APPENDIX I-A-3

State of California
AIR RESOURCES BOARD

PROPOSED
FOR PHASE I GREENHOUSE GAS REGULATION

CALIFORNIA GREENHOUSE GAS EXHAUST EMISSION STANDARDS AND TEST PROCEDURES FOR 2014 AND SUBSEQUENT MODEL HEAVY-DUTY VEHICLES

Adopted: [INSERT DATE OF ADOPTION]

Note: The proposed regulatory text is all new language.

Date of Release: October 23, 2013
Date of Hearing: December 12, 2013

NOTE: This document is incorporated by reference in section 95663(c), title 17, California Code of Regulations (CCR). It contains the majority of the requirements necessary for greenhouse gas certification of a heavy-duty vehicle for sale in California. However, reference is made in these test procedures to other ARB documents that contain certification requirements for heavy-duty engines and vehicles. Note that this list of documents is not inclusive of all necessary requirements to complete an application for certification. The following documents are designed to be used in conjunction with this document. They include:

1. "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles," as last amended [date] (incorporated by reference in sections 1956.8(b), title 13, CCR);

2. "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Otto-Cycle Engines and Vehicles," as last amended [date] (incorporated by reference in sections 1956.8(d), title 13, CCR)

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CALIFORNIA GREENHOUSE GAS EXHAUST EMISSION STANDARDS AND TEST PROCEDURES FOR 2014 AND SUBSEQUENT MODEL HEAVY-DUTY VEHICLES

The following provisions of Subparts A through I, Part 1037, and Subparts A through H, Part 1066, Title 40, Code of Federal Regulations (CFR), as adopted by the U.S. Environmental Protection Agency on November 14, 2011, or amended by the U.S. Environmental Protection Agency on the subsequent date set forth next to the applicable section listed below, and only to the extent they pertain to the greenhouse gas emission testing and compliance of greenhouse gas exhaust emissions from medium- and heavy-duty vehicles, are adopted and incorporated herein by this reference as the "California Greenhouse Gas Exhaust Emission Standards and Test Procedures for 2014 and Subsequent Model Heavy-Duty Vehicles," except as altered or replaced by the provisions set forth below.

References in these test procedures to specific sections of the CFR maintain the same numbering system employed in the CFR. In cases where the entire CFR section is incorporated by reference with no modifications, the notation "[No change.]" is used. In cases where the federal requirements are modified by California requirements, the notation "Amend (or delete) subparagraph (__) as follows:" is used. If the federal requirement is not applicable, the notation "[n/a]" is used. In cases where there are California only requirements, the additional California requirements are noted in a separate subsection.

PART 1037 – CONTROL OF EMISSIONS FROM NEW HEAVY-DUTY MOTOR VEHICLES

Subpart A – Overview and Applicability

1037.1 Applicability

A. Federal Provisions [No change.]

B. California provisions.

1. These regulations are applicable to all medium- and heavy-duty vehicles that are subject to the Greenhouse Gas Emission Requirements for New 2014 and Subsequent Model Heavy-Duty Vehicles as specified in title 17, California Code of Regulations sections 95660 through 95664.
2. Any reference to vehicle or engine sales or vehicle or engine production volume throughout the United States shall mean vehicle or engine sales or vehicle or engine volume in California, except in Part 1037, Subpart H, Averaging, Banking, and Trading for Certification.
3. Regulations concerning U.S. EPA hearings, U.S. EPA inspections,

specific language on the Certificate of Conformity, and citations to federal penalty provisions in the Code of Federal regulations or the federal Clean Air Act shall not be applicable to these procedures, except where specifically noted.

1037.5 Excluded vehicles.
1037.10 How is this part organized?
1037.15 Do any other regulation parts apply to me? August 16, 2013.
1037.30 Submission of information.

