California Environmental Protection Agency

Air Resources Board

PUBLIC MEETING AGENDA

November 15, 2012

LOCATION:
Air Resources Board
Byron Sher Auditorium, Second Floor
1001 I Street
Sacramento, California 95814
http://www.calepa.ca.gov/EPAbldg/location.htm

This facility is accessible by public transit. For transit information, call (916) 321-BUSS, website: http://www.sacrt.com
(This facility is accessible to persons with disabilities.)

TO SUBMIT WRITTEN COMMENTS ON AN AGENDA ITEM IN ADVANCE OF THE MEETING GO TO: http://www.arb.ca.gov/lispub/comm/bclist.php

November 15, 2012
9:00 a.m.

CONSENT CALENDAR:

The following item on the consent calendar will be voted on by the Board immediately after the start of the public meeting, unless removed from the consent calendar either upon a Board member's request or if someone in the audience wishes to speak on it.

Consent Item #

12-8-1: Public Hearing to Consider Approval of the Proposed State Implementation Plan Revision for Federal Nitrogen Dioxide Standard Infrastructure Requirements

Staff will present to the Board for approval the infrastructure State Implementation Plan (SIP) for the federal nitrogen dioxide standard that was revised in 2010. The infrastructure SIP describes the resources, programs, and authority the State has in place to address the revised standard.

Attached is the Proposed Resolution for the above consent item.

DISCUSSION ITEMS:

Note: The following agenda items may be heard in a different order at the Board meeting.

Agenda Item #

12-8-2: Update to the Board on AB 32

Staff will provide a brief update to the Board on AB 32 implementation.

12-8-3: Public Hearing to Consider Amendments to the New Passenger Motor Vehicle Greenhouse Gas Emission Standards for Model Years 2017-2025 to Permit Compliance Based on Federal Greenhouse Gas Emissions Standards and Additional Minor Revisions to the LEV III and ZEV Regulations

Staff will present amendments to California's regulations to control greenhouse gases from new passenger vehicles, to allow manufacturers to demonstrate compliance in the 2017 through 2025 model years based on compliance with the national greenhouse gas regulations in these years. Staff will also present additional minor revisions to the LEV III and ZEV regulations.

12-8-4: Report to the Board on the State Implementation Plan Overview

Staff will provide an overview of State Implementation Plans (SIP) and the SIP development efforts currently underway.

12-8-6: Update to the Board on the 2012 Air Quality and Climate Change Legislation

Staff will provide an overview of air quality and climate change legislation from the second year of the 2011-2012 legislative session.

CLOSED SESSION

The Board will hold a closed session, as authorized by Government Code section 11126(e), to confer with, and receive advice from, its legal counsel regarding the following pending or potential litigation, and as authorized by Government Code section 11126(a):

Pacific Merchant Shipping Association v. Goldstene, U.S. District Court (E.D. Cal. Sacramento), Case No. 2:09-CV-01151-MCE-EFB.

POET, LLC, et al. v. Goldstene, et al., Superior Court of California (Fresno County), Case No. 09CECG04850; plaintiffs' appeal, Court of Appeal No. F064045.

Rocky Mountain Farmers Union, et al. v. Goldstene, U.S. District Court (E.D. Cal. Fresno), Case No. 1:09-CV-02234-LJO-DLB; interlocutory appeal, U.S. Court of Appeal, Ninth Circuit Nos. 09-CV-02234 and 10-CV-00163.

American Fuels and Petrochemical Manufacturing Associations, et al. v. Goldstene, et al., U.S. District Court (E.D. Cal. Fresno) Case No. 1:10-CV-00163-AWI-GSA; interlocutory appeal, U.S. Court of Appeal, Ninth Circuit Nos. 09-CV-02234 and 10-CV-00163.

Association of Irritated Residents, et al. v. California Air Resources Board, Superior Court of California (San Francisco County), Case No. CPF-09-509562.

Association of Irritated Residents, et al. v. U.S. E.P.A., 2011 WL 310357 (C.A.9), (Feb. 2, 2011).

California Dump Truck Owners Association v. California Air Resources Board, U.S. District Court (E.D. Cal. Sacramento) Case No. 2:11-CV-00384-MCE-GGH.

Engine Manufacturers Association v. California Air Resources Board, Sacramento Superior Court, Case No. 34-2010-00082774.

Citizens Climate Lobby and Our Children's Earth Foundation v. California Air Resources Board, San Francisco Superior Court, Case No. CGC-12-519554.

Consideration of a personnel matter.

OPPORTUNITY FOR MEMBERS OF THE BOARD TO COMMENT ON MATTERS OF INTEREST

Board members may identify matters they would like to have noticed for consideration at future meetings and comment on topics of interest; no formal action on these topics will be taken without further notice.

OPEN SESSION TO PROVIDE AN OPPORTUNITY FOR MEMBERS OF THE PUBLIC TO ADDRESS THE BOARD ON SUBJECT MATTERS WITHIN THE JURISDICTION OF THE BOARD

Although no formal Board action may be taken, the Board is allowing an opportunity to interested members of the public to address the Board on items of interest that are within the Board's jurisdiction, but that do not specifically appear on the agenda. Each person will be allowed a maximum of three minutes to ensure that everyone has a chance to speak.

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ONLINE SIGN-UP:
You can sign up online in advance to speak at the Board meeting when you submit an electronic Board item comment. For more information go to:

http://www.arb.ca.gov/board/online-signup.htm

IF YOU HAVE ANY QUESTIONS, PLEASE CONTACT THE CLERK OF THE BOARD:
1001 I Street, 23rd Floor, Sacramento, California 95814
(916) 322-5594
ARB Homepage: www.arb.ca.gov

SPECIAL ACCOMMODATION REQUEST

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- An interpreter to be available at the hearing;
- Documents made available in an alternate format or another language;
- A disability-related reasonable accommodation.

To request these special accommodations or language needs, please contact the Clerk of the Board at (916) 322-5594 or by facsimile at (916) 322-3928 as soon as possible, but no later than 7 business days before the scheduled Board hearing. TTY/TDD/Speech to Speech users may dial 711 for the California Relay Service.

Comodidad especial o necesidad de otro idioma puede ser proveído para alguna de las siguientes:

- Un intérprete que esté disponible en la audiencia.
- Documentos disponibles en un formato alterno u otro idioma;
- Una acomodación razonable relacionados con una incapacidad.

Para solicitar estas comodidades especiales o necesidades de otro idioma, por favor llame a la oficina del Consejo al (916) 322-5594 o envíe un fax a (916) 322-3928 lo más pronto posible, pero no menos de 7 días de trabajo antes del día programado para la audiencia del Consejo. TTY/TDD/Personas que necesiten este servicio pueden marcar el 711 para el Servicio de Retransmisión de Mensajes de California.

SMOKING IS NOT PERMITTED AT MEETINGS OF THE CALIFORNIA AIR RESOURCES BOARD

PROPOSED

State of California
AIR RESOURCES BOARD

PROPOSED STATE IMPLEMENTATION PLAN REVISION FOR FEDERAL NITROGEN DIOXIDE STANDARD INFRASTRUCTURE REQUIREMENTS

Resolution 12-34

November 15, 2012

Agenda Item No.: 12-8-1

WHEREAS, the Legislature in Health and Safety Code section 39602 designated the State Air Resources Board (ARB or Board) as the air pollution control agency for all purposes set forth in federal law;

WHEREAS, ARB is responsible for preparing the State Implementation Plan (SIP) for attaining and maintaining the National Ambient Air Quality Standards (NAAQS) as required by the federal Clean Air Act (CAA; 42 U.S.C. section 7401 *et seq.*) and to this end is directed by Health and Safety Code section 39602 to coordinate the activities of all local and regional air pollution control and air quality management districts (districts) as necessary to comply with the CAA;

WHEREAS, section 39602 of the Health and Safety Code also provides that the SIP shall include only those provisions necessary to meet the requirements of the CAA;

WHEREAS, ARB has primary responsibility for the control of air pollution from vehicular sources, including motor vehicle fuels, as specified in sections 39002, 39500, and part 5 (commencing with section 43000) of the Health and Safety Code, and for ensuring that districts meet their responsibilities under the CAA pursuant to sections 39002, 39500, 39602, 40469, and 41650 of the Health and Safety Code;

WHEREAS, ARB is authorized by Health and Safety Code section 39600 to do such acts as may be necessary for the proper execution of its powers and duties;

WHEREAS, the California Environmental Quality Act (CEQA) requires that no project which may have significant adverse environmental impacts may be adopted as originally proposed if feasible alternatives or mitigation measures are available to reduce or eliminate such impacts, unless specific overriding considerations are identified which outweigh the potential adverse consequences of any unmitigated impacts;

WHEREAS, on January 22, 2010, the United States Environmental Protection Agency (U.S. EPA) promulgated a new 1-hour average nitrogen dioxide NAAQS at a level of 100 parts per billion;

WHEREAS, on January 22, 2010, U.S. EPA retained the annual average nitrogen dioxide NAAQS at a level of 53 parts per billion;

WHEREAS, when U.S. EPA promulgates a NAAQS, CAA Section 110(a)(1) requires each state to adopt, after reasonable notice and public hearing, and submit to the U.S. EPA Administrator an Infrastructure SIP that provides for implementation, maintenance, and enforcement of the NAAQS throughout the State;

WHEREAS, a state must address the specific elements of CAA Sections 110(a)(2)(B) through(H), and (J) through (M) in its Infrastructure SIP for the 1-hour average nitrogen dioxide NAAQS (75 Fed. Reg. 6474, 6523);

WHEREAS, the Infrastructure SIP does not contain any proposed control strategy, but instead sets forth the State's and district's authorities and abilities to develop and implement a strategy for attaining and maintaining the NAAQS;

WHEREAS, many of the Infrastructure SIP requirements were addressed in California's comprehensive CAA Section 110(a)(2) SIP, which was submitted in response to the CAA of 1970 and approved by U.S. EPA in 1979 in 40 Code of Federal Regulations (CFR) 52.220;

WHEREAS, this Infrastructure SIP revision provides ARB's commitment to comply with CAA 110(a)(2) requirements, as well as responds to new elements required by the 1990 CAA Amendments and by U.S. EPA's 2010 promulgation of the revised nitrogen dioxide NAAQS;

WHEREAS, the Infrastructure SIP for nitrogen dioxide must be submitted to U.S. EPA by January 22, 2013 (three years after promulgation of the 2010 nitrogen dioxide NAAQS);

WHEREAS, CAA Section 110(l) and 40 CFR Section 51.102 require one or more public hearings, preceded by at least 30-day notice and opportunity for public review, be conducted prior to the adoption and submittal to U.S. EPA of any SIP revision;

WHEREAS, on October 15, 2012, ARB staff circulated for public review a Staff Report entitled *Proposed State Implementation Plan Revision for Federal Nitrogen Dioxide Standard Infrastructure Requirements*, which includes a discussion of all elements of the Infrastructure SIP for nitrogen dioxide as required under CAA Section 110(a)(2);

WHEREAS, the Board finds that the proposed Infrastructure SIP for nitrogen dioxide demonstrates ARB and districts' authorities and abilities to:

1. Monitor, compile, and analyze ambient nitrogen dioxide air quality data and provide the data to U.S. EPA;

2. Implement an enforcement program for control measures associated with implementing the nitrogen dioxide NAAQS and a permit program regulating the construction and modification of major stationary nitrogen dioxide sources;

3. Prohibit nitrogen dioxide emissions from contributing significantly to nonattainment of the nitrogen dioxide NAAQS, interfering with maintenance of the nitrogen dioxide NAAQS, or contributing to reduced visibility in another state;

4. Provide assurances that the agencies have adequate personnel, funding, and legal authority to carry out provisions in the SIP, that a majority of their board members represent the public interest, and that the state can ensure that the districts can implement provisions in the SIP;

5. Require owners and operators of stationary nitrogen dioxide sources to install, maintain, and replace equipment for monitoring stationary source nitrogen dioxide emissions and to provide periodic reports on these emissions;

6. Halt nitrogen dioxide emissions that cause or contribute to injury of public health or welfare and have adequate contingency plans to implement their authority;

7. Revise their SIP when a NAAQS is revised, new attainment methods become available, or U.S. EPA determines that a current SIP is inadequate to attain the NAAQS or to comply with additional CAA requirements;

8. Meet the applicable requirements of the CAA relating to consultation and public notification, and meet the requirements for Prevention of Significant Deterioration and visibility protection, as they apply to nitrogen dioxide;

9. Provide for using air quality models to predict the effect of nitrogen dioxide emissions on ambient air quality and submitting the modeling data to U.S. EPA when requested;

10. Assess and collect from owners and operators of stationary nitrogen dioxide sources, fees sufficient to cover the reasonable costs of reviewing and acting upon a permit application and fees sufficient to cover the reasonable costs of implementing and enforcing the permit, if granted (owners or operators are also required to comply with the fee provisions of Title V Sections 501 through 507 of the CAA); and

11. Consult with and allow for participation by local political subdivisions affected by the Infrastructure SIP for nitrogen dioxide.

WHEREAS, the Board finds that:

1. The proposed Infrastructure SIP for nitrogen dioxide meets the applicable requirements established by the CAA and U.S. EPA regulations;

2. The proposed Infrastructure SIP for nitrogen dioxide meets the notice and public hearing requirements specified in 40 CFR Section 51.102; and

3. The proposed Infrastructure SIP for nitrogen dioxide will not result in any significant adverse environmental impacts because it does not contain any control strategies and is simply a demonstration of ARB's and the districts' authority and abilities to implement the nitrogen dioxide NAAQS, therefore, there is no possibility that adoption of the SIP will have any significant impact on the environment.

NOW, THEREFORE, BE IT RESOLVED that the Board hereby adopts the Infrastructure SIP for nitrogen dioxide, as set forth in Attachment A to this resolution, as a revision to the California State Implementation Plan.

BE IT FURTHER RESOLVED that the Board certifies pursuant to 40 CFR Section 51.102 that the notice and public hearing requirements of that section were met.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to submit the adopted Infrastructure SIP for nitrogen dioxide to U.S. EPA for approval, along with other supporting documentation, no later than January 22, 2013.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to work with U.S. EPA and take appropriate action to resolve any completeness or approvability issues that may arise regarding the Infrastructure SIP for nitrogen dioxide.

Resolution 12-34

November 15, 2012

Identification of Attachments to the Board Resolution

Attachment A: State Implementation Plan Revision for Federal Nitrogen Dioxide Standard Infrastructure Requirements, Released October 15, 2012, including Appendix A, available at: http://www.arb.ca.gov/planning/sip/sip.htm.

California Environmental Protection Agency

Air Resources Board

PUBLIC MEETING AGENDA

LOCATION:
Air Resources Board
Byron Sher Auditorium, Second Floor
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Sacramento, California 95814

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November 15, 2012

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CALIFORNIA AIR RESOURCES BOARD

NOTICE OF PUBLIC HEARING TO CONSIDER APPROVAL OF THE PROPOSED STATE IMPLEMENTATION PLAN REVISION FOR FEDERAL NITROGEN DIOXIDE STANDARD INFRASTRUCTURE REQUIREMENTS

The Air Resources Board (ARB or Board) will conduct a public hearing at the time and place noted below to consider the approval of proposed revisions to the California State Implementation Plan (SIP) for submittal to the United States Environmental Protection Agency (U.S. EPA). The proposed revisions document that California has the resources and programs in place to implement, maintain, and enforce the 2010 revised nitrogen dioxide (NO_2) National Ambient Air Quality Standard (2010 federal NO_2 standard, or standard).

DATE: November 15, 2012

TIME: 9:00 a.m.

PLACE: California Environmental Protection Agency
Air Resources Board
Byron Sher Auditorium
1001 I Street
Sacramento, California 95814

This item may be considered at a two-day meeting of the Board, which will commence at 9:00 a.m., November 15, 2012, and may continue at 8:30 a.m., on November 16, 2012. This item is scheduled to be heard on the Board's Consent Calendar. All items on the Consent Calendar will be voted on by the Board immediately after the start of the public meeting. Any item may be removed from the Consent Calendar by a Board member or at the request of a Board member or if someone in the audience would like to speak on that item.

