerning motor vehicle inspection and maintenance as required by the CAA.


Merrily A. Gere
Hearing Officer

July 9, 2004
Date

Attachment 1
List of Commenters

1. David B. Conroy, Manager
Air Quality Planning Unit
United States Environmental Protection Agency ("EPA")
Region 1
One Congress Street, Suite 1100
Boston, MA 02114-2023

2. Robert Waz, Chief
Emissions Division
Connecticut Department of Motor Vehicles ("DMV")
60 State Street
Wethersfield, CT 06161

Attachment 2

Text of Proposed Amendment
to
R.C.S.A. Section 22a-174-27

Section 22a-174-27 of the Regulations of Connecticut State Agencies is amended to read as follows:

Sec. 22a-174-27. Emission standards AND ON-BOARD DIAGNOSTIC II TEST REQUIREMENTS for periodic motor vehicle inspection and maintenance.

(a) Applicability.

This section shall apply to any owner or operator of a [1968] 1979 and later model year motor vehicle that is not an antique, rare or special interest motor vehicle as defined in section 14-1 of the Connecticut General Statutes. This section shall not apply to motor vehicles that are exempt FROM THE PERIODIC AIR POLLUTION CONTROL SYSTEM INSPECTION AND MAINTENANCE REQUIREMENTS pursuant to subsection (c) of section 14-164c of the Connecticut General Statutes.

(b) Definitions. As used in this section:

- (1) "ASM 2525" or "Acceleration Simulation Mode Test" means an emissions test TO ANALYZE EXHAUST EMISSIONS OF CO, NO, AND HC performed at a steady state of twenty-five (25) miles per hour (mph) and utilizing a dynamometer load set to simulate twenty-five (25%) of the power required to accelerate the particular vehicle being tested at 3.3 mph per second until a speed of twenty-five (25) mph is attained[. Such test shall analyze exhaust gas concentration, through percent by volume (vol. %) of CO and parts per million by volume (ppm) of NO and HC, and compare the test results to the maximum allowable exhaust emission standards for CO, NO and HC as published by the United States Environmental Protection Agency in subsection (a) of section 85.1 of the "Acceleration Simulation Mode Test Procedures, Emission Standards, Quality Control Requirements, and Equipment Specifications, Technical Guidance" EPA-AA-RPSD-IM-96-2 (July, 1996) except that the word "should" in subdivisions (a)(1) and (a)(2) of section 85.1 shall be replaced with the word "shall"];
- (2) "CO" means carbon monoxide;
- (3) "HC" means hydrocarbon;
- (4) "Composite Motor Vehicle" [or "COMPO"] means a vehicle that is [constructed from the component parts of two or more motor vehicles of different model year or vehicle type;] DESIGNATED "COMP" OR "COMPO" IN THE "MAKE" FIELD OF AN APPLICABLE CONNECTICUT MOTOR VEHICLE REGISTRATION CERTIFICATE;
- (5) "Gross Vehicle Weight Rating" or "GVWR" means the value specified by the manufacturer as the maximum loaded weight of a single or a combination (articulated) vehicle,

or its registered gross weight, whichever is greater. The GVWR of a combination (articulated) vehicle commonly referred to as the "Gross Combination Weight Rating" or GCWR is the GVWR of the power unit plus the GVWR of the towed unit or units;

[(6) "Idle exhaust test procedure with loaded preconditioning" means an analysis of exhaust gas concentration, by percent CO and HC, in accordance with section 4 of "Recommended I/M Short Test Procedures for the 1990's: Six Alternatives" EPA-AA-TSS-I/M-90-3 (January 1991);]

[(7)](6) "Light-duty truck" or "LDT" means a motor vehicle rated at ten-thousand (10,000) pounds GVWR or less and is designed:

- (A) To transport property or ten (10) or more persons, not including the operator; or
- (B) With features enabling off-street or off-highway operation and use;

[(8)](7) "Light-duty vehicle" or "LDV" means a motor vehicle that is designed:

- (A) To carry not more than ten (10) persons, including the operator; and
- (B) To transport persons and their property with at least fifty percent (50%) of the total area enclosed by the outermost body contour lines, excluding the area enclosing the engine;

(8) "LOADED OPACITY TEST PROCEDURE" MEANS AN ANALYSIS OF EXHAUST OPACITY MEASURED BY AN OPACITY METER AND UTILIZING A DYNAMOMETER LOAD;

(9) "Loaded vehicle weight" or "LVW" means vehicle curb weight plus three-hundred (300) pounds;

(10) "MODEL YEAR" MEANS A MOTOR VEHICLE MANUFACTURER'S ANNUAL PRODUCTION PERIOD THAT INCLUDES JANUARY 1 OF SUCH CALENDAR YEAR OR, IF THE MANUFACTURER HAS NO ANNUAL PRODUCTION PERIOD, THE PRODUCTION PERIOD THAT INCLUDES JANUARY 1 OF SUCH YEAR;

(11) "MODIFIED SNAP-ACCELERATION SMOKE OPACITY TEST PROCEDURE" MEANS AN ANALYSIS OF EXHAUST OPACITY IN ACCORDANCE WITH A VARIANT OF THE "SNAP-ACCELERATION SMOKE OPACITY TEST" DEFINED IN SECTION 14-164i-1 OF THE REGULATIONS OF CONNECTICUT STATE AGENCIES;