Subpart B – Emission Standards and Related Requirements

1037.101 Overview of emission standards for heavy-duty vehicles.

1. Subparagraphs (a) through (b) introductory paragraph. [No change.]
2. Subparagraph (b)(1). [n/a; see "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles" and "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Otto-Cycle Engines and Vehicles" for California criteria exhaust emission standards.]
3. Amend subparagraph (b)(2) by adding the following: For the 2014 through 2022 model years, a manufacturer may elect to demonstrate compliance with sections §1037.104 through §1037.115 for its entire applicable vehicle fleet by demonstrating compliance with the 2014 MY National Heavy-Duty Engine and Vehicle Greenhouse Gas Program, if it meets the criteria identified below.

(1) A manufacturer that selects compliance with this option must notify the Executive Officer of that selection, in writing, prior to the start of the applicable model year or December 1, 2014, whichever is later;

(2) The manufacturer must submit to ARB all data that the manufacturer submitted to U.S. Environmental Protection Agency in accordance with the reporting requirements as required under 40 CFR §1037.205, §1037.250 and §1037.730, for demonstrating compliance with the 2014 MY National Heavy-Duty Engine and Vehicle Greenhouse Gas Program and the U.S. Environmental Protection Agency determination of compliance. With the exception of the 2014 model year, all such data must be submitted within 30 days of receipt of the U.S. Environmental Protection Agency Certificate of Conformity or of the date of submission to the U.S. Environmental Protection Agency, whichever is later, for each model year that a manufacturer selects compliance with this option;

(3) The manufacturer must provide to the Executive Officer separate numbers for each subfamily of heavy-duty vehicles produced and delivered for sale in California each model year and all values used in calculating positive or negative emission credits in §1037.730.

4. Subparagraph (b)(3). [No change.]
5. Subparagraph (b)(4). [n/a; see "California Evaporative Emission Standards

and Test Procedures for 2001 and Subsequent Model Motor Vehicles" for California fuel evaporative emission standards.]

6. Subparagraph (c). [No change.]

1037.102 Exhaust emission standards for NO_X, HC, PM, and CO.

1. Amend the introductory paragraph as follows: See the "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles," and the "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Otto-Cycle Engines and Vehicles," for the exhaust emission standards for NO_X, HC, PM, and CO that apply for heavy-duty vehicles.

1037.104 Exhaust emission standards for CO_2, CH_4, and N_2O for heavy-duty vehicles at or below 14,000 pounds GVWR. August 16, 2013.
1037.105 Exhaust emission standards for CO_2 for vocational vehicles.
1037.106 Exhaust emission standards for CO_2 for tractors above 26,000 pounds GVWR.
1037.115 Other requirements. August 16, 2013.
1037.120 Emission-related warranty requirements.
1037.125 Maintenance instructions and allowable maintenance.
1037.135 Labeling. August 16, 2013.

1. Subparagraphs (a) through (b)(7). [No change.]

2. Amend subparagraph (b)(8) as follows: State: ''THIS VEHICLE COMPLIES WITH CALIFORNIA REGULATIONS FOR [MODEL YEAR] HEAVY–DUTY VEHICLES.'' It may also state that the vehicle conforms to any other applicable federal or Canadian emission standards for heavy-duty vehicles.

3. Subparagraphs (b)(9) through (e). [No change.]

1037.140 Curb weight and roof height.
1037.150 Interim provisions. August 16, 2013.

1. Amend subparagraph (a) as follows: *Credit provisions for 2013 and earlier model year compliance*. The provisions of this paragraph (a) apply to vehicles produced in the 2013 and earlier model years that have generated early credits with U.S. Environmental Protection Agency. For 2013 model year heavy-duty vehicles (or earlier model years for electric vehicles) that are certified to the greenhouse gas standards of this 40 CFR Part 1037, an equal amount of credit as given by the U.S. Environmental Protection Agency will be granted in the California ABT Program. The manufacturer must notify ARB of its intent to use this provision before submitting its application and must submit to ARB all data that it submitted to U.S. Environmental Protection Agency in accordance with the reporting requirements as required under 40 CFR §§1037.205,1037.250, and 1037.730.

2. Subparagraphs (a)(1) through (m). [No change.]

Subpart C – Certifying Vehicle Families

1037.201 General requirements for obtaining a certificate of conformity. August 16, 2013.
1037.205 What must I include in my application?