On January 22, 2010, U.S. EPA revised the federal NO_2 standard. Although U.S. EPA made no change to the existing annual standard of 53 parts per billion (ppb), which has been attained throughout California for many years, U.S. EPA adopted a new 1-hour NO_2 standard of 100 ppb. When U.S. EPA adopts a new standard, as is the case with the 1-hour NO_2 standard, one of the first steps in the planning process is a determination of whether the state has sufficient resources, programs, and authority to implement the standard. The federal Clean Air Act refers to these collectively, as the necessary "infrastructure." The formal documentation is set forth in an Infrastructure State Implementation Plan (SIP) and constitutes a revision to California's overall SIP. Specific Infrastructure SIP requirements are specified in Clean Air Act Section 110. Examples of infrastructure elements include programs to monitor air quality and authority to adopt, implement, and enforce regulations. The overarching framework or infrastructure for California's air quality programs is well established and has been

documented in previous Infrastructure SIP submittals. The proposed Infrastructure SIP for NO_2 is specific to the 2010 federal NO_2 standard and is due to U.S. EPA by January 22, 2013.

ARB staff prepared a Staff Report entitled *Proposed State Implementation Plan Revision for Federal Nitrogen Dioxide Standard Infrastructure Requirements.* The Staff Report documents State and district resources, programs, and authority to implement the basic requirements needed to ensure implementation, maintenance, and enforcement of the 2010 federal NO_2 standard. Among the items the Infrastructure SIP addresses are the ability to monitor and report emissions and air quality data, the authority to adopt and enforce regulations and programs designed to protect public health, and provisions to provide opportunity for input and review by affected entities and the public. These items provide the "infrastructure" needed to achieve and maintain healthful air quality.

Most of these Infrastructure SIP elements were addressed in California's comprehensive Infrastructure SIP, submitted in response to the federal Clean Air Act of 1970 and approved by U.S. EPA in 1979 (40 Code of Federal Regulations Part 52.220). This submittal for the 2010 federal NO_2 standard continues to affirm ARB's commitment to comply with the infrastructure requirements. In addition, the NO_2 Infrastructure SIP responds to new elements and commitments required by the new federal 1-hour NO_2 standard. Changes required for the 1-hour NO_2 standard are limited in scope and focus primarily on California's ability to comply with new monitoring requirements. The proposed NO_2 Infrastructure SIP also contains a commitment to comply with any future SIP revisions required under the Clean Air Act.

Copies of the proposed NO_2 Infrastructure SIP will be available at ARB's Public Information Office,1001 I Street, First Floor, Environmental Services Center, Sacramento, California, 95814, (916) 322-2990 beginning October 15, 2012. The document may also be accessed on ARB's website at: http://www.arb.ca.gov/planning/sip/sip.htm.

Interested members of the public may present comments orally or in writing at the meeting and comments may be submitted by postal mail or by electronic submittal before the meeting. To be considered by the Board, written comments not physically submitted at the meeting must be received **no later than 12:00 noon, November 14, 2012,** and addressed to the following:

Postal mail: Clerk of the Board, Air Resources Board
1001 I Street, Sacramento, California 95814

Electronic submittal: http://www.arb.ca.gov/lispub/comm/bclist.php

You can sign up online in advance to speak at the Board meeting when you submit an electronic board item comment. For more information go to:

http://www.arb.ca.gov/board/online-signup.htm.
Please note that under the California Public Records Act (Government Code section 6250 et seq.), your written and oral comments, attachments, and associated contact information (e.g., your address, phone, email, etc.) become part of the public record and can be released to the public upon request.

ARB requests that written and email statements on this item be filed at least 10 days prior to the meeting so that ARB staff and Board members have additional time to consider each comment. Further inquiries regarding this matter should be directed to Ms. Gayle Sweigert, Manager, Air Quality Analysis Section, at (916) 322-6923 or Ms. Marcella Nystrom, Staff Air Pollution Specialist, at (916) 323-8543.

SPECIAL ACCOMMODATION REQUEST

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CALIFORNIA AIR RESOURCES BOARD

James N. Goldstene
Executive Officer

Date: October 15, 2012

STATE IMPLEMENTATION PLAN REVISION FOR FEDERAL NITROGEN DIOXIDE STANDARD INFRASTRUCTURE REQUIREMENTS

Release Date: October 15, 2012
Hearing Date: November 15, 2012

California Environmental Protection Agency

Air Resources Board

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INTRODUCTION

The purpose of this report is to provide a revision to the infrastructure portion of California's State Implementation Plan (SIP). The revision is required under the federal Clean Air Act (CAA) and is limited to changes that specifically address the National Ambient Air Quality Standard for nitrogen dioxide (federal NO_2 standard or NO_2 standard). Furthermore, it is primarily focused on the new 1-hour NO_2 standard, although provisions could also impact the annual NO_2 standard. Because this Infrastructure SIP is specific to NO_2, it contains no changes for any other air pollutant.

The following paragraphs provide background information on the federal NO_2 standard and requirements for the infrastructure portion of the SIP. The actual language of the SIP revision is provided in Appendix A: State Implementation Plan Revision for Federal Nitrogen Dioxide Standard Infrastructure Requirements.

OVERVIEW

On January 22, 2010, the United States Environmental Protection Agency (U.S. EPA) revised the federal NO_2 standard. U.S. EPA made no changes to the existing annual standard of 53 parts per billion (ppb) that was originally promulgated in 1971. However, U.S. EPA also adopted a new 1-hour standard of 100 ppb. The 1-hour standard is designed to protect against short-term NO_2 exposure, and compliance is measured as a three-year average of the 98^{th} percentile concentration.

When U.S. EPA revises an existing standard, or as in the case of the 1-hour NO_2 standard, promulgates a new standard, CAA Section 110(a)(1) requires each state to revise their SIP to show they have the authority and programs needed to implement, maintain, and enforce the standard, regardless of designation status. This documentation is submitted to U.S. EPA for approval and is generally referred to as an Infrastructure SIP. States must submit an Infrastructure SIP within three years after a federal standard is adopted or revised. California's NO_2 Infrastructure SIP is due to U.S. EPA by January 22, 2013.

California has already addressed most of the infrastructure requirements in a comprehensive Infrastructure SIP submitted in response to the CAA of 1970 and approved by U.S. EPA in 1979 (40 Code of Federal Regulations 52.220). The Air Resources Board (ARB or Board) has submitted amendments to the Infrastructure SIP to comply with revisions to the federal 8-hour ozone standard, the federal $PM_{2.5}$ standard, and the federal lead standard, but U.S. EPA has not yet acted fully on these revisions. The current proposed revision for the 2010 federal NO_2 standard continues to affirm the Board's commitment to comply with CAA requirements. In addition, the revision addresses new elements required by U.S. EPA's 2010 revision of the federal NO_2 standard, including new NO_2 ambient monitoring requirements.

The specific elements that must be included in the NO_2 Infrastructure SIP are listed in CAA Section 110(a)(2). Table 1 lists the page number in Appendix A where each element is addressed. As mentioned earlier, the NO_2 Infrastructure SIP will become part of the overall statewide SIP, upon approval by U.S. EPA.

TABLE 1
Required Infrastructure SIP Elements*

Infrastructure SIP Element	*Clean Air Act Requirement*	*Element Description*
Ambient Air Quality Monitoring/Data System	§110(a)(2)(B)	Page A-1
Programs for Enforcement, PSD, and NSR	§110(a)(2)(C)	Page A-3
Interstate and International Transport Provisions	§110(a)(2)(D)	Page A-6
Adequate Personnel, Funding, and Authority	§110(a)(2)(E)	Page A-8
Stationary Source Monitoring and Reporting	§110(a)(2)(F)	Page A-9
Contingency Plans for Emergency Episodes	§110(a)(2)(G)	Page A-10
Future SIP Revisions	§110(a)(2)(H)	Page A-11
Consultation with Government Officials, Public Notification, PSD, and Visibility Protection	§110(a)(2)(J)	Page A-11
Air Quality Modeling/Data	§110(a)(2)(K)	Page A-13
Permitting Fees	§110(a)(2)(L)	Page A-13
Consultation/Participation by Affected Local Entities	§110(a)(2)(M)	Page A-14

* *Note that states are not required to address elements §110(a)(2)(A) and §110(a)(2)(I) in the Infrastructure SIP because these elements are specific to nonattainment areas. As U.S. EPA interprets the Clean Air Act, SIPs incorporating any necessary local nonattainment area controls are not due within three years of promulgation of the federal standard, but rather are due at the same time as the nonattainment area planning requirements (75 FR 6474).*

In addition to the infrastructure requirements, U.S. EPA designates areas as attainment, nonattainment, or unclassifiable to facilitate subsequent planning efforts to attain the federal standards. When a new standard is adopted or an existing standard is revised, states have one year to submit area designation recommendations. ARB submitted area designation recommendations for the revised federal NO_2 standard on January 24, 2011. Copies of the submittal package and final area designations are available on U.S. EPA's website at: http://www.epa.gov/airquality/nitrogenoxides/designations/region/region9.html. Based on data collected during 2008 through 2010, all California monitors show compliance with both the new 1-hour standard and the annual standard. Thus, U.S. EPA designated all areas of the State as unclassifiable/attainment for the federal NO_2 standard.

APPENDIX A

STATE IMPLEMENTATION PLAN REVISION FOR FEDERAL NITROGEN DIOXIDE STANDARD INFRASTRUCTURE REQUIREMENTS

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APPENDIX A
State Implementation Plan Revision
for Federal Nitrogen Dioxide Standard Infrastructure Requirements

Ambient Air Quality Monitoring/Data System [§110(a)(2)(B)]

This section requires states to monitor, compile, and analyze ambient nitrogen dioxide (NO_2) concentrations and provide the data to the United States Environmental Protection Agency (U.S. EPA).

NO_2 monitoring requirements include population-oriented monitoring and near-roadway monitoring in urban areas with a population of 500,000 or more. California's existing NO_2 monitoring network is sufficient to satisfy the population-oriented requirements. Air Resources Board (ARB) staff are working with local air pollution control and air quality management districts (districts) and U.S. EPA to identify the best locations for up to 15 new near-roadway monitors. The NO_2 final rule specifies that these monitors be deployed in 2013. However, U.S. EPA has issued a proposed rule (October 5, 2012) to revise the deadline and deploy the near-road monitors in phases between 2014 and 2017. ARB and the districts will work closely with U.S. EPA to address the implementation of the new near-roadway monitors through the network planning process.

Discussion

ARB, districts, private contractors, and other government entities (for example, the National Parks Service) maintain a statewide network of monitoring sites. Instruments at these sites collect data for a variety of air pollutants, as well as a number of meteorological parameters. Current information about California's overall air quality monitoring program, as well as information about individual monitoring sites, is available on ARB's website at http://www.arb.ca.gov/aqd/aqmoninca.htm. Data collected at the individual monitoring sites are compiled, analyzed, and reported to U.S. EPA's Air Quality System per the schedule set forth in federal monitoring regulations. These data are also available on ARB's website at http://www.arb.ca.gov/adam. In addition, ARB and districts submit annual air quality monitoring plans to U.S. EPA that describe how the State and districts comply with monitoring requirements, including proposed changes to the monitoring network.

Table A-1 provides a summary of the monitors required in California for the 2010 federal NO_2 standard, including both near-roadway and community-wide monitors. Although some NO_2 is directly emitted by combustion sources, most of it is formed in the atmosphere from oxides of nitrogen or NO_x emissions. U.S. EPA estimates that nationwide, mobile sources account for approximately 60 percent of NO_x emissions, and therefore, short-term near-roadway exposures can dominate personal NO_2 exposure. To address this traffic-related exposure, U.S. EPA established a new NO_2 near-roadway monitoring requirement for large urban areas. This requirement is consistent with U.S. EPA's recent focus on high, source-oriented, short-term exposures and is similar to the approach taken in revising monitoring requirements for the federal lead and sulfur dioxide standards. One near-roadway NO_2 monitor is required in each Core Based Statistical Areas (CBSA) with a population of 500,000 or more. Near-roadway monitors must be located within

50 meters (about 164 feet) of the roadway edge, where maximum concentrations are expected to occur. CBSAs with a population of 2,500,000 or more or CBSAs with a population of 500,000 or more and at least one road segment having an Annual Average Daily Traffic (AADT) count of 250,000 or more vehicles must have two near-roadway monitors.

In June 2012, U.S. EPA released a document titled, *Near-Road NO_2 Monitoring Technical Assistance Document* (http://www.epa.gov/ttnamti1/files/nearroad/NearRoadTAD.pdf), to help states and local air monitoring agencies implement the near-roadway monitoring requirements. Potential near-roadway sites will be evaluated using six factors: AADT, fleet mix, congestion patterns, roadway design, terrain, and meteorology. In addition to these factors, other considerations that may impact site selection include federal siting criteria (for example probe height and distance from obstructions), site logistics (for example, site access and safety), and population exposure. ARB and the districts are working with U.S. EPA to identify appropriate near-roadway site locations. The estimated number of near-roadway monitors shown below reflect information specified in U.S. EPA's 2010 final NO_2 rule.

TABLE A-1
Required California Monitors for the Federal NO_2 Standard

District	CBSA	Counties Included	Near-Road Monitor*	Community-Wide Monitor**
Bay Area AQMD	San Francisco-Oakland-Fremont	Alameda, Contra Costa, San Francisco, San Mateo, Marin	2	1
	San Jose-Sunnyvale-Santa Clara	Santa Clara	1	1
Sacramento Metropolitan AQMD	Sacramento-Arden Arcade-Roseville	Sacramento, Placer	2***	1
San Diego County AQMD	San Diego-Carlsbad-San Marcos	San Diego	2	1
San Joaquin Valley Unified APCD	Bakersfield	Kern	1	not required
	Fresno	Fresno	1	not required
	Modesto	Stanislaus	1	not required
	Stockton	San Joaquin	1	not required
South Coast AQMD	Los Angeles-Long Beach-Santa Ana	Los Angeles, Orange	2	1
	Riverside- San Bernardino -Ontario	Riverside, San Bernardino	2	1
Ventura County APCD	Oxnard-Thousand Oaks-Ventura	Ventura	1	not required

* *The estimated number of near-roadway monitors is based on conditions specified in the final NO_2 rule using 2008 Census Bureau data and data from the 2007 Highway Performance Monitoring System maintained by the U.S. Department of Transportation Federal Highway Administration. The number of required monitors may not reflect current conditions.*

** *The estimated number of community-wide monitors is based on 2008 data. A sufficient number of community-wide monitors already operate as part of the long-term statewide NO_2 monitoring network.*

*** *Based on 2010 data, the Sacramento area requires only one near-roadway monitor because the AADT for all road segments is now lower than the trigger level specified in the final NO_2 rule for a second near-roadway monitor.*

The near-road network is anticipated to provide an infrastructure capable of housing other ambient air monitoring equipment. U.S. EPA requires a subset of these sites to include carbon monoxide monitoring, phased in during 2015 through 2017. States are also encouraged to monitor for other pollutants at the near-roadway sites. Information from the near-roadway monitors will help broaden the understanding of air quality conditions and pollutant interactions, furthering the ability to evaluate air quality models, develop emissions control strategies, and support long-term scientific studies – including health studies about near-roadway exposures.

In addition to the near-roadway monitors, any CBSA with a population of 1,000,000 or more must also have one community-wide monitor (refer to Table A-1). As mentioned previously, California's existing statewide network of more than 80 community-wide NO_2 monitors has been operating for many years and far exceeds the minimum federal requirements. Data from these existing community-wide monitors show no violation of either the annual NO_2 standard of 53 parts per billion (ppb) or the new federal 1-hour NO_2 standard of 100 ppb and provided the basis for U.S. EPA's NO_2 unclassifiable/attainment area designations promulgated in January 2012. Finally, U.S. EPA Regional Administrators are working to identify a subset of at least 40 NO_2 monitors nationwide, to help protect communities that are susceptible and vulnerable to NO_2-related health effects. It is likely that seven of these 40 monitors will be located in California

Programs for Enforcement, PSD, and NSR [§110(a)(2)(C)]

> *This section requires states to enforce control measures associated with attaining and maintaining the federal NO_2 standard and to implement a permitting program to regulate the construction and modification of major stationary sources of NO_2. In addition, Prevention of Significant Deterioration (PSD) programs must also apply to stationary sources that emit Greenhouse Gases (GHG), in accordance with U.S. EPA's Tailoring Rule.*

ARB has a comprehensive enforcement program in place that covers stationary sources, as well as other sources of pollutants, statewide. At the local level, districts are responsible for stationary source permitting programs. Each district has developed its own program, resulting in a comprehensive set of applicable rules and regulations. Currently, five districts have SIP-approved PSD programs. Two districts operate programs with partial delegation, while PSD programs in the remaining districts are administered by U.S. EPA. A number of those districts that do not currently operate their own PSD program are in the process of obtaining PSD authority from U.S. EPA.