[(10)](12) “NO” means nitric oxide;

(13) “ON-BOARD DIAGNOSTIC II SYSTEM” OR “OBD II SYSTEM” MEANS A COMPUTERIZED SELF-DIAGNOSTIC SYSTEM IN A LDV OR LDT THAT REGISTERS FAULTS INDICATING MALFUNCTIONS AND DETERIORATIONS OF THE LDV’S OR LDT’S EXHAUST AND EVAPORATIVE EMISSION CONTROL COMPONENTS;

(14) "PRE-CONDITIONED TWO SPEED IDLE TEST PROCEDURE" MEANS AN ANALYSIS OF EXHAUST EMISSIONS CONCENTRATIONS OF CO, IN PERCENT BY VOLUME (VOL. %), AND HC, IN PARTS PER MILLION (PPM);

[(11)] “On-road testing” means the measurement of HC, CO and NOx emissions on any road or roadside within the state of Connecticut;]

[(12)](15) “THC” means total hydrocarbons; and

[(13)](16) “Vehicle curb weight” is defined as in 40 CFR [section] 86.082-2.

(c) Emission standards.

[(1)] Idle exhaust emission standards. Maximum allowable emissions for any vehicle subject to an idle exhaust test procedure with loaded preconditioning administered by the Commissioner of Motor Vehicles or his designee shall be:]

(1) PRE-CONDITIONED TWO SPEED IDLE TEST STANDARDS. MAXIMUM ALLOWABLE EMISSIONS FOR ANY VEHICLE SUBJECT TO A PRE-CONDITIONED TWO SPEED IDLE TEST PROCEDURE ADMINISTERED BY THE COMMISSIONER OF MOTOR VEHICLES OR HIS DESIGNEE SHALL BE AS IDENTIFIED PER VEHICLE MODEL YEAR IN THE FOLLOWING TABLE:

Vehicle Model Year	CO (Vol. %)	THC (ppm)
[1968-69	5.00	500
1970	4.75	475
1971	4.40	450
1972	4.25	425

1973	4.00	390
1974	3.80	350
1975	3.00	300
1976	2.80	300
1977	2.70	300
1978	2.40	275]
1979	2.10	250
1980	2.00	225
[1981	1.20	200
1982	1.20	200
1983	1.00	175
1984	1.00	150
1985	1.00	150
1986	1.00	150
1987	1.00	150
1988 and later	1.00	125]
1981 AND LATER	1.20	220

(2) ASM 2525 exhaust emission standards. Maximum allowable emissions for any vehicle subject to an ASM 2525 exhaust emission test administered by the Commissioner of Motor Vehicles or a designee of the Commissioner of Motor Vehicles shall be as published by the United States Environmental Protection Agency in [subdivision (a)(1) of section 85.1 of the

“Acceleration Simulation Mode Test Procedures, Emission Standards, Quality Control Requirements, and Equipment Specifications, Technical Guidance” EPA-AA-RPSD-IM-96-2 (July, 1996). After December 31, 2001, maximum allowable emissions for any vehicle subject to an ASM 2525 exhaust emission test administered by the Commissioner of Motor Vehicles or a designee of the Commissioner of Motor Vehicles shall be as published by the United States Environmental Protection Agency in subdivision (a)(2) of section 85.1 of the “Acceleration Simulation Mode Test Procedures, Emission Standards, Quality Control Requirements, and Equipment Specifications, Technical Guidance” EPA-AA-RPSD-IM-96-2 (July, 1996).] SUBDIVISION (a)(3) OF SECTION 85.1 OF THE "ACCELERATION SIMULATION MODE TEST PROCEDURES, EMISSION STANDARDS, QUALITY CONTROL REQUIREMENTS AND EQUIPMENT SPECIFICATIONS," EPA420-P-03-001 (2003).

(3) [Visible emission standards.] LOADED OPACITY TEST STANDARDS. Maximum allowable visible emissions for diesel powered LDVs and LDTs of model years [1968] 1979 and later SUBJECT TO A LOADED OPACITY TEST PROCEDURE ADMINISTERED BY THE COMMISSIONER OF MOTOR VEHICLES OR HIS DESIGNEE, shall be twenty percent (20%) particulate opacity. [as determined by any opacity meter.]

[(4) On-road testing emission standards. Maximum allowable emissions for any vehicle subject to an on-road emissions test administered by the Commissioner of Motor Vehicles or a designee of the Commissioner of Motor Vehicles shall be six percent (6% CO by volume.)

(4) MODIFIED SNAP-ACCELERATION SMOKE OPACITY TEST STANDARDS. MAXIMUM ALLOWABLE VISIBLE EMISSIONS FOR ANY DIESEL POWERED VEHICLE SUBJECT TO A MODIFIED SNAP-ACCELERATION SMOKE OPACITY TEST PROCEDURE ADMINISTERED BY THE COMMISSIONER OF MOTOR VEHICLES OR HIS DESIGNEE SHALL BE AS SPECIFIED IN SECTION 14-164i-2 OF THE REGULATIONS OF CONNECTICUT STATE AGENCIES.

(d) **Undetermined GVWR.** Where the gross vehicle weight rating cannot be determined, the emission standard for LDVs shall apply.