1. Subparagraphs (a) through (q). [No change.]
2. Amend subparagraph (r) as follows: Unconditionally certify that all the vehicles in the vehicle family comply with the requirements of this part, other referenced parts of the CFR, and title 17, CCR sections 95660 through 95664.
3. Subparagraphs (s) through (v). [No change.]

1037.210 Preliminary approval before certification.
1037.220 Amending maintenance instructions.
1037.225 Amending applications for certification.
1037.230 Vehicle families, sub-families, and configurations. August 16, 2013.
1037.241 Demonstrating compliance with exhaust emission standards for greenhouse gas pollutants.
1037.250 Reporting and recordkeeping.
1037.255 What decisions may EPA make regarding my certificate of conformity?

Subpart D – [Reserved]

Subpart E – In-use Testing

1037.401 General provisions.

Subpart F – Test and Modeling Procedures

1037.501 General testing and modeling provisions. August 16, 2013.

1. Subparagraphs (a) through (c). [No change.]
2. Amend subparagraph (d) as follows: Use the applicable fuels specified in 40 CFR part 1065, as amended by the "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles," and "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Otto-Cycle Engines and Vehicles," to perform valid tests.
3. Subparagraphs (d)(1) through (g). [No change.]

1037.510 Duty-cycle exhaust testing.
1037.520 Modeling CO_2 emissions to show compliance. August 16, 2013.
1037.521 Aerodynamic measurements.
1037.525 Special procedures for testing hybrid vehicles with power take-off. August 16, 2013.
1037.550 Special procedures for testing post-transmission hybrid systems. August 16, 2013.

Subpart G – Special Compliance Provisions

1037.601 What compliance provisions apply to these vehicles?

1. Subparagraphs (a) through (b). [No change.]
2. Amend subparagraph (c) as follows: The prohibitions of 40 CFR 86.1854 apply for vehicles subject to the requirements of this part. The actions prohibited under this provision include the introduction into commerce in California of a complete or incomplete vehicle subject to the standards of this part where the vehicle is not covered by a valid Executive Order or exemption.
3. Amend subparagraph (d) as follows: Except as specifically allowed by this part, the introduction into commerce in California of a tractor containing an engine not certified for use in tractors; or the introduction into commerce in California of a vocational vehicle containing a light heavy-duty or medium heavy-duty engine not certified for use in vocational vehicles is subject to the penalty provisions set forth in Article 3 (commencing with section 42400) of Chapter 4 of Part 4 of, and Chapter 1.5 (commencing with Section 43025) of Part 5 of, Division 26 of the California Health and Safety Code. This prohibition applies especially to the vehicle manufacturer.
4. Subparagraph (e). [No change.]

1037.610 Vehicles with innovative technologies.

1. Subparagraphs (a) through (d). [No change.]
2. Amend subparagraph (e) as follows: We may seek public comment on your request. However, we will generally not seek public comment on credits or adjustments based on A to B chassis testing performed according to the duty-cycle testing requirements of this part or in-use testing performed according to paragraph (c) of this section.

1037.615 Hybrid vehicles and other advanced technologies. August 16, 2013.
1037.620 Shipment of incomplete vehicles to secondary vehicle manufacturers. August 16, 2013.
1037.630 Special purpose tractors.
1037.631 Exemption for vocational vehicles intended for off-road use.
1037.640 Variable vehicle speed limiters.
1037.645 In-use compliance with family emission limits (FELs).
1037.650 Tire manufacturers.
1037.655 Post-useful life vehicle modifications.
1037.660 Automatic engine shutdown systems. August 16, 2013.

1. Subparagraphs (a) and (b). [No change.]
2. Delete subparagraph (c).
3. Subparagraph (d). [No change.]

A. Federal Provisions [No change.]

B. California Provisions

1. Additional provisions apply for automatic engine shutdown systems to comply with California's Heavy-Duty Diesel Engine Idling Requirements, as contained in section 11.B.6. of the "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles." However, a manufacturer may choose to comply with California's Heavy-Duty Diesel Engine Idling Requirements via the Optional NOx Idling Emission Standard, as described in subsection 11.B.6.3, in which case the aforementioned additional California provisions for the automatic engine shutdown system would not be necessary for compliance.