Discussion

ARB's enforcement program covers mobile sources, stationary sources, consumer products, and fuels. Details about the program are available on ARB's website at http://www.arb.ca.gov/enf/enf.htm. In addition to the statewide program, districts implement

rules incorporating California Health and Safety Code provisions that grant all district officers and employees the authority to adopt and enforce their own rules and regulations (California Health and Safety Code sections 40001, 40120, 40702, 40752, 40753, and 41510). ARB reviews and audits district enforcement programs as part of its oversight role and in accordance with California Health and Safety Code section 41500. ARB also reviews district rules at their draft, proposed, and adopted stages to ensure the rules meet all applicable State and federal requirements. ARB maintains an online publicly-accessible district rules database at http://www.arb.ca.gov/drdb/drdb.htm.

California Health and Safety Code section 40000 gives districts the responsibility of controlling air pollution from stationary sources. This includes responsibility for New Source Review (NSR) and PSD. Both NSR and PSD address the construction or modification of stationary sources so they do not cause or contribute to a violation of federal standards. NSR applies in nonattainment areas, whereas PSD applies in areas designated as unclassifiable or attainment. As noted previously, all areas of California are designated as unclassifiable/attainment for NO_2. Thus, PSD applies statewide for NO_2.

In an effort to ensure that proposed new or modified sources comply with the federal standard, district and State representatives worked cooperatively through the California Air Pollution Control Officer's Association, or CAPCOA, to develop a common platform of information, tools, and stationary source modeling recommendations specific to the new 1-hour NO_2 standard. The protocols are described in a document titled *Modeling Compliance of the Federal 1-Hour NO_2 NAAQS*, released October 27, 2011. The modeling protocols are consistent with guidance provided by U.S. EPA.

Currently in California, PSD programs are (1) fully implemented by a district, (2) partially implemented by a district, or (3) wholly implemented by U.S. EPA. Five California districts have authority to fully implement their SIP-approved PSD program (refer to Table A-2). A sixth district, the San Joaquin Valley Air Pollution Control District, is awaiting final approval of their Rule 2410, which will give them authority to implement a PSD program. Table A-2 lists the districts with PSD authority, their qualifying rules, the PSD permitting emissions trigger levels, and the Federal Register approval citation. The SIP-approved PSD programs in these districts also apply to GHG emissions, in accordance with U.S. EPA's Tailoring Rule.

TABLE A-2
California Districts with SIP-Approved PSD NO_2 Rules

District	*Applicable District Rule*	*NO_2 Trigger Level for Major New Source PSD Permit*	*NO_2 Trigger Level for Major Modified Source PSD Permit*	*SIP Approval Federal Register Citation*
Mendocino County Air Quality Management District	Rule 220	220 pounds/day	220 pounds/day	50 FR 30942
Monterey Bay Unified Air Pollution Control District	Rule 207	150 pounds/day	150 pounds/day	65 FR 5433
North Coast Unified Air Quality Management District	Rule 220	40 tons/year	40 tons/year	50 FR 30941
Northern Sonoma County Air Pollution Control District	Rule 220	40 tons/year	40 tons/year	50 FR 30943
Sacramento Metropolitan Air Quality Management District	Rule 203	100 or 250 tons/year*	40 tons/year	76 FR 43183
San Joaquin Valley Unified Air Pollution Control District	Rule 2410	100 or 250 tons/year*	40 tons/year	Pending**

** The 100 tons/year trigger applies only to certain types of sources, including petroleum refineries, kraft pulp mills, and portland cement plants, whereas the 250 tons/year trigger applies to all other types of sources not specifically listed in 40 Code of Federal Regulations 52.21(b)(1)(i)(a).*
*** On June 16, 2011, the San Joaquin Valley district adopted Rule 2410, covering PSD permitting. The rule was submitted to U.S. EPA, and the proposed rule was published in the Federal Register on June 1, 2012 (77 FR 32493). ARB anticipates the rule will be final by November 1, 2012; however, this is dependent on when notice of the final rule is published in the Federal Register.*

In addition to the six districts listed in Table A-2, two California districts, the Bay Area Air Quality Management District and the South Coast Air Quality Management District, operate their PSD programs with partial delegation authority. Those portions of their PSD programs that have not been delegated are administered by U.S. EPA. The remaining districts in California have PSD programs for both NO_2 and GHG that are wholly administered by U.S. EPA. However, a number of these districts are at various stages in the rule development and submittal process for U.S. EPA approval. The current status of the district efforts are summarized in Table A-3.

TABLE A-3
Status of District PSD Rule Development and Approval

District	District Rule Number	Status
Antelope Valley Air Quality Management District	---	Rule under development
San Francisco Bay Area Air Quality Management District	2.2	Rule under development
Butte County Air Quality Management District	1107	Rule adopted by district; awaiting submittal to U.S. EPA
Eastern Kern County Air Pollution Control District	210.4	Submitted to U.S. EPA, but not yet proposed
Great Basin Unified Air Pollution Control District	221	Rule adopted by district; awaiting submittal to U.S. EPA
Imperial County Air Pollution Control District	904	Submitted to U.S. EPA, but not yet proposed
Mojave Desert Air Quality Management District	---	Rule under development
Placer County Air Pollution Control District	518	Submitted to U.S. EPA, but not yet proposed
San Diego County Air Pollution Control District	20.3	Rule adopted by district; awaiting submittal to U.S. EPA
San Luis Obispo County Air Pollution Control District	220	Rule adopted by district; awaiting submittal to U.S. EPA
Santa Barbara County Air Pollution Control District	803	Rule adopted by district; awaiting submittal to U.S. EPA
South Coast Air Quality Management District	Reg XVII	Delegation from U.S. EPA; SIP for GHG out for public comment
Ventura County Air Pollution Control District	26.1	Rule adopted by district; awaiting submittal to U.S. EPA
Yolo-Solano Air Quality Management District	3.24	Submitted to U.S. EPA, but not yet proposed

Interstate and International Transport Provisions ***[§110(a)(2)(D)]***

This section prohibits the transport of NO_2 from one state to another, where the pollutant could contribute significantly to violations of the federal NO_2 standard, interfere with maintenance of the federal NO_2 standard, or contribute to reduced visibility.

California has longstanding programs to reduce NO_x emissions from all types of sources as part of the statewide strategy to attain the federal ozone and $PM_{2.5}$ standards. These programs also benefit NO_2, which is a component of NO_x. Currently, there are no NO_2 nonattainment areas in the nation. California's current network of community-wide monitors show NO_2 design values are below the level of the standard and thus, there is no potential for NO_2 transport impact. Although higher concentrations are expected near heavily travelled roadways, these concentrations fall off rather quickly with distance from the road. Therefore, whereas traffic-related emissions have a potential to cause localized violations, they pose no

potential for transport impact. In addition to nonattainment and maintenance issues, NO_2 can impact visibility. California's approved Regional Haze Plan will mitigate any potential visibility impacts.

Discussion

California's challenges with attaining the federal ozone and $PM_{2.5}$ standards have led to the development and implementation of one of the nation's most comprehensive emissions control strategies. The current statewide SIP strategy is heavily focused on reducing NO_x emissions. The reduction in NO_x emissions will directly benefit NO_2 air quality, as the majority of NO_2 is not directly emitted, but is formed in the atmosphere from NO_x emissions. Available monitoring data show that ambient NO_2 design values at all California sites are below the level of the federal standards. Current (2011) 1-hour NO_2 design values range from 5 ppb to 75 ppb, and annual NO_2 design values range from 1 ppb to 25 ppb, statewide. With continued implementation of the statewide SIP strategy, these design values are expected to be reduced even further.

In addition to the current monitoring network, the 2010 federal NO_2 standard requires states to establish a network of near-roadway monitors, designed to capture concentrations along the most heavily travelled roads. Because motor vehicles are the largest source of NO_x emissions, U.S. EPA expects that concentrations at the near-roadway sites will be higher than those measured by the current network. However, U.S. EPA also acknowledges that these near-roadway concentrations drop off quickly with distance from the roadway, so the impacts are localized. California's most heavily travelled roadways are located in the highly developed, urban core regions (for example, Los Angeles, Sacramento, San Francisco Bay Area, and San Joaquin Valley). These urban regions are not adjacent to any state boundary. As a result, traffic-related NO_x emissions in these areas will not contribute significantly to nonattainment, or interfere with maintenance of the NO_2 standard in another area. Should this become an issue in the future, California has a comprehensive mobile source program and will address the need for any additional mobile source control measures through the SIP process.

Finally, California submitted a SIP revision on November 16, 2007, addressing federal transport requirements for the 1997 federal ozone and $PM_{2.5}$ standards. Although this Transport SIP does not deal specifically with NO_2, it is relevant, because the NO_x emissions that are precursors to ozone and $PM_{2.5}$, also contribute to NO_2. U.S. EPA approved all elements of California's Transport SIP, except the PSD element. U.S. EPA approved the PSD element for those districts with a SIP-approved PSD program and disapproved it for those districts that lack a SIP-approved PSD program (76 FR 48002; refer to previous section titled "Programs for Enforcement, PSD, and NSR [§110(a)(2)(C)]"). Fully approved elements of the Transport SIP include findings that California emissions (1) do not contribute to ozone or $PM_{2.5}$ nonattainment in any other state (76 FR 34872), (2) do not interfere with maintenance of the ozone or $PM_{2.5}$ standards in any other state (PSD element, partially approved; 76 FR 48002), and (3) do not interfere with other states' measures to protect visibility (76 FR 34608). This last element comprises California's Regional Haze Plan. Copies of California's Transport SIP and Regional Haze Plan are available on ARB's website at http://www.arb.ca.gov/planning/sip/sip.htm.

Adequate Personnel, Funding, and Authority ***[§110(a)(2)(E)]***

This section requires states and local districts to maintain adequate personnel, funding, and legal authority to implement their SIP and to ensure that a majority of their board members represent the public interest.

A majority of ARB and district budgets go toward meeting federal CAA mandates. Much of this funding comprises fees collected from regulated emission sources and dedicated to air pollution control activities. All ARB and district board members and program staff must comply with conflict of interest requirements established in State law.

Discussion

Each year, the California State Legislature approves ARB's funding and staff resources for carrying out CAA-related programs. Similarly, district budgets are approved each year by the districts' governing boards. The annual budget process provides a periodic update that enables ARB and the districts to adjust funding and personnel needs. Although it is not legally possible for ARB and the districts to provide specific commitments about future-year funding, the annual budget appropriations process undertaken by the California State Legislature enables ARB to present a request for resources required to meet the mandates of the CAA. These mandated programs have received State funding for more than three decades, and there is consistently strong public support in California for providing clean air. Therefore, it is reasonable to assume that implementation of CAA mandates will continue to be funded at an appropriate level.

Over the last several years, more than 80 percent of ARB's budget has gone toward meeting CAA mandates. Furthermore, the majority of ARB's budget comprises dedicated fees collected from regulated emission sources. These funds can only be used for air pollution control activities and are periodically adjusted to maintain the funding necessary for ARB programs. Districts receive funding from fees paid by regulated businesses, motor vehicle registration fees, State and federal grants, and other local revenue sources. Collectively, the 2009-2010 ARB and district budgets totaled $1.2 billion, with 3,422.4 full-time equivalent staff positions. If a district fails to meet its responsibilities, California Health and Safety Code section 39002 grants ARB the overall regulatory authority for districts' air pollution control programs and the power to implement these programs.

California Government Code Sections 87100 through 87105 and Sections 87300 through 87314 specify conflict of interest requirements for State and local government agencies. These requirements specifically prohibit all State and local public officials from participating in governmental decisions in which they have a financial interest. They also direct ARB and the districts to develop conflict of interest policies to meet these legal requirements. Each year, all ARB Board members and program staff must complete a conflict of interest statement (Form 700), which becomes a public document. Local government boards and program staff are subject to similar disclosure requirements.

Stationary Source Monitoring and Reporting ***[§110(a)(2)(F)]***

This section calls for states to require owners and operators of stationary sources to install, maintain, and replace equipment for monitoring stationary source oxides of nitrogen emissions and to provide periodic reports on these emissions.

NO_x is generally the emissions component measured to reflect NO_2. ARB maintains an emissions inventory for NO_x that goes beyond what U.S. EPA requires. In addition, State and district rules require stationary source owners and operators to determine the amount of NO_x emitted by their facilities.

Discussion

Districts are responsible for stationary source monitoring and reporting. However, ARB compiles stationary source emissions data from the districts and reports the information to U.S. EPA. The specific legal requirements are set forth in U.S. EPA's Air Emissions Reporting Requirements (AERR) rule (http://www.epa.gov/ttn/chief/aerr/final_published_aerr.pdf). Facilities emitting 2,500 tons per year (tpy) or more of NO_x are required to report their emissions annually, while facilities emitting from 100 tpy to 2,499 tpy of NO_x are required to report once every three years. In addition to these reporting requirements, many districts have rules establishing federally enforceable permitting requirements, which are often more stringent than the U.S. EPA AERR rule requirements. For example, South Coast's reporting requirements (http://www.aqmd.gov/titlev/WhatIsTV.html) have a lower threshold of 10 tpy NO_x for stationary sources located in the South Coast Air Basin.

ARB maintains a publicly-accessible emissions inventory, including NO_x emissions, with information for more than 14,000 stationary source facilities in California. The inventory is available on the ARB website at http://www.arb.ca.gov/ei/disclaim.htm. In addition to emissions information for stationary sources, the inventory includes emissions from other types of sources, including mobile sources (such as cars, trucks, and ocean going vessels), area-wide sources (such as residential fuel combustion and managed burning and disposal), and wildfires. The NO_x emissions inventory is relevant not only to the NO_2 standard, but also for ozone and particulate matter ($PM_{2.5}$ and PM_{10}), for which NO_x is a precursor.

Emissions estimates for stationary sources rely in part, on accurate emissions monitoring data. In addition, emissions monitoring data provide a basis for determining whether facilities meet performance standards established in State and district rules. California Health and Safety Code section 41511 authorizes ARB and districts to adopt rules and regulations requiring any emission source owner or operator to take reasonable steps to determine the amount of emissions released from the source. This would include emissions that contribute to a violation of any ambient air quality standard, including the federal NO_2 standard. In order to determine the amount of emissions coming from a particular source, districts have rules giving the Air Pollution Control Officer authority to request the installation, use, maintenance, and inspection of Continuous Emission Monitoring System (CEMS) equipment. Some district rules that trigger the CEMS requirement are tied to specific source categories and/or

emissions thresholds. These rules specify performance standards for the monitoring equipment, requirements for recordkeeping and reporting, and requirements for violation and equipment breakdown notification.

Contingency Plans for Emergency Episodes *[§110(a)(2)(G)]*

This section requires states to include a contingency plan for NO_2 in their SIP and to have adequate authority to implement the plan during emergency episodes in areas that meet a specified threshold concentration.

State law grants ARB and the districts authority comparable to U.S. EPA's authority to halt pollutant emissions that could cause a public health emergency or nuisance. NO_2 concentrations in California are well below the emergency threshold level specified in federal regulations, and all areas are designated as unclassifiable/attainment. Thus, no area is required to have a contingency plan for NO_2 emergency episodes.

Discussion

States are to provide for authority comparable to that in CAA Section 303, which gives U.S. EPA legal authority to halt the emission of air pollutants causing or contributing to injury of the public or welfare. U.S. EPA is further authorized to either bring a lawsuit in federal court or, if such civil action cannot assure prompt protection of public health or welfare, to issue such orders as may be necessary to protect public health, welfare, or the environment. The authority granted to the U.S. EPA Administrator is vested in ARB and the districts under California Health & Safety Code Section 42400, et seq. These sections of California law apply to a range of emission violations and impose penalties that are equivalent to or exceed federal penalties for comparable violations.