(e) **Composite motor vehicles.** [Where the vehicle is designated “COMPO” in the “make” field of the registration certificate, the emission standards for model year 1968 shall apply.] FOR COMPOSITE MOTOR VEHICLES, THE LEAST STRINGENT EMISSION STANDARDS FOR VEHICLES LESS THAN TWENTY-FIVE YEARS OLD OF SUBSECTION (c)(1) OF THIS SECTION SHALL APPLY.

(f) **Alteration or replacement of vehicle engine.**

(l) Any vehicle with an engine other than the one originally installed by the manufacturer or an identical replacement of such engine shall be subject to the test procedures and standards for

the chassis type and model year of the vehicle.

(2) Any vehicle that is re-engineered from an internal combustion gasoline engine to another combustion or fuel type, shall be subject to the test procedures and standards for a gasoline powered vehicle.

(g) ON-BOARD DIAGNOSTIC II SYSTEM TEST PROCEDURES.

THE TEST SEQUENCE FOR ANY INSPECTION OF OBD II SYSTEMS ON MODEL YEAR 1996 AND NEWER LDV'S AND LDT'S ADMINISTERED BY THE COMMISSIONER OF MOTOR VEHICLES OR HIS DESIGNEE SHALL MEET THE REQUIREMENTS OF 40 CFR 51 AND 40 CFR 85 AND SHALL INCLUDE ALL PROCEDURES SET FORTH IN 40 CFR 85.2222.

Statement of Purpose: This amendment updates the motor vehicle emissions testing program standards implemented by the Commissioner of Motor Vehicles to conform to current requirements of the U.S. Environmental Protection Agency (EPA). Specifically, the amendment: (1) defines new on-board diagnostic test requirements; (2) deletes unnecessary on-road testing standards; (3) adds new emissions standards for vehicles subject to a pre-conditioned two speed idle exhaust emissions test procedure; and (4) adds new emissions standards for diesel vehicles subject to a modified snap-acceleration smoke opacity test. The amendment will be submitted to EPA for approval as a revision to the State Implementation Plan.

Attachment 3

Final Text of Amendment to
R.C.S.A. Section 22a-174-27

Section 22a-174-27 of the Regulations of Connecticut State Agencies is amended to read as follows:

Sec. 22a-174-27. Emission standards AND ON-BOARD DIAGNOSTIC II TEST REQUIREMENTS for periodic motor vehicle inspection and maintenance.

(a) Applicability.

This section shall apply to any owner or operator of a [1968] 1979 and later model year motor vehicle that is not an antique, rare or special interest motor vehicle as defined in section 14-1 of the Connecticut General Statutes. This section shall not apply to motor vehicles that are exempt FROM THE PERIODIC AIR POLLUTION CONTROL SYSTEM INSPECTION AND MAINTENANCE REQUIREMENTS pursuant to subsection (c) of section 14-164c of the Connecticut General Statutes.

(b) Definitions. As used in this section:

(1) "ASM 2525" or "Acceleration Simulation Mode Test" means an emissions test TO ANALYZE EXHAUST EMISSIONS OF CO, NO, AND HC performed at a steady state of twenty-five (25) miles per hour (mph) and utilizing a dynamometer load set to simulate twenty-five (25%) of the power required to accelerate the particular vehicle being tested at 3.3 mph per second until a speed of twenty-five (25) mph is attained[. Such test shall analyze exhaust gas concentration, through percent by volume (vol. %) of CO and parts per million by volume (ppm) of NO and HC, and compare the test results to the maximum allowable exhaust emission standards for CO, NO and HC as published by the United States Environmental Protection Agency in subsection (a) of section 85.1 of the "Acceleration Simulation Mode Test Procedures, Emission Standards, Quality Control Requirements, and Equipment Specifications, Technical Guidance" EPA-AA-RPSD-IM-96-2 (July, 1996) except that the word "should" in subdivisions (a)(1) and (a)(2) of section 85.1 shall be replaced with the word "shall"];

(2) "CO" means carbon monoxide;

[(3) "HC" means hydrocarbon;]

[(4)](3) "Composite Motor Vehicle" [or "COMPO"] means a vehicle that is [constructed from the component parts of two or more motor vehicles of different model year or vehicle type;] DESIGNATED "COMP" OR "COMPO" IN THE "MAKE" FIELD OF AN APPLICABLE CONNECTICUT MOTOR VEHICLE REGISTRATION CERTIFICATE;

[(5)](4) "Gross Vehicle Weight Rating" or "GVWR" means the value specified by the manufacturer as the maximum loaded weight of a single or a combination (articulated) vehicle,

or its registered gross weight, whichever is greater. The GVWR of a combination (articulated) vehicle commonly referred to as the "Gross Combination Weight Rating" or GCWR is the GVWR of the power unit plus the GVWR of the towed unit or units;

(5) "HC" MEANS HYDROCARBON;

(6) "HEAVY-DUTY GASOLINE POWERED VEHICLE" MEANS ANY MOTOR VEHICLE FUELED BY GASOLINE THAT IS RATED AT GREATER THAN EIGHT THOUSAND FIVE HUNDRED (8500) POUNDS GVWR AND LESS THAN OR EQUAL TO TEN THOUSAND (10,000) POUNDS GVWR;