Subpart H – Averaging, Banking, and Trading for Certification

1037.701 General provisions.
1037.705 Generating and calculating emission credits.
1037.710 Averaging.
1037.715 Banking.
1037.720 Trading.
1037.725 What must I include in my application for certification?
1037.730 ABT reports.
1037.735 Recordkeeping.
1037.740 Restrictions for using emission credits.
1037.745 End-of-year CO_2 credit deficits. August 16, 2013.
1037.750 What can happen if I do not comply with the provisions of this subpart?

Subpart I – Definitions and Other Reference Information

1037.801 Definitions. August 16, 2013.

A. Federal Provisions. [All federal definitions apply, except as otherwise noted below.]

Amend "Vehicle service class" as follows: "Vehicle service class" means a vehicle's weight class as specified in this definition. Note that, while vehicle service class is similar to primary intended service class for engines, they are not necessarily the same. For example, a medium heavy-duty vehicle may include a light heavy-duty engine. Note also that while spark-ignition engines do not have a primary intended service class, vehicles using spark-ignition engines have a vehicle service class.
(1) Light heavy-duty vehicles are those vehicles with GVWR below 19,500 pounds. Vehicles In this class include heavy-duty pickup trucks and vans, motor homes and other recreational vehicles, and some straight trucks with a single rear axle. Typical applications would include personal transportation, light-load commercial delivery, passenger service, agriculture, and construction.
(2) Medium heavy-duty vehicles are those vehicles with GVWR from 19,500 to 33,000 pounds. Vehicles in this class include school buses, straight trucks with a single rear axle, city tractors, and a variety of special purpose vehicles such as small dump trucks, and refuse trucks. Typical applications would include commercial short haul and intra-city delivery and pickup.
(3) Heavy heavy-duty vehicles are those vehicles with GVWR above 33,000 pounds. Vehicles in this class include tractors, GHG urban buses, and other heavy trucks.

B. California Provisions.
"2014 MY National Heavy-Duty Engine and Vehicle Greenhouse Gas Program" means the national program that applies to new 2014 and subsequent model heavy-duty engines and vehicles, as adopted by the U.S. Environmental Protection Agency (76 Fed. Reg. 57106 (November 14, 2011)) and amended August 16, 2013, as incorporated in and amended by these test procedures.
"Certificate of Conformity" means an Executive Order certifying vehicles for sale in California.
"Certification" means relating to the process of obtaining an Executive Order for an engine family that complies with the emission standards and requirements in this part.
"Designated Compliance Officer" means the Executive Officer of the Air Resources Board or a designee of the Executive Officer.
"Designated Enforcement Officer" means the Executive Officer of the Air Resources Board or a designee of the Executive Officer.
"EPA" shall also mean Air Resources Board or Executive Officer of the Air

Resources Board.
"Manufacturer" means any person who manufacturers an engine, vehicle, or piece of equipment for sale in California or otherwise introduces a new engine into commerce in California. This includes importers who import engines or vehicles for resale.
"Medium-duty engine" means any heavy-duty engine that is used to propel a medium-duty vehicle.
"Medium-duty vehicle" means any heavy-duty low-emission, ultra-low-emission, super-ultra-low-emission or zero-emission vehicle certified to the standards in title 13, CCR section 1956.8(h), having a manufacturer's gross vehicle weight rating between 8,501 and 14,000 pounds.
"U.S. Environmental Protection Agency" means the United States Environmental Protection Agency.
"We (us, our)" means the Executive Officer and any authorized representatives.

1037.805 Symbols, acronyms, and abbreviations. August 16, 2013.
1037.810 Incorporation by reference. August 16, 2013.
1037.815 Confidential information.

1. Delete and replace as follows: The provisions of title 17, CCR section 91000 through 91022 apply for information you consider confidential. Note that according to section 91011, emissions data shall not be identified as confidential.