In addition to having the proper authority, states must provide for adequate contingency plans to be implemented during emergency episodes in urban areas. Under 40 Code of Federal Regulations (CFR) 51.150, NO_2 contingency plans are required in areas classified as Priority 1. The threshold concentration for a Priority 1 NO_2 area is 60 ppb, based on the annual average concentration. Areas with annual average concentrations below 60 ppb are classified as Priority 3 areas. Historically, the Metropolitan Los Angeles Intrastate Region (Los Angeles Region or Region) was designated as nonattainment for NO_2 and classified as a Priority 1 area. The rest of California was designated as unclassifiable/attainment and classified as Priority 3. Since U.S. EPA made the initial Priority classifications, NO_2 concentrations have decreased substantially. For example, annual average concentrations in the Los Angeles Region were up to 94 ppb in the early 1970s. Now, annual average concentrations range from 1 ppb to 25 ppb, statewide. These current levels are far below the 60 ppb Priority 1 threshold.

Under 40 CFR 51.152, Priority 3 areas do not need to develop contingency plans for emergency episodes. Furthermore, 40 CFR 51.152(d)(1) states that the Administrator may, at his discretion, exempt Priority 1 areas from the contingency plan requirements if those

areas are designated as attainment or unclassifiable for the federal standard under CAA Section 107. Such is the case for the Los Angeles Region with respect to NO_2 – all portions of the Region are currently designated as unclassifiable/attainment for the 2010 federal NO_2 standard. Thus, ARB requests that the Administrator either exempt the Los Angeles Region from the NO_2 contingency plan requirements or reclassify the Region as Priority 3, consistent with its current designation as unclassified/attainment for the federal NO_2 standard. With this action, no area of California is subject to the contingency plan/emergency episode requirements for NO_2. Should the designation status of any area change in future years, ARB commits to submit to U.S. EPA any necessary revisions, through the SIP process.

Future SIP Revisions [§110(a)(2)(H)]

> *This section requires states to revise their SIP when an air quality standard is promulgated or revised, new attainment methods become available, or U.S. EPA determines a SIP is either inadequate or does not meet revised CAA requirements.*

California has and will continue to submit revisions to its SIP, as mandated by U.S. EPA.

Discussion

Clean air is a priority in California. To help meet this goal, California is submitting this Infrastructure SIP for NO_2, in compliance with the revised federal NO_2 standard. All areas of California are currently designated as unclassifiable/attainment for NO_2. Should any area be designated as nonattainment in the future, ARB will work with the local district to develop an approvable SIP for the nonattainment area and will submit that nonattainment SIP to U.S. EPA by the statutory deadline. ARB maintains a current collection of all SIP documents on its website at http://www.arb.ca.gov/planning/sip/sip.htm.

Consultation with Government Officials, Public Notification, PSD, and Visibility Protection [§110(a)(2)(J)]

> *This section requires states to meet requirements of the CAA relating to consultation and public notification and to implement PSD and visibility protection programs for NO_2.*

ARB and air districts comply with all federal regulatory requirements, including requirements for consultation, notification, comment, and adoption. Furthermore, ARB has information available on its website about ambient NO_2 concentrations and the health impacts of NO_2 in the ambient air. As described earlier, in response to CAA Section 110(a)(2)(C), PSD requirements are addressed at the district level. Visibility issues are addressed in California's approved Regional Haze SIP.

Discussion

CAA Section 121 requires states to provide a satisfactory process for consulting with general purpose local governments, designated organizations of elected local government officials, and any affected federal land manager in carrying out CAA requirements. California Health and Safety Code section 41650, et seq., requires ARB to conduct public hearings and to solicit testimony from districts, air quality planning agencies, and the public when adopting nonattainment plans for inclusion in the SIP. Additionally, the California Administrative Procedures Act, Government Code Section 11340, et seq., requires notification and provision of comment opportunities to all parties affected by proposed regulations. Similarly, Health and Safety Code section 40725 requires districts to conduct public hearings when adopting, amending or repealing any rule.

CAA Section 127 requires states to provide measures that will be effective in notifying the public on a regular basis of instances or areas in which a federal standard was exceeded during the preceding calendar year. This requirement is similar to California Health and Safety Code section 39607, which requires ARB to implement a program for securing air quality data in each air basin and to report these data to the public. To fulfill this requirement, ARB maintains air quality data on its website at http://www.arb.ca.gov/aqmis2/aqdselect.php. U.S. EPA developed the Air Quality Index (AQI) as a means to inform the public about how clean or polluted the air is and what associated health effects might be of concern. In promulgating the 2010 NO_2 standard, U.S. EPA made conforming changes to the AQI to reflect the new 1-hour standard. ARB and districts use measured air quality to calculate daily AQI values and provide the public with information about local NO_2 levels.

CAA Section 127 also requires states to advise the public about the health hazards associated with air pollution and enhance public awareness of measures to prevent violation of a federal standard. In compliance with this requirement, ARB maintains webpages detailing relevant health information (http://www.arb.ca.gov/research/health/health.htm) and ways of reducing air pollution (http://www.arb.ca.gov/html/cando.htm).

With respect to PSD requirements, several districts in California administer fully SIP-approved or partially delegated PSD programs that comply with the requirements for NO_2. PSD programs in the remaining districts are administered by U.S. EPA through a federal stationary source permitting program under enabling authority in 40 CFR Part 52.21. However, a number of these districts are currently in the process of developing or seeking U.S. EPA approval of their PSD programs. The status of the PSD program in California's districts is described in more detail above, under the heading "Programs for Enforcement, PSD, and NSR [§110(a)(2)(C)]."

With respect to visibility protection, California has in place, a Regional Haze Plan that U.S. EPA approved on June 14, 2011. Although the Regional Haze Plan does not deal specifically with NO_x as it relates to the federal NO_2 standard, it addresses NO_x, as a component of particle pollution. Thus, provisions of the State's Regional Haze Plan will reduce the impact of NO_2 on visibility, with the long-term goal of improving visibility in Class 1 areas. California's Regional Haze Plan is available on the ARB website at http://www.arb.ca.gov/planning/reghaze/reghaze.htm.

Air Quality Modeling/Data [§110(a)(2)(K)]

This section requires states to use air quality models to predict the effect of NO_x emissions on ambient concentrations and to submit the modeling data to U.S. EPA when requested.

ARB is well versed in the use of air quality models to predict the impact of emissions on air quality. ARB modeling complies with U.S. EPA guidance, and ARB works closely with districts that conduct their own modeling to ensure similar compliance. Modeling results are available on request.

Discussion

The major NO_x emission sources are mobile sources and stationary sources. ARB has an air quality modeling group with extensive experience related to modeling all types of sources for compliance with the federal standards. Furthermore, ARB's air quality modeling work complies with U.S. EPA's guidance on the use of models. In addition, ARB documents information used when conducting modeling or evaluating the performance of air quality models used for this purpose. Finally, ARB consults and works closely with districts that conduct their own air quality modeling to ensure compatibility with federal guidelines.

In an effort to ensure that proposed new or modified sources comply with the federal NO_2 standard, district and State representatives worked cooperatively through CAPCOA to develop a common platform of information, tools, and stationary source modeling recommendations specific to the new 1-hour NO_2 standard. The protocols are described in a document titled *Modeling Compliance of the Federal 1-Hour NO_2 NAAQS*, released October 27, 2011. The modeling protocols are consistent with guidance provided by U.S. EPA.

ARB provides air quality modeling software and documentation with links to databases and search engines at http://www.arb.ca.gov/html/soft.htm#modeling. This page includes a link to both State-approved and U.S. EPA-approved models and documentation.

Permitting Fees [§110(a)(2)(L)]

This section requires states to assess NO_2 stationary source owners or operators fees to cover the cost of reviewing and acting on a permit application. If a permit is granted, states must also assess fees to cover the cost of implementing and enforcing the permit. Finally, owners or operators must comply with the fee provisions of Title V Sections 501 through 507 of the CAA and pay such fees to the permitting authority.

Districts are responsible for issuing stationary source permits, and each district has rules requiring additional fees subject to Title V requirements.

Discussion

As described in the previous section on "Programs for Enforcement, PSD, and NSR [§110(a)(2)(C)]," responsibility for issuing stationary source permits is vested with the districts, and each district in California has adopted rules requiring an additional fee for facilities subject to Title V requirements. Information on district-issued permits is available on the ARB website at http://www.arb.ca.gov/permits/airdisop.htm and http://www.arb.ca.gov/permits/permits.htm. In addition, ARB maintains various email notification lists that provide subscribers with current, on-going email notification about updates and changes to programs related to permitting. Information about subscribing to these email notification lists is also available on the ARB website at http://www.arb.ca.gov/permits/permits.htm.

Consultation/Participation by Affected Local Entities [§110(a)(2)(M)]

This section requires states to consult with and allow political subdivisions affected by the NO_2 Infrastructure SIP to participate in the development process.

ARB coordinates on a regular basis with the State's 35 districts. State law requires ARB to conduct a public hearing and solicit input from affected agencies and the public when developing any SIP document.

Discussion

California is divided into 35 districts, comprising county or regional local government authorities with responsibility for controlling stationary source emissions. A map of district boundaries is available on ARB's website at http://www.arb.ca.gov/capcoa/dismap.htm. Links to districts' websites are available at http://www.arb.ca.gov/capcoa/roster.htm.

ARB consults and provides liaison with all districts and provides for frequent and regular communication and consultation with management and staff of these districts. Because district boards are composed of local elected officials, this framework provides for regular consultation with and participation by local government entities (cities and counties) affected by the SIP. Furthermore, California Health and Safety Code section 41650, et seq., requires ARB to conduct a public hearing and to solicit testimony from districts, air quality planning agencies, and the public when adopting SIP-related documents. The districts have a similar process for soliciting participation and comment with respect to proposed regulatory actions.

TITLE 13. CALIFORNIA AIR RESOURCES BOARD

NOTICE OF PUBLIC HEARING TO CONSIDER PROPOSED AMENDMENTS TO THE NEW PASSENGER MOTOR VEHICLE GREENHOUSE GAS EMISSION STANDARDS FOR MODEL YEARS 2017-2025 TO PERMIT COMPLIANCE BASED ON FEDERAL GREENHOUSE GAS EMISSIONS STANDARDS AND ADDITIONAL MINOR REVISIONS TO THE LEV III AND ZEV REGULATIONS

The Air Resources Board (ARB or Board) will conduct a public hearing at the time and place noted below to consider adoption of amendments to the Low-Emission Vehicle (LEV III) greenhouse gas emissions standards, and additional minor revisions to the LEV III criteria pollutant and Zero-Emission Vehicle (ZEV) regulations, approved by the Board on January 26, 2012.

DATE: November 15, 2012

TIME: 9:00 a.m.

PLACE: California Environmental Protection Agency
Air Resources Board
Byron Sher Auditorium
1001 I Street
Sacramento, California 95814

This item may be considered at a two-day meeting of the Board, which will commence at 9:00 a.m., November 15, 2012, and may continue at 8:30 a.m., on November 16, 2012. This item may not be considered until November 16, 2012. Please consult the agenda for the hearing, which will be available at least 10 days before November 15, 2012, to determine the day on which this item will be considered.

INFORMATIVE DIGEST OF PROPOSED ACTION AND POLICY STATEMENT OVERVIEW

Sections Affected: Proposed amendments to California Code of Regulations, title 13, section(s) 1900, 1956.8, 1960.1, 1961, 1961.2, 1961.3, 1962.1, 1962.2, and 1976; and to the following documents incorporated by reference therein: "California 2015 and Subsequent Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles," adopted March 22, 2012; "California 2001 through 2014 Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2009 through 2016 Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Model Passenger Cars, Light Duty Trucks, and Medium Duty Vehicles," as last amended March 22, 2012; "California Non-Methane Organic Gas Test Procedures," as last amended March 22, 2012; "California Evaporative Emission Standards and Test Procedures for 2001 and Subsequent Model Motor Vehicles," as last amended

March 22, 2012; "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Otto-Cycle Engines," as last amended March 22, 2012; "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles," as last amended March 22, 2012; "California Exhaust Emission Standards and Test Procedures for 2009 through 2017 Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes," as last amended March 22, 2012; and "California Exhaust Emission Standards and Test Procedures for 2018 and Subsequent Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes," adopted March 22, 2012.

Documents Incorporated by Reference:

SAE Standard J2727, Revision Feb2012, Published 02/23/2012. "Mobile Air Conditioning System Refrigerant Emission Charts for R-134a and R-1234yf".

SAE Standard J2841: "Utility Factor Definitions for Plug-In Hybrid Electric Vehicles Using Travel Survey Data" (September 2010)

Background:

2009-2016 Model Year Greenhouse Gas Regulations

Recognizing the increasing threat of climate change to the well-being of California's citizens and the environment, in 2002 the legislature adopted and the Governor signed AB 1493 (Chapter 200, Statutes 2002, Pavley). AB 1493 directed the Air Resources Board (ARB or Board) to adopt the maximum feasible and cost-effective reductions in greenhouse gas emissions from light-duty vehicles. Vehicle greenhouse gas emissions included carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) that are emitted from the tailpipe, as well as emissions of HFC134a, the refrigerant currently used in most vehicle air conditioning systems.

In 2004, in response to AB 1493, ARB approved what are commonly referred to as the Pavley regulations, the first in the nation to require significant reductions of greenhouse gases from motor vehicles. These regulations, covering the 2009 through 2016 and later model years, will result in a 17% overall reduction in climate change emissions from the light-duty fleet by 2020 and a 25% overall reduction by 2030. They also formed the foundation for the national greenhouse gas program (National Program) for light-duty vehicles for 2012 through 2016 model years that was developed by the U.S. Environmental Protection Agency (USEPA), in coordination with the National Highway Traffic Safety Administration (NHTSA), which administers Corporate Average Fuel Economy (CAFE) Standards.

This initial National Program embraced California's program for lower greenhouse gas emissions and technologies (e.g., for engines, transmission, and air-conditioning system content and operation) to achieve comparable 2016 new vehicle fleet greenhouse gas

emission reductions nationally. As part of its commitment to the National Program, ARB modified its regulations to explicitly accept federal compliance with the USEPA standards as sufficient to demonstrate compliance with California's standards for the 2012 through 2016 model years, creating a consistent requirement to reduce greenhouse gas emissions nationwide.

2017 and Later Model Year Greenhouse Gas Regulations

Subsequent to ARB's adoption of the Pavley regulations, the legislature adopted and the Governor signed AB 32, the California Global Warming Solutions Act (Chapter 488, Statutes 2006, Nuñez/Pavley). AB 32 charges ARB with the responsibility of monitoring and regulating greenhouse gas emissions in the State. AB 32 also directed ARB to prepare a Scoping Plan outlining the State's strategy to achieve the maximum feasible and cost-effective reductions in furtherance of reducing greenhouse gas emissions to 1990 levels by 2020. Measure T1 of the Scoping Plan anticipates an additional 3.8 million metric tons carbon dioxide equivalent ($MMTCO_2e$) reduction by 2020 beyond the reductions from the 2009 through 2016 Pavley standards, with greater reductions realized in subsequent years. In addition, in 2005, in order to mitigate the long-term impacts of climate change, the Governor issued Executive Order S-3-05. Among other actions, the Executive Order called for reducing greenhouse gas emissions to 80 percent below 1990 levels by 2050; this ambitious yet achievable reduction path and goal are considered necessary to stabilize the long-term climate. AB 32 and Executive Order S-3-05, combined with AB 1493, drove development of California's second generation passenger vehicle greenhouse gas regulations for model years 2017 and beyond.

In May of 2010, a Presidential Memorandum[1] directed USEPA and NHTSA to build on their 2012 through 2016 National Program and work with California to jointly develop continuing national greenhouse gas standards for model years 2017 through 2025. The Memorandum requested that USEPA and NHTSA work closely with ARB on a 2010 technical assessment that would assess technologies and costs to achieve varying levels for greenhouse gas emission reduction through model year 2025. The result was a September 2010 *Interim Technical Assessment Report,* jointly authored by USEPA, NHTSA, and ARB. Subsequent to that collaborative technical work ARB staff closely monitored the work of USEPA and NHTSA, and the staffs continued to jointly hold meetings with various stakeholders (e.g., individual automakers), examine updated technical materials, and develop consistent technology assumptions.