[(6) "Idle exhaust test procedure with loaded preconditioning" means an analysis of exhaust gas concentration, by percent CO and HC, in accordance with section 4 of "Recommended I/M Short Test Procedures for the 1990's: Six Alternatives" EPA-AA-TSS-I/M-90-3 (January 1991);]

(7) "Light-duty truck" or "LDT" means a motor vehicle rated at [ten-thousand (10,000)] EIGHT THOUSAND FIVE HUNDRED (8500) pounds GVWR or less and is designed:

- (A) To transport property or ten (10) or more persons, not including the operator; or
- (B) With features enabling off-street or off-highway operation and use;

(8) "Light-duty vehicle" or "LDV" means a motor vehicle that is designed:

- (A) To carry not more than ten (10) persons, including the operator; and
- (B) To transport persons and their property with at least fifty percent (50%) of the total area enclosed by the outermost body contour lines, excluding the area enclosing the engine;

(9) "LOADED OPACITY TEST PROCEDURE" MEANS AN ANALYSIS OF EXHAUST OPACITY MEASURED BY AN OPACITY METER AND UTILIZING A DYNAMOMETER LOAD;

[(9)](10) "Loaded vehicle weight" or "LVW" means vehicle curb weight plus three-hundred (300) pounds;

(11) "MODEL YEAR" MEANS A MOTOR VEHICLE MANUFACTURER'S ANNUAL PRODUCTION PERIOD THAT INCLUDES JANUARY 1 OF SUCH CALENDAR YEAR OR, IF THE MANUFACTURER HAS NO ANNUAL PRODUCTION PERIOD, THE

PRODUCTION PERIOD THAT INCLUDES JANUARY 1 OF SUCH YEAR;

(12) "MODIFIED SNAP-ACCELERATION SMOKE OPACITY TEST PROCEDURE" MEANS AN ANALYSIS OF EXHAUST OPACITY IN ACCORDANCE WITH A VARIANT OF THE "SNAP-ACCELERATION SMOKE OPACITY TEST" DEFINED IN SECTION 14-164i-1 OF THE REGULATIONS OF CONNECTICUT STATE AGENCIES;

[(10)](13) "NO" means nitric oxide;

(14) "ON-BOARD DIAGNOSTIC II SYSTEM" OR "OBD II SYSTEM" MEANS A COMPUTERIZED SELF-DIAGNOSTIC SYSTEM IN A LDV OR LDT THAT REGISTERS FAULTS INDICATING MALFUNCTIONS AND DETERIORATIONS OF THE LDV'S OR LDT'S EXHAUST AND EVAPORATIVE EMISSION CONTROL COMPONENTS;

(15) "PRE-CONDITIONED TWO SPEED IDLE TEST PROCEDURE" MEANS AN ANALYSIS OF EXHAUST EMISSIONS CONCENTRATIONS OF CO, IN PERCENT BY VOLUME (VOL. %), AND HC, IN PARTS PER MILLION (PPM); AND

[(11)] "On-road testing" means the measurement of HC, CO and NOx emissions on any road or roadside within the state of Connecticut;

(12) "THC" means total hydrocarbons; and]

[(13)](16) "Vehicle curb weight" is defined as in 40 CFR [section] 86.082-2.

(c) Emission standards.

[(1)] Idle exhaust emission standards. Maximum allowable emissions for any vehicle subject to an idle exhaust test procedure with loaded preconditioning administered by the Commissioner of Motor Vehicles or his designee shall be:]

(1) PRE-CONDITIONED TWO SPEED IDLE TEST STANDARDS SHALL BE AS FOLLOWS:

(A) MAXIMUM ALLOWABLE EMISSIONS FOR ANY LIGHT-DUTY TRUCK OR LIGHT-DUTY VEHICLE SUBJECT TO A PRE-CONDITIONED TWO SPEED IDLE TEST PROCEDURE ADMINISTERED BY THE COMMISSIONER OF MOTOR VEHICLES OR HIS DESIGNEE SHALL BE AS IDENTIFIED PER VEHICLE MODEL YEAR IN TABLE 27-1; AND

TABLE 27-1. PRE-CONDITIONED TWO SPEED IDLE TEST STANDARDS FOR LIGHT-DUTY TRUCKS AND LIGHT-DUTY VEHICLES.

Vehicle Model Year	CO (Vol. %)	HC (ppm)
[1968-69	5.00	500
1970	4.75	475
1971	4.40	450
1972	4.25	425
1973	4.00	390
1974	3.80	350
1975	3.00	300
1976	2.80	300
1977	2.70	300
1978	2.40	275]
1979	3.00	600
1980	3.00	600
[1981	1.20	200
1982	1.20	200
1983	1.00	175
1984	1.00	150
1985	1.00	150
1986	1.00	150

1987	1.00	150
1988 and later	1.00	125]
1981 AND LATER	1.20	220

- (B) MAXIMUM ALLOWABLE EMISSIONS FOR ANY HEAVY-DUTY GASOLINE POWERED VEHICLE SUBJECT TO A PRE-CONDITIONED TWO SPEED IDLE TEST PROCEDURE ADMINISTERED BY THE COMMISSIONER OF MOTOR VEHICLES OR HIS DESIGNEE SHALL BE AS IDENTIFIED PER VEHICLE MODEL YEAR IN TABLE 27-2.