1037.820 Requesting a hearing.

1. Delete subparagraph (a) and replace as follows: You may request a hearing under certain circumstances, as described elsewhere in this part.
2. Subparagraph (b). [No change.]
3. Amend subparagraph (c) as follows: If we agree to hold a hearing, we will use the procedures specified in 17 CCR sections 60055.1 through 6055.43.

1037.825 Reporting and recordkeeping requirements.

1. Subparagraphs (a) through (d). [No change.]
2. Delete subparagraph (e).

Appendix I to Part 1037—Heavy-duty Transient Chassis Test Cycle

Appendix II to Part 1037—Power Take-Off Test Cycle

Appendix III to Part 1037—Emission Control Identifiers

PART 1066 – VEHICLE TESTING PROCEDURES

Subpart A – Applicability and General Provisions

1066.1 Applicability.
1066.2 Submitting information to EPA under this part.

1. Subparagraph (a). [No change.]
2. Delete subparagraph (b) and replace as follows: In the standard-setting part and in 40 CFR 1068.101, we describe your obligation to report truthful and complete information and the consequences of failing to meet this obligation. This obligation applies whether you submit this information directly to ARB or through someone else.
3. Subparagraphs (c) through (d). [No change.]
4. Amend subparagraph (e) as follows: See the provisions of title 17, CCR sections 91000 through 91022 for provisions related to confidential information. Note however that emission data is generally not eligible for confidential treatment.
5. Amend subparagraph (f) as follows: Nothing in this part should be interpreted to limit our ability to verify that vehicles conform to the regulations.

1066.5 Overview of this part 1066 and its relationship to the standard-setting part.
1066.10 Other procedures.
1066.15 Overview of test procedures.
1066.20 Units of measure and overview of calculations.
1066.25 Recordkeeping.

Subpart B – Equipment, Fuel, and Gas Specifications

1066.101 Overview.

1. Subparagraph (a). [No change.]
2. Amend subparagraph (b) as follows: The provisions of 40 CFR part 1065 specify engine-based procedures for measuring emissions. Except as specified otherwise in this part, the provisions of 40 CFR part 1065, as modified by the “California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles,” and “California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Otto-Cycle Engines and Vehicles,” apply for testing required by this part as follows:
3. Subparagraphs (b)(1) through (c). [No change.]

Subpart C – Dynamometer Specifications

1066.201 Dynamometer overview.
1066.210 Dynamometers.
1066.215 Summary of verification and calibration procedures for chassis dynamometers.
1066.220 Linearity verification.
1066.225 Roll runout and diameter verification procedure.
1066.230 Time verification procedure.
1066.235 Speed verification procedure.
1066.240 Torque transducer verification and calibration.
1066.245 Response time verification.
1066.250 Base inertia verification.
1066.255 Parasitic loss verification.
1066.260 Parasitic friction compensation evaluation.
1066.265 Acceleration and deceleration verification.
1066.270 Unloaded coastdown verification.
1066.280 Driver's aid.

Subpart D – Coastdown

1066.301 Overview of coastdown procedures.
1066.310 Coastdown procedures for heavy-duty vehicles. August 16, 2013.

Subpart E – Vehicle Preparation and Running a Test

1066.401 Overview.
1066.407 Vehicle preparation and preconditioning.
1066.410 Dynamometer test procedure.
1066.420 Pre-test verification procedures and pre-test data collection.
1066.425 Engine starting and restarting.
1066.430 Performing emission tests.

Subpart F – Hybrids

1066.501 Overview.

Subpart G – Calculations

1066.601 Overview.
1066.610 Mass-based and molar-based exhaust emission calculations.

Subpart H – Definitions and Other Reference Material

1066.701 Definitions.

A. Federal Provisions. [No change.]

B. California Provisions.

"EPA" shall also mean Air Resources Board or Executive Officer of the Air Resources Board.

1066.705 Symbols, abbreviations, acronyms, and units of measure.

1066.710 Reference materials.