In July 2011, automakers, California, and the federal government committed to a series of actions that would allow for the development of national greenhouse gas standards for model years 2017 through 2025 that would meet the needs of California as well as the nation as a whole. California's commitments (as conveyed by a letter[2] from Chairman Mary Nichols to USEPA and the U.S. Department of Transportation) are:

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[1] The Presidential Memorandum is found at: http://www.whitehouse.gov/the-press-office/presidential-memorandum-regarding-fuel-efficiency-standards

[2] California Air Resources Board, Letter from Mary D. Nichols, Chairman, to The Honorable Lisa Jackson, Administrator, United States Environmental Protection Agency and The Honorable Ray LaHood, Secretary, United

(1) California committed that if USEPA proposed federal greenhouse gas standards and NHTSA proposed CAFE standards for model years 2017 and beyond substantially as described in the July 2011 Notice of Intent (published in the Federal Register on August 9, 2011), and the agencies adopted standards substantially as proposed, California would not contest such standards;

(2) California committed to propose to revise its standards on greenhouse gas emissions from new motor vehicles for the 2017 through 2025 model years, such that compliance with the greenhouse gas emissions standards adopted by USEPA for those model years that are substantially as described in the July 2011 Notice of Intent, even if amended after 2012, shall be deemed in compliance with the California greenhouse gas emissions standards, in a manner that is applicable to states that adopt and enforce California's greenhouse gas standards under Clean Air Act (CAA) Section 177; and

(3) California committed to propose that its revised Zero-Emission Vehicle (ZEV) program for the 2018 through 2021 model years include a provision providing that over-compliance with the federal greenhouse gas standards in the prior model year may be used to reduce in part a manufacturer's ZEV obligation in the next model year.

The Notice of Proposed Rulemaking (NPRM) for the 2017 through 2025 model year national greenhouse gas program was issued on December 1, 2011. 76 Fed.Reg. 74854 (December 1, 2011). That NPRM also furthered USEPA and the U.S. Department of Transportation commitments to re-evaluate the state of vehicle technology to determine whether any adjustments to the stringency of the 2022 through 2025 model year national greenhouse gas standards, adopted as a result of these commitments are appropriate. This re-evaluation of vehicle technology is referred to as a "Mid-term Review." Regarding the Mid-term Review, Chairman Nichols's commitment stated "California will fully participate in the mid-term evaluation, however, California reserves all rights to contest final actions taken or not taken by EPA or NHTSA as part of or in response to the mid-term evaluation." The Board confirmed California's commitment to participating in the Mid-term Review by including the following language in Resolution 12-11[3], "BE IT FURTHER RESOLVED that the Board directs the Executive Officer to participate in U.S. EPA's mid-term review of the 2022 through 2025 model year passenger vehicle greenhouse gas standards being proposed under the 2017 through 2025 MY National Program."

States Department of Transportation, July 28, 2011, available at http://www.epa.gov/otaq/climate/letters/carb-commitment-ltr.pdf

[3] State of California, Air Resources Board, Resolution 12-11, January 26, 2012, Agenda Item No.: 12-1-2, ADVANCED CLEAN CARS REGULATION PACKAGE, http://www.arb.ca.gov/regact/2012/cfo2012/res12-11.pdf

In January 2012, the ARB approved its second generation greenhouse gas regulations as part of the Low-Emission Vehicle III (LEV III) element of the Advanced Clean Cars program. This program combines the control of smog-causing pollutants and greenhouse gas emissions into a single coordinated package of requirements for model years 2017 through 2025 and assures the development of environmentally superior cars that will continue to deliver the performance, utility, and safety vehicle owners have come to expect. A second element of the Advanced Clean Cars program, the ZEV regulations, includes regulatory changes that implement California's third (3) commitment above.[4]

The second generation greenhouse gas regulations contained in the Advanced Clean Cars program require significant reductions in greenhouse gas emissions from passenger cars and light-duty trucks (i.e., vehicles less than 8,500 lbs. gross vehicle weight) and sport utility vehicles (i.e., medium-duty passenger vehicles). These requirements will reduce car CO_2 emissions by about 36% and truck CO_2 emissions by about 32% from model year 2016 through 2025. The ZEV element of the Advanced Clean Cars program also fulfills California's third commitment towards the development of the 2017 through 2025 model year national greenhouse gas program, as discussed above.

At the January 2012 hearing, the Board also confirmed California's commitment to make regulatory changes that implement California's first (1) commitment above by including the following language in Resolution 12-11, "BE IT FURTHER RESOLVED that the Board directs the Executive Officer to either propose modifications to the approved regulatory amendments, or to return to the Board with a new regulatory proposal, to accept compliance with the 2017 through 2025 MY National Program as compliance with California's greenhouse gas emission standards in the 2017 through 2025 model years, if the Executive Officer determines that U.S. EPA has adopted a final rule that at a minimum preserves the greenhouse reduction benefits set forth in U.S. EPA's December 1, 2011 Notice of Proposed Rulemaking for 2017 through 2025 model year passenger vehicles;" The Board re-iterated this commitment at the March 2012 "Public Hearing to Consider Approval of Responses to Public Comments on the Environmental Analysis for the Advanced Clean Cars Regulations and to Take Final Action on These Regulations" by including the following language in Resolution 12-21[5], "WHEREAS, in consideration of the proposed Final Regulation Orders, written comments, and public testimony it has received to date, the Board finds that: It is appropriate to accept compliance with the 2017 through 2025 model year National Program as compliance with California's greenhouse gas emission standards in the 2017 through 2025 model years, once United States Environmental Protection Agency (U.S. EPA) issues their Final Rule on or after its current July 2012 planned release, provided that the greenhouse gas reductions set forth in U.S. EPA's December 1, 2011 Notice of Proposed Rulemaking for 2017 through 2025 model year passenger vehicles

[4] Another element of the Advanced Clean Cars program, the Clean Fuels Outlet regulations, designed to assure ultra-clean fuels such as hydrogen are available to meet vehicle demands brought on by these amendments to the ZEV program, are mentioned here for completeness. However, there are no proposed amendments to these regulations at this time and none are needed to meet the above-described commitments.

[5] State of California, Air Resources Board, Resolution 12-21, March 22, 2012, Agenda Item No.: 12-2-7, ADVANCED CLEAN CARS REGULATION PACKAGE, http://www.arb.ca.gov/regact/2012/leviiighg2012/res12-21.pdf

are maintained, except that California shall maintain its own reporting requirements". Accepting such National Program compliance for the 2017 through 2025 model years is the subject of this rulemaking proposal.

Objectives and Benefits:

The objective of this rulemaking is to follow through on the commitment made to USEPA and NHTSA by Chairman Nichols on July 28, 2011 and in Board Resolutions 12-11 and 12-21 to propose for adoption appropriate language to accept manufacturer-demonstrated compliance with the final national passenger motor vehicle greenhouse gas regulations for the 2017 through 2025 model years, as an option to achieve compliance with California's regulations for those model years.

This proposal also makes minor changes to ARB's regulations. In general these proposed changes correct errors, and update procedures to reflect information received since adoption of the regulations in January, 2012. Staff is not proposing to amend the regulations to be identical to the final National Program. For example ARB's regulation would continue to treat upstream emissions differently than the final National Program. Other areas in which the California rule and the final federal greenhouse rule do not align are discussed in the Staff Report: Initial Statement of Reasons for this rulemaking. In practice, most if not all manufacturers are expected to use compliance with the national rule to satisfy California requirements. However a manufacturer may choose to comply with the ARB requirements, and the ARB regulation would remain in place in the event the National Program ceases.

It should also be noted that adoption of this proposal would not eliminate the reporting requirements for California. Specifically, a manufacturer will still be required to submit emission testing data and sales data for California and each of the Section 177 states in sufficient detail to allow staff to verify the manufacturer's average greenhouse gas levels for each model year. In addition, staff is also proposing minor revisions to the LEV III criteria pollutant regulations and the ZEV regulations to correct errors and to clarify the regulations.

The national greenhouse gas program for the 2017 through 2025 model years is marginally less stringent than California's program due to differences between the two programs in their treatment of advanced technology vehicles and the application and calculation of credits for improved air conditioning systems, off-cycle technologies and hybridization of full-size trucks. Staff has determined that the differences in the federal credit scheme for select technologies are largely limited to the early years of the program and will have a minimal impact on greenhouse gas emission reductions from the light-duty fleet. The combined impact of these federal provisions results in a slight decrease in accumulated CO_2 reductions in California in 2025. On page 162 of the Initial Statement of Reasons[6] for LEV III (LEV III ISOR), staff estimated that the impact of these provisions would result in a 4.5% loss of accumulated CO_2 emission reductions in 2025.

[6] The Initial Statement of Reasons can be found at http://www.arb.ca.gov/regact/2012/leviiighg2012/levisor.pdf

Nonetheless, while implementation of a compliance option that allows manufacturers to certify to the 2017 through 2025 model year national greenhouse gas program instead of the California program would result in a slight decrease in accumulated CO_2 reductions in California, greater CO_2 reductions would be achieved nationwide, as was the case when California adopted the federal program option for the 2012 through 2016 model years. For 2017 and later model years, staff estimates that in 2050, the California program would reduce greenhouse gas emissions from light-duty vehicles by 43 million metric tons (MMT) (LEV III ISOR page 176). USEPA has estimated greenhouse gas reductions of 569 MMTs from the national program in 2050.[7] This occurs because the national program applies to a national fleet that is approximately ten times larger than the California fleet.

Additionally, as noted in Appendix J, staff is proposing to correct an error in the carbon monoxide (CO) standards for medium-duty vehicles that were adopted as part of the original LEV III rulemaking. The CO standards that are currently in place were inadvertently copied from an earlier proposal and are not consistent with those presented in the LEV III ISOR.

CONSISTENCY AND COMPATIBILITY WITH EXISTING STATE REGULATIONS

Staff does not believe the proposed regulation is inconsistent or incompatible with existing state regulations.

MANDATED BY FEDERAL LAW OR REGULATIONS

This regulation is not mandated by federal law or regulations.

COMPARABLE FEDERAL REGULATIONS

On August 28, 2012, a Final Rulemaking (FRM) was issued by USEPA and NHTSA for a joint rulemaking of coordinated federal greenhouse gas emission reduction and fuel economy program for light-duty vehicles, beginning in the 2017 model year (see footnote 7). While, as discussed above, differences remain between the proposed California greenhouse gas regulations and those presented in the FRM, greater greenhouse gas reductions occur nationwide under the National Program than under the California program alone. Staff's amendments allow manufacturers to comply with these federal standards as an alternative to compliance with California's greenhouse gas regulations for the 2017 through 2025 model years.

AVAILABILITY OF DOCUMENTS

ARB staff has prepared a Staff Report: Initial Statement of Reasons (ISOR) for the proposed regulatory action, which includes a summary of the economic and environmental impacts of the proposal. The report is entitled: "Proposed Amendments

[7] "2017 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards" final rule, adopted August 28, 2012, available at http://epa.gov/otaq/climate/documents/2017-2025-ghg-cafe-standards-frm.pdf

to New Passenger Motor Vehicle Greenhouse Gas Emission Standards for Model Years 2017-2025 to Permit Compliance Based on Federal Greenhouse Gas Emission Standards and Additional Minor Revisions to the LEV III and ZEV Regulations."

Copies of the ISOR and the full text of the proposed regulatory language, in underline and strikeout format to allow for comparison with the existing regulations, may be accessed on ARB's website listed below, or may be obtained from the Public Information Office, Air Resources Board, 1001 I Street, Visitors and Environmental Services Center, First Floor, Sacramento, California, 95814, (916) 322-2990, on September 14, 2012.

Final Statement of Reasons Availability

Upon its completion, the Final Statement of Reasons (FSOR) will be available and copies may be requested from the agency contact persons in this notice, or may be accessed on ARB's website listed below.

AGENCY CONTACT PERSONS

Inquiries concerning the substance of the proposed regulation may be directed to the designated agency contact persons, Mr. Paul Hughes, Manager, Low-Emission Vehicle Implementation Section, at (626) 575-6977, or Ms. Sarah Carter, Staff Air Pollution Specialist, at (626) 575-6845.

Further, the agency representative and designated back-up contact persons, to whom non-substantive inquiries concerning the proposed administrative action may be directed are Ms. Lori Andreoni, Manager, Board Administration and Regulatory Coordination Unit, (916) 322-4011, or Ms. Amy Whiting, Regulations Coordinator, (916) 322-6533. The Board staff has compiled a record for this rulemaking action, which includes all the information upon which the proposal is based. This material is available for inspection upon request to the contact persons.

Internet Access

This notice, the ISOR and all subsequent regulatory documents, including the FSOR, when completed, are available on ARB's website for this rulemaking at http://www.arb.ca.gov/regact/2012/leviiidtc12/leviiidtc12.htm

FISCAL IMPACT

The determinations of the Board's Executive Officer concerning the costs or savings necessarily incurred by public agencies and private persons and businesses in reasonable compliance with the proposed regulations are presented below.

DISCLOSURES REGARDING THE PROPOSED REGULATION

Pursuant to Government Code sections 11346.5(a)(5) and 11346.5(a)(6), the Executive Officer has determined that the proposed regulatory action would not create costs or savings to any State agency or in federal funding to the State, costs or mandate to any local agency or school district, whether or not reimbursable by the State pursuant to

Government Code, title 2, division 4, part 7 (commencing with section 17500), or other nondiscretionary cost or savings to State or local agencies.

COST IMPACTS ON REPRESENTATIVE PRIVATE PERSONS OR BUSINESSES

In developing this regulatory proposal, ARB staff evaluated the potential economic impacts on representative private persons or businesses. The ARB is not aware of any cost impacts that a representative private person or business would necessarily incur in reasonable compliance with the proposed action.

It is not possible to quantify the potential economic benefit of the additional compliance flexibility provided to automobile manufacturers with these proposed amendments due to the confidentiality of product placement strategies. Additionally, this alternate compliance path is optional, making the number of automobile manufacturers that will utilize these proposed amendments uncertain.

SIGNIFICANT STATEWIDE ADVERSE ECONOMIC IMPACT DIRECTLY AFFECTING BUSINESS, INCLUDING ABILITY TO COMPETE

The Executive Officer has made an initial determination that the proposed regulatory action would not have a significant statewide adverse economic impact directly affecting businesses, including the ability of California businesses to compete with businesses in other states, or on representative private persons.

STATEMENT OF THE RESULTS OF THE ECONOMIC IMPACT ASSESSMENT PREPARED PURSUANT TO GOVERNMENT CODE SEC. 11346.3(b)

The Executive Officer has determined that the proposed regulatory action would not affect the creation or elimination of jobs within the State of California, the creation of new businesses or elimination of existing businesses within the State of California, or the expansion of businesses currently doing business within the State of California. A detailed assessment of the economic impacts of the proposed regulatory action can be found in the ISOR.

Benefits of the Proposed Regulation:

While the stringency of the California standards remains unchanged, the alternative compliance option will benefit manufacturers by providing them with greater flexibility and will increase the cumulative emission reductions – and therefore the resultant public health and environmental benefits – due to application across the national fleet. The benefits of this additional flexibility are not quantified due to the confidential nature of manufacturers' product placement strategies.

EFFECT ON SMALL BUSINESS

The Executive Officer has also determined, pursuant to California Code of Regulations, title 1, section 4, that the proposed regulatory action would not affect small businesses because small businesses are not regulated parties under these regulations.

In accordance with Government Code sections 11346.3(c) and 11346.5(a)(11), the Executive Officer has found that the reporting requirements of the regulation which apply to businesses are necessary for the health, safety, and welfare of the people of the State of California.

ALTERNATIVES

Before taking final action on the proposed regulatory action, the Board must determine that no reasonable alternative considered by the Board, or that has otherwise been identified and brought to the attention of the Board would be more effective in carrying out the purpose for which the action is proposed, or would be as effective and less burdensome to affected private persons than the proposed action, or would be more cost-effective to affected private persons and equally effective in implementing the statutory policy or other provisions of law.