TABLE 27-2. PRE-CONDITIONED TWO SPEED IDLE TEST STANDARDS FOR HEAVY-DUTY GASOLINE POWERED VEHICLES.

VEHICLE MODEL YEAR	CO (VOL. %)	HC (ppm)
1980 AND EARLIER	3.0	600
1981 THROUGH 1987	1.6	450
1988 AND LATER	1.6	300

- (2) ASM 2525 exhaust emission standards. Maximum allowable emissions for any vehicle subject to an ASM 2525 exhaust emission test administered by the Commissioner of Motor Vehicles or a designee of the Commissioner of Motor Vehicles shall be as published by the United States Environmental Protection Agency in [subdivision (a)(1) of section 85.1 of the "Acceleration Simulation Mode Test Procedures, Emission Standards, Quality Control Requirements, and Equipment Specifications, Technical Guidance" EPA-AA-RPSD-IM-96-2 (July, 1996). After December 31, 2001, maximum allowable emissions for any vehicle subject to an ASM 2525 exhaust emission test administered by the Commissioner of Motor Vehicles or a designee of the Commissioner of Motor Vehicles shall be as published by the United States Environmental Protection Agency in subdivision (a)(2) of section 85.1 of the "Acceleration Simulation Mode Test Procedures, Emission Standards, Quality Control Requirements, and Equipment Specifications, Technical Guidance" EPA-AA-RPSD-IM-96-2 (July, 1996).] SUBDIVISIONS (a)(2) AND (a)(3) OF SECTION 85.1 OF THE "ACCELERATION SIMULATION MODE TEST PROCEDURES, EMISSION STANDARDS, QUALITY CONTROL REQUIREMENTS, AND EQUIPMENT SPECIFICATIONS," FINAL TECHNICAL GUIDANCE, EPA420-B-03-008 (OCTOBER 2003).

- (3) [Visible emission standards.] LOADED OPACITY TEST STANDARDS. Maximum

allowable visible emissions for diesel powered LDVs and LDTs of model years [1968] 1979 and later SUBJECT TO A LOADED OPACITY TEST PROCEDURE ADMINISTERED BY THE COMMISSIONER OF MOTOR VEHICLES OR HIS DESIGNEE, shall be twenty percent (20%) particulate opacity. [as determined by any opacity meter.]

[(4) On-road testing emission standards. Maximum allowable emissions for any vehicle subject to an on-road emissions test administered by the Commissioner of Motor Vehicles or a designee of the Commissioner of Motor Vehicles shall be six percent (6% CO by volume.)

(4) MODIFIED SNAP-ACCELERATION SMOKE OPACITY TEST STANDARDS. MAXIMUM ALLOWABLE VISIBLE EMISSIONS FOR ANY DIESEL POWERED VEHICLE SUBJECT TO A MODIFIED SNAP-ACCELERATION SMOKE OPACITY TEST PROCEDURE ADMINISTERED BY THE COMMISSIONER OF MOTOR VEHICLES OR HIS DESIGNEE SHALL BE AS SPECIFIED IN SECTION 14-164i-2 OF THE REGULATIONS OF CONNECTICUT STATE AGENCIES.

(d) Undetermined GVWR. Where the gross vehicle weight rating cannot be determined, the emission standard for LDVs shall apply.

(e) Composite motor vehicles. [Where the vehicle is designated "COMPO" in the "make" field of the registration certificate, the emission standards for model year 1968 shall apply.] FOR 2005 AND EARLIER MODEL YEAR COMPOSITE MOTOR VEHICLES, THE MAXIMUM ALLOWABLE EMISSIONS SHALL BE 4.0 VOL. % CO AND 800 PPM HC. FOR 2006 AND LATER MODEL YEAR COMPOSITE MOTOR VEHICLES, THE MAXIMUM ALLOWABLE EMISSIONS SHALL BE 1.2 VOL. % CO AND 220 PPM HC.

(f) Alteration or replacement of vehicle engine.

(1) Any vehicle with an engine other than the one originally installed by the manufacturer or an identical replacement of such engine shall be subject to the test procedures and standards for the chassis type and model year of the vehicle.

(2) Any vehicle that is re-engineered from an internal combustion gasoline engine to another combustion or fuel type, shall be subject to the test procedures and standards for a gasoline powered vehicle.

(g) ON-BOARD DIAGNOSTIC II SYSTEM TEST PROCEDURES.

THE TEST SEQUENCE FOR ANY INSPECTION OF OBD II SYSTEMS ON MODEL YEAR 1996 AND NEWER LDV'S AND LDT'S ADMINISTERED BY THE COMMISSIONER OF MOTOR VEHICLES OR HIS DESIGNEE SHALL MEET THE

REQUIREMENTS OF 40 CFR 51 AND 40 CFR 85 AND SHALL INCLUDE ALL PROCEDURES SET FORTH IN 40 CFR 85.2222.

Statement of Purpose: This amendment updates the motor vehicle emissions testing program standards implemented by the Commissioner of Motor Vehicles to conform to current requirements of the U.S. Environmental Protection Agency (EPA). Specifically, the amendment: (1) defines new on-board diagnostic test requirements; (2) deletes unnecessary on-road testing standards; (3) adds new emissions standards for vehicles subject to a pre-conditioned two speed idle exhaust emissions test procedure; (4) requires ASM 2525 exhaust emission standards consistent with federal guidance but for which the federal government has not adopted analogous standards; and (5) adds new emissions standards for diesel vehicles subject to a modified snap-acceleration smoke opacity test. The amendment will be submitted to EPA for approval as a revision to the State Implementation Plan.

Attachment 4

Memo of R. Klausmeier
(January 14, 2004)

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MEMORANDUM

TO: Bill Menz
Connecticut Department of Environmental Protection

FROM: Rob Klausmeier
de la Torre Klausmeier Consulting, Inc.

DATE: January 14, 2004

SUBJECT: Revised Cutpoints for the HDGV Vehicle Class

DMV raised concerns that idle test failure rates in the new program, which began in October 2003, were too high. Based on 1100 tests, the following fail rates were observed:

- Idle test fail rate (includes 2500 rpm test failures that failed idle test too): 22.6%
- 2500 rpm test only fail rate: 4.7%
- Total test fail rate: 27.3%

Observed Fail Rates for Idle Test in 2001

dKC analyzed I/M data collected in 2001 on results of idle tests. Idle tests were (and still are) the primary test for heavy-duty gasoline powered vehicles (HDGV), and were the fall back test for light-duty trucks (LDGT1 and LDGT2) and passenger cars (LDGV) that could not receive ASM tests. The overall idle test fail rate in 2001 was 18.3% compared to the current observed idle test fail rate of 22.6%.

Table 1 shows the cutpoints that were used in 2001. Cutpoints are identical for all categories. Table 2 shows the cutpoints that are being used in 2003. The 2003 cutpoints are based on Federal standards for the two-speed idle test, which Connecticut began using in 2003. They are less stringent than the previous cutpoints. Like the 2001 cutpoints, they are identical for all categories.

Figure 1 shows a breakdown of idle test fail rates in 2001 by vehicle type. Figure 2 shows the failure rate that resulted from applying the current cutpoints to the 2001 dataset. The overall failure rate based on applying the current cutpoints to the 2001 data is 12.8% compared to the current observed idle test fail rate of 22.6% for the same cutpoints. The higher failure rate in 2003 could be due to two factors: 1) 3 years has elapsed since vehicles were tested and 2) the first 5 model years are exempted from testing.

**TABLE 1
IDLE EMISSIONS STANDARDS USED IN
CONNECTICUT'S PREVIOUS I/M PROGRAM**

HC STD (ppm)

Vehicle Type	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988+
HDGV	300	275	250	225	200	200	175	150	150	150	150	125
LDGT1	300	275	250	225	200	200	175	150	150	150	150	125
LDGT2	300	275	250	225	200	200	175	150	150	150	150	125
LDGV	300	275	250	225	200	200	175	150	150	150	150	125

CO STD (%)

Vehicle Type	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988+
HDGV	2.7	2.4	2.1	2	1.2	1.2	1	1	1	1	1	1
LDGT1	2.7	2.4	2.1	2	1.2	1.2	1	1	1	1	1	1
LDGT2	2.7	2.4	2.1	2	1.2	1.2	1	1	1	1	1	1
LDGV	2.7	2.4	2.1	2	1.2	1.2	1	1	1	1	1	1

**TABLE 2
IDLE EMISSIONS STANDARDS USED IN
CONNECTICUT'S CURRENT I/M PROGRAM**

HC STD (ppm)

Vehicle Type	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988+
HDGV	600	600	600	600	220	220	220	220	220	220	220	220
LDGT1	600	600	600	600	220	220	220	220	220	220	220	220
LDGT2	600	600	600	600	220	220	220	220	220	220	220	220
LDGV	600	600	600	600	220	220	220	220	220	220	220	220

CO STD (%)

Vehicle Type	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988+
HDGV	3.0	3.0	3.0	3.0	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
LDGT1	3.0	3.0	3.0	3.0	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
LDGT2	3.0	3.0	3.0	3.0	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
LDGV	3.0	3.0	3.0	3.0	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2