ENVIRONMENTAL ANALYSIS

In accordance with ARB's certified regulatory program, California Code of Regulations, title 17, sections 60006 through 60007, and the California Environmental Quality Act, Public Resources Code section 21080.5, ARB has conducted an analysis of the potential for significant adverse and beneficial environmental impacts associated with the proposed regulatory action. The environmental analysis of the proposed regulatory action can be found in Chapter V of the ISOR.

SUBMITTAL OF COMMENTS AND WRITTEN COMMENT PERIOD

Interested members of the public may also present comments verbally or in writing at the meeting, and comments may be submitted by postal mail or by electronic submittal before the meeting. The public comment period for this regulatory action will begin on September 14, 2012. To be considered by the Board, written comments, not physically submitted at the meeting, must be submitted on or after September 14, 2012 and received **no later than 12:00 noon on November 14, 2012**, and must be addressed to the following:

Postal mail: Clerk of the Board, Air Resources Board
1001 I Street, Sacramento, California 95814

Electronic submittal: http://www.arb.ca.gov/lispub/comm/bclist.php

You can sign up online in advance to speak at the Board meeting when you submit an electronic board item comment. For more information go to: http://www.arb.ca.gov/board/online-signup.htm.

Please note that under the California Public Records Act (Gov. Code, § 6250 et seq.), your written and verbal comments, attachments, and associated contact information (e.g., your address, phone, email, etc.) become part of the public record and can be released to the public upon request.

ARB requests that written and email statements on this item be filed at least 10 days prior to the hearing so that ARB staff and Board members have additional time to consider each comment. The Board encourages members of the public to bring to the attention of staff in advance of the hearing any suggestions for modification of the proposed regulatory action.

Additionally, the Board requests but does not require that persons who submit written comments to the Board reference the title of the proposal in their comments to facilitate review.

STATUTORY AUTHORITY AND REFERENCES

This regulatory action is proposed under the authority granted in Health and Safety Code, sections 38510, 38560, 38562, 39500, 39515, 39600, 39601, 39667, 43006, 43013, 43018, 43018.5, 43101, 43104, 43105, 43200, 43210, 43210.5, and 44036.2, and Vehicle Code section 27156. This action is proposed to implement, interpret, and make specific sections 38501, 38510, 38560, 39002, 39003, 39667, 40000, 43000, 43004, 43006, 43008.6, 43009.5, 43100, 43101, 43101.5, 43102, 43104, 43106, 43205, 43205.5, 43210, 43211, 43212, and 43213, Health and Safety Code.

HEARING PROCEDURES

The public hearing will be conducted in accordance with the California Administrative Procedure Act, Government Code, title 2, division 3, part 1, chapter 3.5 (commencing with section 11340).

Following the public hearing, the Board may adopt the regulatory language as originally proposed, or with non-substantial or grammatical modifications. The Board may also adopt the proposed regulatory language with other modifications if the text as modified is sufficiently related to the originally proposed text that the public was adequately placed on notice and that the regulatory language as modified could result from the proposed regulatory action; in such event, the full regulatory text, with the modifications clearly indicated, will be made available to the public, for written comment, at least 15-days before it is adopted.

The public may request a copy of the modified regulatory text from ARB's Public Information Office, Air Resources Board, 1001 I Street, Visitors and Environmental Services Center, First Floor, Sacramento, California, 95814, (916) 322-2990.

SPECIAL ACCOMMODATION REQUEST

Special accommodation or language needs can be provided for any of the following:

- An interpreter to be available at the hearing;
- Documents made available in an alternate format or another language; or
- A disability-related reasonable accommodation.

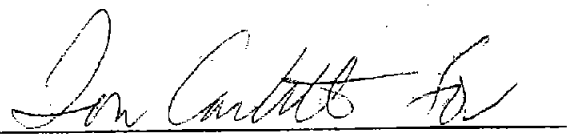
To request these special accommodations or language needs, please contact the Clerk of the Board at (916) 322-5594 or by facsimile at (916) 322-3928 as soon as possible, but no later than 10 business days before the scheduled Board hearing. TTY/TDD/Speech to Speech users may dial 711 for the California Relay Service.

Comodidad especial o necesidad de otro idioma puede ser proveído para alguna de las siguientes:

- Un intérprete que esté disponible en la audiencia.
- Documentos disponibles en un formato alterno u otro idioma.
- Una acomodación razonable relacionados con una incapacidad.

Para solicitar estas comodidades especiales o necesidades de otro idioma, por favor llame a la oficina del Consejo al (916) 322-5594 o envíe un fax a (916) 322-3928 lo más pronto posible, pero no menos de 10 días de trabajo antes del día programado para la audiencia del Consejo. TTY/TDD/Personas que necesiten este servicio pueden marcar el 711 para el Servicio de Retransmisión de Mensajes de California.

CALIFORNIA AIR RESOURCES BOARD



James N. Goldstene
Executive Officer

Date: August 31, 2012

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our website at www.arb.ca.gov.

State of California
AIR RESOURCES BOARD

STAFF REPORT: INITIAL STATEMENT OF REASONS FOR RULEMAKING

PROPOSED AMENDMENTS TO NEW PASSENGER MOTOR VEHICLE GREENHOUSE GAS EMISSION STANDARDS FOR MODEL YEARS 2017-2025 TO PERMIT COMPLIANCE BASED ON FEDERAL GREENHOUSE GAS EMISSION STANDARDS AND ADDITIONAL MINOR REVISIONS TO THE LEV III AND ZEV REGULATIONS

Date of Release: September 14, 2012
Scheduled for Consideration: November 15, 2012

This report has been reviewed by the staff of the California Air Resources Board and approved for publication. Approval does not signify that the contents necessarily reflect the views and policies of the Air Resources Board, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.

State of California
AIR RESOURCES BOARD

Staff Report: Initial Statement of Reasons for Proposed Rulemaking

PUBLIC HEARING TO CONSIDER THE PROPOSED AMENDMENTS TO NEW PASSENGER MOTOR VEHICLE GREENHOUSE GAS EMISSION STANDARDS FOR MODEL YEARS 2017-2025 TO PERMIT COMPLIANCE BASED ON FEDERAL GREENHOUSE GAS EMISSION STANDARDS AND ADDITIONAL MINOR REVISIONS TO THE LEV III AND ZEV REGULATIONS

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I. INTRODUCTION AND BACKGROUND

Recognizing the increasing threat of climate change to the well-being of California's citizens and the environment, in 2002 the legislature adopted and the Governor signed AB 1493 (Chapter 200, Statutes 2002, Pavley). AB 1493 directed the Air Resources Board (ARB or Board) to adopt the maximum feasible and cost-effective reductions in greenhouse gas emissions from light-duty vehicles. Vehicle greenhouse gas emissions included carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) that are emitted from the tailpipe, as well as emissions of HFC134a, the refrigerant currently used in most vehicle air conditioning systems.

In 2004, in response to AB 1493, ARB approved what are commonly referred to as the Pavley regulations, the first in the nation to require significant reductions of greenhouse gases from motor vehicles. These regulations, covering the 2009-2016 and later model years, call for a 17% overall reduction in climate change emissions from the light-duty fleet by 2020 and a 25% overall reduction by 2030. They also formed the foundation for the national greenhouse gas program for light-duty vehicles for 2012-2016 model years that was developed by the U.S. Environmental Protection Agency (USEPA), in coordination with the National Highway Traffic Safety Administration (NHTSA), which administers Corporate Average Fuel Economy (CAFE) Standards.

This initial national greenhouse gas program extended California's promotion of lower greenhouse gas technologies (e.g., for engines, transmission, and air-conditioning technologies) nationwide to achieve comparable 2016 new vehicle fleet greenhouse gas emission reductions nationally. The national 2012 through 2016 model year greenhouse gas program was also the subject of commitment letters from the State of California and major automakers. As a result, ARB modified its regulations to explicitly accept federal compliance with the USEPA standards as sufficient to demonstrate compliance with California's standards for the 2012-2016 model years.

Subsequent to ARB's adoption of the Pavley regulations, the legislature adopted and the Governor signed AB 32, the California Global Warming Solutions Act (Chapter 488, Statutes 2006, Nuñez/Pavley). AB 32 charges ARB with the responsibility of monitoring and regulating greenhouse gas emissions in the State. AB 32 also directed ARB to prepare a Scoping Plan outlining the State's strategy to achieve the maximum feasible and cost-effective reductions in furtherance of reducing greenhouse gas emissions to 1990 levels by 2020. Measure T1 of the Scoping Plan anticipates an additional 3.8 million metric tons carbon dioxide equivalent ($MMTCO_2e$) reduction by 2020 beyond the reductions from the 2009-2016 Pavley standards, with greater reductions in subsequent years. In addition, in 2005, in order to mitigate the long-term impacts of climate change, the Governor issued Executive Order S-3-05. Among other actions, the Executive Order called for reducing greenhouse gas emissions to 80 percent below 1990 levels by 2050; this ambitious yet achievable reduction path and goal are considered necessary to stabilize the long-term climate. AB 32 and Executive Order S-3-05, combined with

AB 1493, drove development of California's second generation passenger vehicle greenhouse gas regulations for model years 2017 and beyond.

In May of 2010, a Presidential Memorandum[1] directed USEPA and NHTSA to work jointly to develop continuing national greenhouse gas standards for model years 2017 through 2025. The Memorandum requested that USEPA and NHTSA work closely with ARB on a 2010 technical assessment that would assess technologies and costs to achieve varying levels for greenhouse gas emission reduction through model year 2025. The result was a September 2010 *Interim Technical Assessment Report*, jointly authored by USEPA, NHTSA, and ARB. Subsequent to that collaborative technical work ARB staff closely monitored the work of USEPA and NHTSA, and the staffs continued to jointly hold meetings with various stakeholders (e.g., individual automakers), examine updated technical materials, and develop consistent technology assumptions.

In July 2011, automakers, California, and the federal government committed to a series of actions that would allow for the development of national greenhouse gas standards for model years 2017-2025 that would meet the needs of California as well as the nation as a whole. The Notice of Proposed Rulemaking (NPRM) for the 2017-2025 model year national greenhouse gas program was issued on December 1, 2011. 76 Fed.Reg. 74854 (December 1, 2011). California's commitments (as conveyed by a letter[2] from Chairman Mary Nichols to USEPA and the U.S. Department of Transportation) are:

(1) California committed that if USEPA proposed federal greenhouse gas standards and NHTSA proposed CAFE standards for model years 2017 and beyond substantially as described in the July 2011 Notice of Intent (published in the Federal Register on August 9, 2011), and the agencies adopted standards substantially as proposed, California would not contest such standards;

(2) California committed to propose to revise its standards on greenhouse gas emissions from new motor vehicles for the 2017 through 2025 model years, such that compliance with the greenhouse gas emissions standards adopted by USEPA for those model years that are substantially as described in the July 2011 Notice of Intent, even if amended after 2012, shall be deemed compliance with the California greenhouse gas emissions standards, in a manner that is applicable to states that adopt and enforce California's greenhouse gas standards under Clean Air Act (CAA) Section 177; and

[1] The Presidential Memorandum is found at: http://www.whitehouse.gov/the-press-office/presidential-memorandum-regarding-fuel-efficiency-standards

[2] California Air Resources Board, Letter from Mary D. Nichols, Chairman, to The Honorable Lisa Jackson, Administrator, United States Environmental Protection Agency and The Honorable Ray LaHood, Secretary, United States Department of Transportation, July 28, 2011, available at http://www.epa.gov/otaq/climate/letters/carb-commitment-ltr.pdf

(3) California committed to propose that its revised Zero-Emission Vehicle (ZEV) program for the 2018 through 2021 model years include a provision providing that over-compliance with the federal greenhouse gas standards in the prior model year may be used to reduce in part a manufacturer's ZEV obligation in the next model year.

USEPA and the U.S. Department of Transportation also committed to re-evaluate the state of vehicle technology no later than April 1, 2018, to determine whether any adjustments to the stringency of the 2022 through 2025 model year national greenhouse gas standards, adopted as a result of these commitments are appropriate. This re-evaluation of vehicle technology is referred to federally as a "Mid-term Evaluation" and in prior Board documents as the "Mid-term Review. Regarding the evaluation, Chairman Nichols' commitment letter stated "California will fully participate in the mid-term evaluation, however, California reserves all rights to contest final actions taken or not taken by EPA or NHTSA as part of or in response to the mid-term evaluation." The Board confirmed California's commitment to participating in the Mid-term Evaluation by including the following language in Resolution 12-11[3], "BE IT FURTHER RESOLVED that the Board directs the Executive Officer to participate in U.S. EPA's mid-term review of the 2022 through 2025 model year passenger vehicle greenhouse gas standards being proposed under the 2017 through 2025 MY National Program;" In addition to California's commitments, EPA has stated its understanding that "The rules submitted to EPA for a waiver under the CAA will include such a mid-term evaluation" and "that California's 2017–2025 standards to be submitted to EPA for a waiver under the Clean Air Act will deem compliance with EPA greenhouse gas emission standards, even if amended after 2012, as compliant with California's." (76 Fed.Reg. at 74987).

In January 2012, the ARB adopted its second generation greenhouse gas regulations as part of the Low-Emission Vehicle III (LEV III) element of the Advanced Clean Cars program. This program combines the control of smog-causing pollutants and greenhouse gas emissions into a single coordinated package of requirements for model years 2017 through 2025 and assures the development of environmentally superior cars that will continue to deliver the performance, utility, and safety vehicle owners have come to expect. A second element of the Advanced Clean Cars program, the ZEV regulations, includes regulatory changes that implement California's third (3) commitment above. (Another element of the Advanced Clean Cars program, the Clean Fuels Outlet regulations, designed to assure ultra-clean fuels such as hydrogen are available to meet vehicle demands brought on by these amendments to the ZEV program, is mentioned here for completeness. However, there are no proposed amendments to the Clean Fuels Outlet regulations at this time and none are needed to meet the above-described commitments.)

[3] State of California, Air Resources Board, Resolution 12-11, January 26, 2012, Agenda Item No.: 12-1-2, ADVANCED CLEAN CARS REGULATION PACKAGE, http://www.arb.ca.gov/regact/2012/cfo2012/res12-11.pdf

The second generation greenhouse gas regulations contained in the Advanced Clean Cars program require significant reductions in greenhouse gas emissions from passenger cars and light-duty trucks (i.e., vehicles less than 8,500 lbs. gross vehicle weight) and sport utility vehicles (i.e., medium-duty passenger vehicles). These requirements will reduce car CO_2 emissions by about 36% and truck CO_2 emissions by about 32% from model year 2016 through 2025. The ZEV element of the Advanced Clean Cars program also fulfills California's third commitment towards the development of the 2017 through 2025 model year national greenhouse gas program, as discussed above.

At the January 2012 hearing, the Board also confirmed California's commitment to make regulatory changes that implement California's first (1) commitment above by including the following language in Resolution 12-11, "BE IT FURTHER RESOLVED that the Board directs the Executive Officer to either propose modifications to the approved regulatory amendments, or to return to the Board with a new regulatory proposal, to accept compliance with the 2017 through 2025 MY National Program as compliance with California's greenhouse gas emission standards in the 2017 through 2025 model years, if the Executive Officer determines that U.S. EPA has adopted a final rule that at a minimum preserves the greenhouse reduction benefits set forth in U.S. EPA's December 1, 2011 Notice of Proposed Rulemaking for 2017 through 2025 model year passenger vehicles;" The Board re-iterated this commitment at the March 2012 "Public Hearing to Consider Approval of Responses to Public Comments on the Environmental Analysis for the Advanced Clean Cars Regulations and to Take Final Action on These Regulations" by including the following language in Resolution 12-21[4], "WHEREAS, in consideration of the proposed Final Regulation Orders, written comments, and public testimony it has received to date, the Board finds that: It is appropriate to accept compliance with the 2017 through 2025 model year National Program as compliance with California's greenhouse gas emission standards in the 2017 through 2025 model years, once United States Environmental Protection Agency (U.S. EPA) issues their Final Rule on or after its current July 2012 planned release, provided that the greenhouse gas reductions set forth in U.S. EPA's December 1, 2011 Notice of Proposed Rulemaking for 2017 through 2025 model year passenger vehicles are maintained, except that California shall maintain its own reporting requirements."

II. DESCRIPTION OF PUBLIC PROBLEM, ADMINISTRATIVE CIRCUMSTANCE PROPOSAL IS INTENDED TO ADDRESS; PROPOSED SOLUTIONS TO THE PUBLIC PROBLEM AND RATIONALE SUPPORTING THE PROPOSED SOLUTIONS

California committed to accept national program compliance for model years 2017 through 2025 with the understanding that it would provide equivalent or better overall greenhouse gas reductions nationwide than California's program. Consistent with

[4] State of California, Air Resources Board, Resolution 12-21, March 22, 2012, Agenda Item No.: 12-2-7, ADVANCED CLEAN CARS REGULATION PACKAGE, http://www.arb.ca.gov/regact/2012/leviiighg2012/res12-21.pdf

this understanding, ARB has continued to work with USEPA to ensure that the final federal rule and California's regulations are harmonized to the extent that they meet both agencies' air quality and greenhouse gas reduction needs.

On August 28, 2012, USEPA and NHTSA issued their final 2017 through 2025 model year federal greenhouse gas standards (FRM)[5]. This triggered the ARB's need to review the final federal program and compare it to that originally proposed. Staff have done so, and as discussed in Section III, staff have determined that the final rulemaking adopts greenhouse gas standards substantially as proposed in the NPRM. Hence, staff recommends that the Board fulfill its first commitment, discussed above, by not contesting the federal standards. The current proposed amendments to California's passenger motor vehicle regulations, which are discussed in greater detail below, fulfill the second commitment made by California and the direction of the Board.

III. SUMMARY OF RECOMMENDED BOARD ACTION

In this rulemaking, staff is proposing to accept manufacturer-demonstrated compliance with the final national passenger motor vehicle greenhouse gas regulations for the 2017 through 2025 model years, as an alternative option to achieve compliance with California's regulations.

This proposal also makes minor changes to ARB's regulations. In general these proposed changes correct errors, and update procedures to reflect information received since adoption of the regulations in January, 2012. Staff is not proposing to amend the California regulations to be identical to the final National Program. For example ARB's regulation would continue to treat upstream emissions differently than the final National Program. Other areas in which the California rule and the final federal greenhouse rule do not align are discussed below. In practice, most if not all manufacturers are expected to use compliance with the national rule to satisfy California requirements. However a manufacturer may choose to comply with the ARB requirements, and the ARB regulation would remain in place in the event the National Program ceases.

It should be noted that adoption of this proposal would not eliminate the reporting requirements for California that have already been adopted by the Board prior to this hearing. Specifically, a manufacturer will still be required to submit emission testing data and sales data for California and each of the Section 177 states in sufficient detail to allow staff to verify the manufacturer's average greenhouse gas levels for each model year. In addition, staff is also proposing minor revisions to the LEV III criteria pollutant regulations and the ZEV regulations to correct errors and to clarify the regulations.

[5] "2017 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards" final rule, adopted August 28, 2012, available at http://epa.gov/otaq/climate/documents/2017-2025-ghg-cafe-standards-frm.pdf

It should also be noted that the final 2017 through 2025 model year national greenhouse gas rule also contains a few minor modifications to the 2012 through 2016 model year national greenhouse gas program. Staff has also examined these changes, as summarized below, and determined that, since they have little or no impact on the stringency of the federal rule, it is appropriate for California to continue to accept compliance with the national greenhouse gas regulations as compliance with California's regulations for these earlier model years.

Areas Where California's 2017 through 2025 Model Year Greenhouse Gas Regulations Differ from the 2017 through 2025 Model Year National Greenhouse Gas Regulations

1. Treatment of Advanced Technology Vehicles: Since California requires the production of zero emission vehicles (e.g. plug-in hybrid electric vehicles, battery electric vehicles, and fuel cell vehicles), LEV III provides a performance based, technology neutral approach for these ultra-low greenhouse gas technologies by assigning upstream emissions to these technologies when demonstrating compliance to the greenhouse gas requirements. However, the federal program, which does not require the production of these zero emission technologies, provides a temporary incentive for their production by assigning an upstream emission factor of zero. Specifically, for the 2017 through 2022 model years, an upstream emission factor of zero applies to all qualifying vehicles. For the 2022 through 2025 model years, the use of zero grams per mile CO_2 is limited to the first 600,000 combined plug-in hybrid electric vehicles, battery electric vehicles and fuel cell vehicles for a manufacturer that sold 300,000 or more plug-in hybrid electric vehicles, battery electric vehicles and fuel cell vehicles combined in the 2019 through 2021 model years, and 200,000 for all other manufacturers. Net upstream emissions would be accounted for vehicles exceeding these caps.

   In addition to the zero upstream emission provision, the federal program provides an additional incentive to advanced technology vehicles such as plug-in hybrid electric vehicles, battery electric vehicles, and fuel cell vehicles, dedicated natural gas and dual fuel natural gas vehicles in the form of a vehicle multiplier (i.e., each vehicle would count as more than one vehicle when determining compliance with the greenhouse gas requirements). These vehicle multipliers apply to model years 2017 through 2022 with higher values assigned to plug-in hybrid electric vehicles, battery electric vehicles and fuel cell vehicles and lower values assigned to natural gas vehicles. These vehicle multipliers decrease over time.

   The impact of these additional provisions in the national program for advanced technology vehicles results in a slight decrease in accumulated CO_2 reductions in California in 2025. In the Initial Statement of Reasons[6] for LEV III (page 162), staff estimated that including the NPRM provisions in the California program would result in a 4.5% loss of accumulated CO_2 emission reductions in 2025. As

[6] The Initial Statement of Reasons can be found at http://www.arb.ca.gov/regact/2012/leviiighg2012/levisor.pdf

discussed in Section IV, the loss from applying a zero upstream factor federally will be more than offset by reductions from the substantially greater number of vehicles covered by the National Program compared to the California program.

2. Indirect Air Conditioning Credits: Manufacturers may receive credits for improving the efficiency of vehicle air conditioning (A/C) systems. The amount of credit available for different efficiency technologies is listed in a credit menu and manufacturers may claim up to a 5.0 grams carbon dioxide-equivalent per mile (gCO_2e/mile) for cars and 7.2 gCO_2e/mile for trucks. The LEV III rule, as approved January 26, 2012, contains the same credit structure as the final rule for the 2017 through 2025 model year national greenhouse gas program. However, based on further testing and comments from manufacturers on the NPRM, USEPA made minor modifications to the process by which manufacturers qualify for indirect A/C credits. The primary change made by USEPA was to allow manufacturers to test only those vehicles for which they are seeking indirect A/C credits, with no requirement to compare those vehicles with improved A/C systems to baseline vehicles through model year 2019. Beginning in 2020, manufacturers will be required to demonstrate that the benefits of the improved A/C system are equivalent to the amount of credits generated from the indirect credit menu. From 2020 through 2025, the federal program as finalized in 40 CFR §86.1868-12 is substantially similar to the LEV III indirect credit program (title 13, CCR, §1961.3 (a)(7)(E)) in place from 2017 through 2025. Thus, the primary differences between the ARB and USEPA programs are largely limited to the first three years of the program, with the ARB program requiring a slightly higher bar for credit qualification during that period. The total number of indirect A/C credits available to manufacturers through each program remains equivalent.

3. Off Cycle Credits: Similar to the A/C provisions, off-cycle credits can be used by manufacturers to offset some tailpipe emissions and thus provide additional flexibility for achieving compliance with the CO_2 standards. In their final rulemaking for the 2017-2025 model year national greenhouse gas program, USEPA refined the off-cycle credit program based on additional testing and simulations. These refinements did not change the overall structure of the off-cycle credit program nor the total number of credits available, but did change how the credits are calculated for several technologies and the amount of credits available for a small number of individual technologies. Despite the fact that some individual technology credit amounts differ between the final USEPA rule and the LEV III program approved January 26, 2012, the two off-cycle credit programs are largely identical given that the structure of the two programs has not changed (see 40 CFR §86.1869-12 (a) and the introduction to title 13, CCR §1961.3 (a)(8)) and manufacturers may only claim a maximum of 10 gCO_2e/mile off-cycle credits regardless of which accounting mechanism is used (as per 40 CFR §86.1869-12 (b)(2) and title 13, CCR §1961.3 (a)(8)(A)(2). As such, the final federal program is sufficiently similar to the LEV III program.

4. Full-Size Truck Credits: The full-size truck provisions provide special emission-reduction credit for the use of mild and strong hybrid technology in order to incentivize the widespread adoption of these technologies. Because full-size pick-up truck hybrid technologies are still in their infancy, in their final rulemaking for the 2017 through 2025 model year national greenhouse gas program USEPA slightly loosened the qualification requirements for hybrid truck credits, primarily by decreasing the minimum percentage penetration requirements for mild hybrids by 10 percent for each of the first two years of their program, model years 2017 and 2018. Because full-size hybrid truck technologies are not in widespread use and the loosening of the penetration requirements applies for only the first two years of the federal program, the final federal full-size truck provisions can be considered sufficiently equivalent to those in LEV III, as approved January 26, 2012.

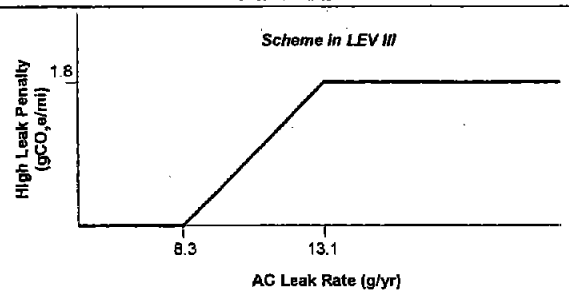
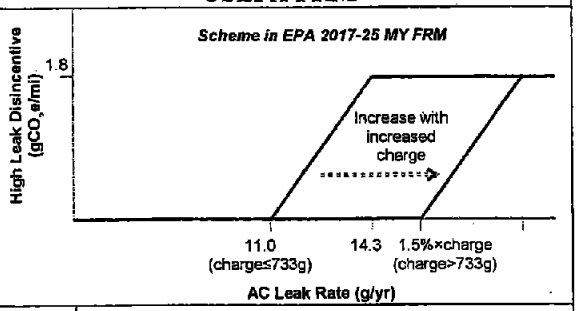
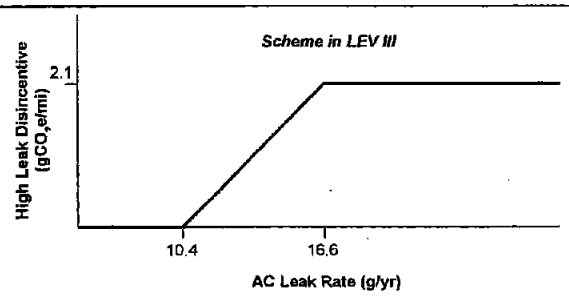
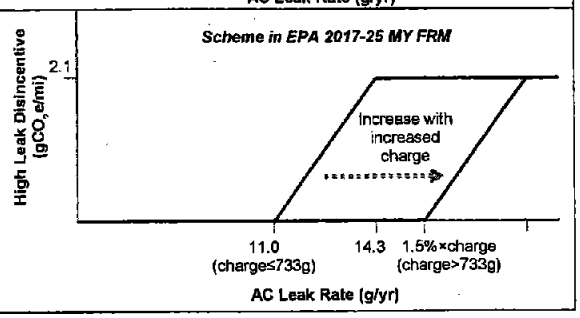
5. Motor Vehicle High Leak Disincentive: Both the ARB and the USEPA programs include credits and disincentives that encourage manufacturers to employ A/C systems having low refrigerant leak rates. In both programs, the high leak disincentive for A/C systems employing a refrigerant having a 100-year global warming potential ≤ 150 is calculated as follows:

$$HiLeakDis = MaxDis \times \left(\frac{LeakRate - LeakThresh\ old}{DfltLeakRa\ te - LeakThresh\ old} \right)$$

However, the ARB program and USEPA program use different values for *LeakThreshold* and *DfltLeakRate* as shown in the Table below.

		ARB	USEPA
Passenger Cars	*LeakThreshold (g/yr)*	8.3	11.0 if charge≤733g; 1.5%×charge otherwise
	DfltLeakRate (g/yr)	13.1	*LeakThreshold* + 3.3
Light-Duty Trucks	*LeakThreshold (g/yr)*	10.4	11.0 if charge≤733g; 1.5%×charge otherwise
	DfltLeakRate (g/yr)	16.6	*LeakThreshold* + 3.3

The effect of those differences is that under the ARB program, A/C systems must have lower leak rates than required under the USEPA program in order to avoid the high leak disincentive or to minimize it to a given level. The differences are illustrated in the Figures below.

	LEV III	USEPA FRM
Passenger Cars		
Light-Duty Trucks		

ARB's program is more stringent. Compared to USEPA's program, the ARB program

- Provides stronger driving force for industry to move toward best low leak technologies
- Generates additional greenhouse gas emission reductions between 0.2 and 0.8 gCO_2e/mi (based on preliminary estimates)
- Does not interfere with industry's continuous trend in reducing refrigerant charge size
- Reduces the lifetime cost of low Global Warming Potential A/C systems

Nevertheless, ARB believes that inclusion of high leak disincentives provided by the USEPA program offers substantial benefits compared to having no high leak disincentive. For this reason, staff believes the lesser stringency of the federal requirement compared to California's requirement does not negate the substantial benefits and advantages of having a single unified program.

Changes to the 2012 through 2016 Model Year National Greenhouse Gas Regulations Included in the 2017 through 2025 Model Year National Greenhouse Gas Regulations Rulemaking

1. Small Business Provision: Automobile manufacturers that qualify as a small business under the Small Business Administration regulations in 13 CFR part 121 (i.e., those with fewer than 1,000 employees) are exempt from the 2012 through 2016 model year national greenhouse gas program. However, the national program originally allowed these manufacturers to optionally comply with these regulations and earn credits for their compliance beginning with the 2014 model year. USEPA's final rule for the 2017 through 2025 model year national

greenhouse gas program changes this provision to allow these manufacturers to optionally comply with the 2012 through 2016 model year national greenhouse gas program beginning with the 2013 model year. Staff is aware of only a few small manufacturers that are affected by this regulatory change. Therefore, the effect of this change is negligible.

2. Test Procedure for Calculating Air Conditioner Refrigerant Leakage: The 2012 through 2016 model year national greenhouse gas program originally required a manufacturer to calculate the annual rate of refrigerant leakage from an air conditioning system according to the provisions of §86.166-12 of the Code of Federal Regulations (CFR) (40 CFR §86.166-12). This reference to the CFR has been changed to require Society of Automobile Engineers (SAE) test procedure J2727 to be used instead of 40 CFR §86.166-12. §86.166-12 was adapted from SAE J2727, but may not reflect all the latest improvement to the SAE procedure. By requiring the use of SAE J2727 instead of §86.166-12, the USEPA program uses the best available engineering method for evaluating the annual rate of refrigerant leakage. This change does not affect the stringency of this provision.

3. Indirect Air Conditioning Credits: In its final 2017 through 2025 model year national greenhouse gas program, USEPA also provided additional flexibility to manufacturers attempting to qualify for indirect A/C credits for model years 2014 through 2016. These additional flexibilities allow manufacturers to utilize either a modified AC Idle test (40 CFR §86.1868-12 (e)(3)) or the "AC17 Air Conditioning Efficiency Test Procedure" (40 CFR §86.167-17) in lieu of the unmodified AC Idle test (40 CFR §86.165-12) in order to qualify for indirect A/C credits as listed on the credit menu. The credit menu specified in 40 CFR §86.1868-12 (a)(1) has not been altered for these model years. Because this change to the 2012 through 2016 model year national greenhouse gas program does not change the amount of credits allowed to manufacturers and only provides additional flexibilities for credit qualification, this change is not considered a substantial modification to the 2012 through 2016 model year national greenhouse gas program. As such, this modification should not affect the current provision (title 13, CCR §1961.1(a)(1)(A)(ii)) that allows manufacturers to demonstrate compliance with California's 2012 through 2016 model year greenhouse gas program by demonstrating compliance with the national greenhouse gas program.