FIGURE 1

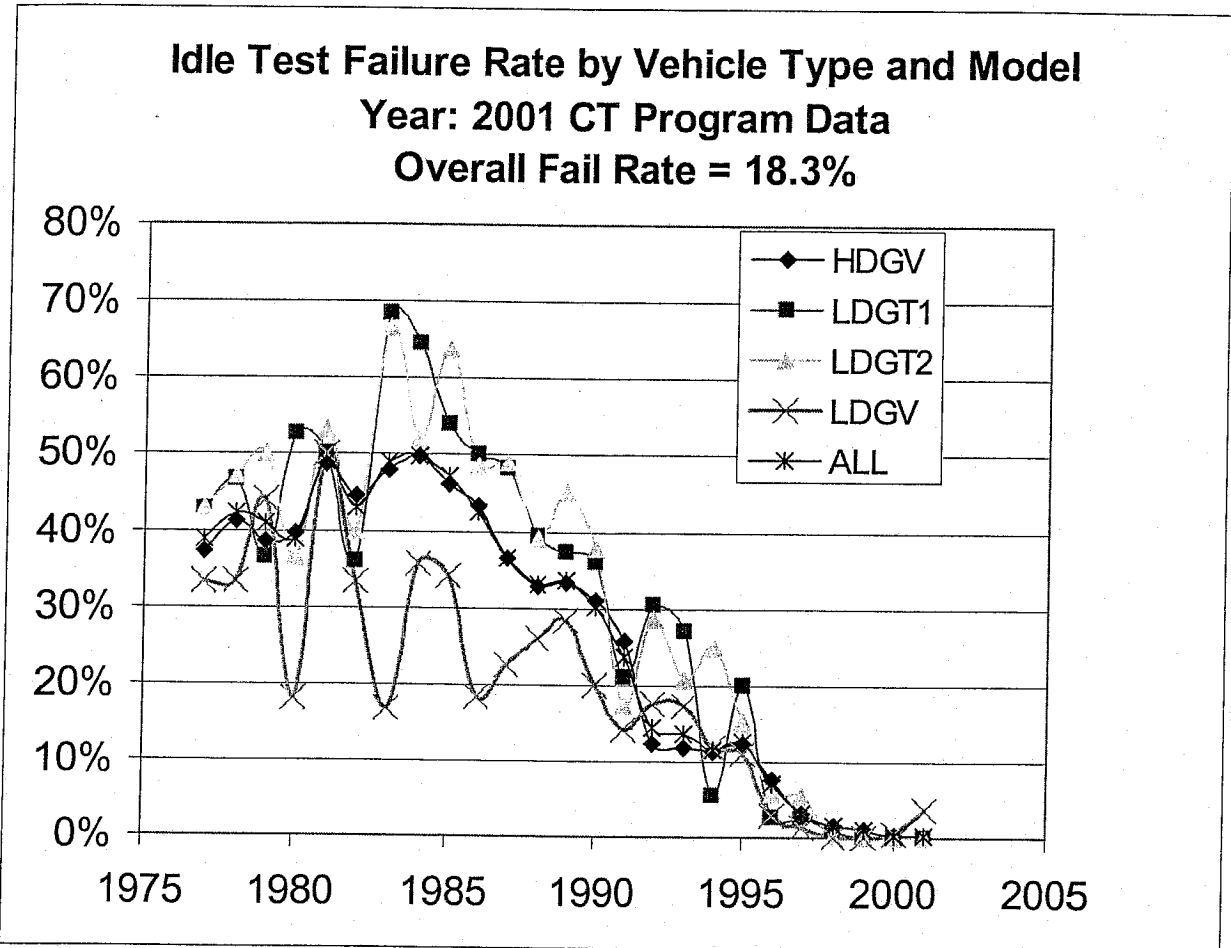
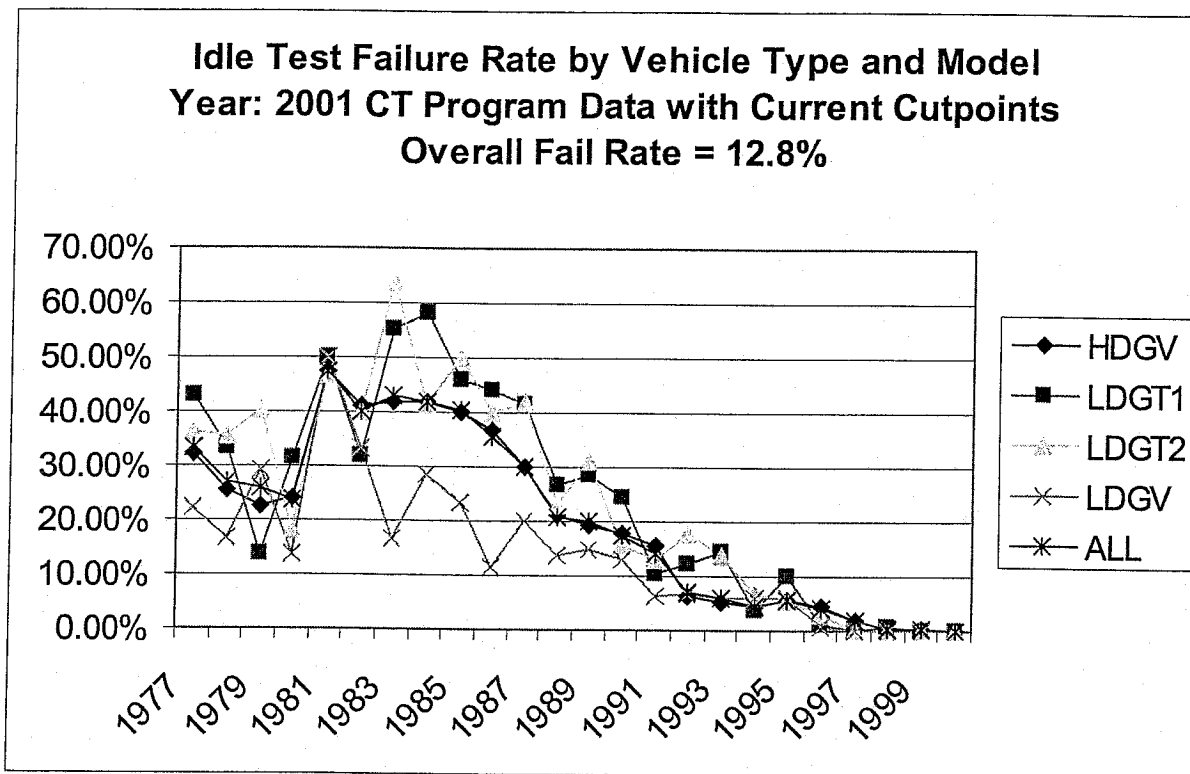


FIGURE 2



Cutpoints Used in Other I/M Programs

dKC reviewed cutpoints used in other programs for LDGT1, LDGT2 and HDGV categories. Most states, like Connecticut, use the same cutpoints for 1981 and newer LDGV, LDGT1 and LDGT2 categories. The following states use 1.2% CO and 220 ppm HC as cutpoints for LDGVs, LDGT1s, and LDGT2s: Arizona, Colorado, Georgia, Missouri, Nevada, New Jersey, New Mexico, New York, Pennsylvania, Rhode Island, Texas, Utah, Virginia, Washington, and Wisconsin. Most states also use less stringent (numerically higher) cutpoints for 1980 and older LDGVs, LDGT1s, and LDGT2s. The current cutpoints used by DMV for the 1979 and 1980 LDGVs, LDGT1s, and LDGT2s are 3.0% CO and 600 ppm HC, which are similar to those used for 1980 and older models in other I/M programs. Most states, however, use much less stringent cutpoints for HDGVs, because they meet much less stringent federal emission standards. Table 3 summarizes some of the HDGV cutpoints used by other states.

dKC recommends that Connecticut also use less stringent standards for HDGVs. Below, we present recommendations on these cutpoints. dKC recommends that Connecticut continue to use current standards for LDGVs, LDGT1s, and LDGT2s. Using less stringent standards for these vehicles may encourage stations to downgrade to a two-speed idle test from an ASM test to get a vehicle to pass.

**TABLE 3
HDGV IDLE TEST CUTPOINTS USED BY STATE I/M PROGRAMS**

State	Model Year	HC Cutpoint (ppm)	CO Cutpoint (%)
Illinois	79-84	700	7.0
	85+	300	3.0
North Carolina	79+	400	4.0
Pennsylvania	75+	650	6.0
Texas	79-81	700	7.0
	82-84	500	5.0
	85+	300	3.0
Utah	79-80	1000	4.0
	81+	800	3.5
Washington	81+	400	3.0
Wisconsin	79-84	700	7.0
	85+	300	3.0

Revised Idle Test Cutpoints for HDGVs

dKC reviewed distributions of idle emissions levels for HDGVs tested in 2001 to derive new cutpoints. We divided the sample into the following model year groups (the sample sizes were too small for individual model years):

- 1980 and older
- 1981 to 1987
- 1988 and newer

For each test, we selected the lowest of the idle HC and CO readings (some vehicles received 2nd chance tests). We then identified the dirtiest 10%, 15% and 20% levels, which are shown on Table 4. At a given percentile, the failure rate with the combined cutpoints will be about 50% higher than the percentile for the individual cutpoint. For example, the expected failure rate using 10% levels for HC and CO will be about 15%. dKC recommends that Connecticut set standards that will fail 20 to 25% of the pre-1988 vehicles and 10 to 15% of the 1988 and newer vehicles. Therefore, dKC recommends selecting the 15% HC and CO levels for pre-1988 models and 10% HC and CO levels for 1988 and newer models.

**TABLE 4
IDLE EMISSION LEVELS BY VEHICLE TYPE, MODEL YEAR GROUP AND PERCENTILE (FROM DIRTIEST TO CLEANEST)**

Vehicle Type	Model Year	Idle HC Levels			Idle CO Levels		
		10%	15%	20%	10%	15%	20%
HDGV	Pre-81	811	532	393	3.7	2.8	2.2
	81-87	708	452	310	2.7	1.6	1.2
	88+	124	97	77	0.39	0.24	0.13

The proposed cutpoints were selected as follows:

- For the “pre 81” and “81 to 87” model year groups we selected the 15% emission levels.
- For the 88+ group we selected the 10% emission levels.
- For each model year group, the designated cutpoint was the higher of the selected level or the current cutpoint.
- The cutpoints were rounded to the nearest 25 ppm level for HC (i.e. 452 was rounded to 450) or the nearest 0.1% level for CO.

Table 5 shows the resultant cutpoints. They differ from current cutpoints only in the values for 1981 to 1987 HDGVs. For other model year HDGVs and vehicle classes, the cutpoints are the same as the current cutpoints. The proposed cutpoints were applied to the 2001 HDGV sample resulting in the failure rates shown on Figure 3. The failure rate with the proposed cutpoints show a more consistent trend by model year. The new cutpoints should be used for the low and high idle test, if Connecticut wants to enforce both idle standards.

**TABLE 5
PROPOSED NEW IDLE EMISSIONS STANDARDS FOR
CONNECTICUT'S I/M PROGRAM**

HC STD (ppm)												
Vehicle Type	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988+
HDGV	600	600	600	600	450	450	450	450	450	450	450	220
LDGT1	600	600	600	600	220	220	220	220	220	220	220	220
LDGT2	600	600	600	600	220	220	220	220	220	220	220	220
LDGV	600	600	600	600	220	220	220	220	220	220	220	220

CO STD (%)												
Vehicle Type	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988+
HDGV	3.0	3.0	3.0	3.0	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.2
LDGT1	3.0	3.0	3.0	3.0	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
LDGT2	3.0	3.0	3.0	3.0	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
LDGV	3.0	3.0	3.0	3.0	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2

FIGURE 3