Differences Between the Final 2017 through 2025 Model Year National Greenhouse Gas Regulations and the Proposed Rule that have a Minor Impact or No Impact on the Stringency of the Rule

1. Manufacturers that use the Temporary Lead-Time Allowance Alternative Standards (TLAAS) in the 2016 model year may use additional lead-time provisions. Manufacturers using additional lead-time may not trade credits generated in a model year where the alternative phase-in is used.

2. Measurement of N_2O will not be required prior to the 2017 model year, except that manufacturers can continue to use a compliance statement instead of measuring N_2O emissions for carry-over test groups until the 2019 model year.
3. Manufacturer in-use compliance testing will not be required for N_2O for test groups that are certified using a compliance statement.
4. Manufacturers may apply for operational independence designation. Those granted an operational independence designation may use the small volume manufacturer exemption prior to the 2017 model year, and apply for alternative CO_2 standards under the small volume manufacturer provisions (if they meet the other small volume manufacturer eligibility criteria).
5. Dedicated and dual fuel natural gas vehicles are eligible for the same advanced technology multiplier as plug-in hybrid electric vehicles.
6. The number of vehicles that must be test for the "AC17 Air Conditioning Efficiency Test Procedure" has been reduced.
7. The off-cycle pre-defined technology list and credit values have been revised.
8. The requirement that at least 10 percent of a manufacturer's use an off-cycle greenhouse gas technology before the manufacturer can earn credits for that technology has been removed.
9. The testing requirement for demonstrating off-cycle emission reductions has been reduced for those technologies that demonstrate a CO_2 reduction of 3 percent or greater over the initial set of 5-cycle tests.
10. Manufacturers may now submit an engineering analysis demonstrating that one of the 5-cycle procedures has no effect on emissions instead of running the test procedure.
11. Crash avoidance, safety critical technologies, or systems affecting the safety-critical functions and technologies required by title 49 of the CFR are not eligible for off-cycle credits.
12. Full-size pickup trucks that implement hybrid electric vehicle technology may earn CO_2 credits, if a manufacturer produces a minimum percentage of its full-size pickup fleet that uses the technology. For mild hybrid electric vehicles, the minimum percentages of vehicles that must use the technology to be eligible for the credit in the 2017 and 2018 model years have been reduced from 30 percent to 20 percent, and from 40 percent to 30 percent, respectively.
13. Emergency vehicles, which were originally only exempt from meeting the CO_2 requirements, are now also exempt from meeting the N_2O and CH_4 standards.
14. Language has been added that states that where two TLAAS eligible companies merge, but one of the companies foregoes eligibility entirely, the company already using TLASS at the time of the merger must stop using TLAAS in the model year following the merger.

IV. AIR QUALITY

The national greenhouse gas program for the 2017 through 2025 model years is marginally less stringent than California's program due to differences between the two programs in their treatment of advanced technology vehicles and the application and calculation of credits for improved air conditioning systems, off-cycle technologies and hybridization of full-size trucks. Staff has determined that the

differences in the federal credit scheme for select technologies are largely limited to the early years of the program and will have a minimal impact on greenhouse gas emission reductions from the light-duty fleet. The combined impact of these federal provisions results in a slight decrease in accumulated CO_2 reductions in California in 2025. On page 162 of the Initial Statement of Reasons[7] for LEV III (LEV III ISOR), staff estimated that the impact of these provisions would result in a 4.5% loss of accumulated CO_2 emission reductions in 2025.

Nonetheless, while implementation of a compliance option that allows manufacturers to certify to the 2017 through 2025 model year national greenhouse gas program instead of the California program would result in a slight decrease in accumulated CO_2 reductions in California, greater CO_2 reductions would be achieved nationwide, as was the case when California adopted the federal program option for the 2012 through 2016 model years. For 2017 and later model years, staff estimated that in 2050, the California program would reduce greenhouse gas emissions from light-duty vehicles by 43 million metric tons (MMT) (LEV III ISOR page 176). USEPA has estimated greenhouse gas reductions of 569 MMTs from the national program in 2050.[8] This occurs because the national program applies to a national fleet that is approximately ten times larger than the California fleet.

Additionally, as noted in Appendix J, staff is proposing to correct an error in the carbon monoxide (CO) standards for medium-duty vehicles that were adopted as part of the original LEV III rulemaking. The CO standards that are currently in place were inadvertently copied from an earlier proposal and are not consistent with those presented in the LEV III ISOR.

V. ENVIRONMENTAL IMPACTS ANALYSIS [CEQA Analysis]

A. Introduction

This chapter provides an environmental analysis (EA) for the proposed regulatory amendments to the Advanced Clean Cars Program's suite of regulations. Appendix J of this Staff Report provides a detailed description of the proposed amendments to the LEV III Greenhouse Gas and Criteria Pollutant and the ZEV regulations. Based on ARB's review, staff has determined that implementation of the proposed amendments would not result in a significant or potentially significant adverse impact on the environment. This analysis provides the basis for reaching this conclusion.

[7] The Initial Statement of Reasons can be found at http://www.arb.ca.gov/regact/2012/leviiighg2012/levisor.pdf
[8] "2017 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards" final rule, adopted August 28, 2012, available at http://epa.gov/otaq/climate/documents/2017-2025-ghg-cafe-standards-frm.pdf

B. Environmental Review Process

ARB is the lead agency for the proposed regulatory amendments, and has prepared this EA pursuant to its regulatory program certified by the Secretary of the Natural Resources Agency (14 CCR 15251(d); 17 CCR 60005-60007). In accordance with Public Resources Code section 21080.5 of the California Environmental Quality Act (CEQA), public agencies with certified regulatory programs are exempt from the requirements for preparing environmental impact reports, negative declarations, and initial studies (14 CCR 15250). As required by ARB's certified regulatory program and the policy and substantive requirements of CEQA, ARB has prepared an assessment of the potential for significant adverse and beneficial environmental impacts associated with the proposed regulation and a succinct analysis of those impacts (17 CCR 60005(b)). This EA is included as part of the Staff Report prepared for the rulemaking (17 CCR 60005). The resource areas identified in the CEQA Guidelines Environmental Checklist were used as a framework for assessing the potential for significant impacts (17 CCR 60005(b)).

If comments received during the public review period raise significant environmental issues, staff will summarize and respond to the comments in writing. The written responses will be included in the Final Statement of Reasons for the regulation. Before taking final action on any proposed action for which significant environmental issues have been raised, the decision maker shall approve the written responses to these issues (17 CCR 60007(a)). If the regulatory amendments are adopted, a Notice of Decision will be posted on ARB's website and filed with the Secretary of the Natural Resources Agency for public inspection (17 CCR 60007(b)).

C. Prior Environmental Analysis

The Board approved the EA prepared for the Advanced Clean Cars Program and Responses to Environmental Comments on March 22, 2012. The EA for the Advanced Clean Cars Program analyzed potential impacts related to amendments to existing regulations for LEV III, ZEV and Clean Fuels Outlet. It combined the three regulations to control smog-forming, particulate matter, toxic air contaminants (TACs), and greenhouse gas emissions in a single coordinated package of requirements for model years 2015 through 2025. The ZEV regulatory amendments require manufacturers to produce increasing numbers of ZEVs and plug-in hybrid electric vehicles in the 2018 through 2025 model years. The LEV III and ZEV regulations became effective on August 7, 2012. The Clean Fuels Outlet regulation is not yet effective.

The EA concluded that the regulated communities' compliance with the LEV III and the ZEV regulations would result in beneficial impacts to air quality through reductions in emissions, including greenhouse gases, criteria pollutants, and TACs, in addition to beneficial impacts to energy demand. It

further concluded that the regulations would result in less-than-significant impacts or no impacts to aesthetics, agricultural and forest resources, hazards, land use, noise, employment, population and housing, public services, recreation, transportation and traffic, and utilities /service systems.

The Advanced Clean Cars Program EA concluded that the Clean Fuels Outlet regulation could result in potentially significant adverse impacts to biological resources, cultural resources, geology/soils and minerals, and hydrology/water quality largely due to construction activities for facility-specific projects. Since the Clean Fuels Outlet regulation is not yet effective and is not part of the proposed rulemaking, no further discussion on the Clean Fuels Outlet regulation will be provided in this EA.

D. Proposed Regulation

1. Description

Appendix J of this Staff Report describes the proposed amendments to the LEV III and ZEV regulations in detail. Briefly, the proposed LEV III and ZEV regulatory amendments consist of the following:

LEV III Amendments

- Administrative and clarifying changes to the greenhouse gas and criteria pollutant provisions;
- Flexibility to allow demonstrated compliance with federal greenhouse gas program as meeting California's requirements;
- Changes to test procedures for criteria pollutant and greenhouse gas exhaust emissions, and fuel evaporative emissions; and
- Changes to the method for estimating initial refrigerant leak from new motor vehicle A/C systems.

ZEV Amendments

- Administrative modifications and corrections that provide clarity and updates references made to the greenhouse gas fleet standards.

2. Methods of Compliance

The compliance responses would remain the same as those described in Chapter 4 of the "Draft Environmental Analysis for the Advanced Clean Cars Program"[9]. In summary, the EA indicates that in order to comply with the LEV III regulation, manufacturers would be expected to comply with the fleet average standards that affect the mix of vehicle models and types sold and leased in California. They would also be

[9] The " Draft Environmental Analysis for the Advanced Clean Cars Program" is found at: http://www.arb.ca.gov/regact/2012/leviiighg2012/levappb.pdf

expected to implement technological improvements that would reduce greenhouse gas emissions. These include improved engine and emission control systems, more efficient transmissions and A/C systems, installation of lighter materials and low-rolling resistance tires. They would also comply with California evaporative emission test requirements, and install the Environmental Performance Label. Additionally, the EA also indicates that compliance by manufacturers with the ZEV regulation would increase the number of ZEVs and TZEVs sold and leased in California, and address battery manufacture, charging and infrastructure needs.

For this proposed rulemaking, manufacturers would be subject to administrative, testing and procedural changes that would further align California's program with the federal program, and be consistent with best engineering practices. The proposed amendments would not cause or require the regulated community to construct structures or disturb the existing physical environment.

E. Environmental Impacts

Based on ARB's review of the proposed regulatory amendments, staff concludes that the proposed regulatory amendments would not result in any new compliance responses by the regulated community that would result in new significant or potentially significant adverse impacts on the environment. Compliance with the proposed amendments would not result in any physical change to the existing environment. The amendments consist of administrative and procedural changes that do not involve or result in any new development, modifications to buildings, or new land use designations.

Further, compliance with the proposed amendments would not involve any activity that would involve or adversely affect aesthetics, air quality, agricultural and forestry resources, biological resources, cultural resources, geology and soils, greenhouse gases, hazardous material, hydrology and water quality, land use planning, mineral resources, noise, population and housing, public services, recreation, or traffic and transportation because they would not require any activity that could affect these resource areas.

As described in Section V.C, above, the EA prepared for the Advanced Clean Cars Program indicated that there are beneficial impacts to air quality due to this program through reductions in emissions, including greenhouse gases, criteria pollutants, and TACs, in addition to beneficial impacts to energy demand. The degree of benefits that may occur as a result of the proposed amendments is somewhat uncertain, although ARB expects that the increase in numbers of cleaner cars in California - and nationwide, would result in an overall decrease in greenhouse gas emissions.

No discussion of alternatives or mitigation measures is necessary because no significant or potentially significant adverse environmental impacts are identified.

VI. ENVIRONMENTAL JUSTICE

"Environmental Justice" is defined as the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies (Government Code §65040.12(c).

Staff does not believe that this proposal will have any adverse environmental justice impacts because the stringency of California's passenger vehicle greenhouse gas requirements is not affected by the proposed changes to the regulations. Furthermore, since the proposed changes to the criteria pollutant regulations and zero-emission vehicle regulations do not change the stringency of the emission standards, but rather are limited to the correction of errors and providing clarification to the current regulations, there will be no increase in criteria pollutants in California due to mix shifting of vehicles between California and other states.

VII. ECONOMIC IMPACTS

There are no additional costs due to these amendments. The proposed amendments impact only the approximately thirty vehicle manufacturers subject to the LEV III (and ZEV) regulations, most of which are headquartered outside of California. Staff believes that manufacturers will continue to utilize the same types of technologies at the same incremental vehicle costs. However, allowing manufacturers to demonstrate compliance with California's greenhouse gas standards using compliance with essentially equivalent federal standards could potentially benefit manufacturers.

The alternative compliance option will simply allow manufacturers to calculate compliance averages from a single new vehicle fleet, instead of two regional fleets, which manufacturers have stated provides them with greater flexibility in where they place individual vehicle models. The benefits of this additional flexibility are not quantified due to the confidential nature of manufacturers' product placement strategies. However, these benefits are expected to be relatively small so that no businesses or jobs would be created or eliminated as a result of the proposed amendment. Additionally, the alternative compliance option is an additional compliance pathway; a manufacturer may continue to comply with California's regulations independently from compliance with the National Program, in which case there would be no economic impact from these amendments on that manufacturer.

Other modifications in this rulemaking are corrective, clarifying, or updating in nature and are intended to ensure the emissions benefits expected from the program are achieved. The stringency of the programs remains unchanged. The modifications

related to the ZEV over-compliance provision were anticipated and accounted for during development of the original Advanced Clean Cars rulemaking. Thus, this amendment formalizes ARB's commitment to this provision but, like the other minor revisions, does not introduce any new economic impacts.

There will be no fiscal impacts to the State from the proposed amendments, either in terms of tax revenue or personnel requirements. These amendments are not expected to change vehicle prices in a way that would alter vehicle purchase decisions. The inclusion of an alternative compliance option does not substantially increase the volume of data to review or the enforcement burden to the ARB that would justify hiring additional staff.

A. Alternatives

1. Evaluation of alternatives considered and reasons for rejecting them

Staff considered the following regulatory alternative to the proposed amendments: Do not amend current LEV III and ZEV regulations. This alternative would require all vehicle manufacturers to calculate footprint-based fleet averages for vehicles sold in California and its partner states and separate footprint-based fleet averages for vehicles sold in all remaining states; additionally, compliance with the ZEV program would remain unaffected by over-compliance with the national greenhouse gas program.

This alternative was rejected because California committed to making the proposed amendments as part of the commitments made by California, the federal government, and other parties on July 28, 2011, as discussed above in Section I. These commitments were based on the belief that the national program would result in greater nationwide greenhouse gas emission reductions, and possibly lower compliance costs to vehicle manufacturers due to a single nationwide regulation.

No alternative considered by the agency would be more effective in carrying out the purpose for which the regulation is proposed or would be as effective or less burdensome to affected private persons than the proposed regulation.

2. Description of reasonable alternatives considered that would lessen impact on small business

No alternatives were considered to lessen the impact on small business because small businesses are not subject to the LEV III or ZEV regulations and would not be impacted by these proposed amendments.

3. Evidence relied upon to support initial determination in the notice that the regulation will not have a significant adverse economic impact on business

The proposed amendments will not significantly affect businesses, since vehicle purchase price and model availability will not be adversely impacted. Vehicle manufacturers will not be required to expend any money to comply with the new requirements and have stated they may potentially benefit from increased flexibility from the alternative compliance option.

4. Justification for adoption of regulations different from federal regulations contained in the Code of Federal Regulations

To the extent California's regulations differ from current federal requirements affecting the same pollutants, California has authority to set its own standards to reduce emissions further to meet federal and state ambient air quality standards and climate change requirements and goals, and to require additional and separate reporting. The differing state requirements proposed are necessary to achieve additional benefits for human health, public welfare, and the environment as envisioned by authorizing legislation.

These proposed amendments do not replace California's own passenger motor vehicle greenhouse gas regulations. Rather, they provide an additional compliance option to manufacturers by allowing them to demonstrate compliance with California regulations by demonstrating compliance with federal requirements. For any manufacturer that elects to pursue this compliance pathway, there would be no substantive difference between California requirements and the National Program. However, in the event a National Greenhouse Gas Program ceases to be in effect, that alternative compliance option would no longer be available; compliance would be exclusively to the differing California regulations to meet federal and state ambient air quality standards and climate change requirements and goals, and to require additional and separate reporting.

VIII. SUMMARY AND RATIONALE FOR EACH REGULATORY PROVISION[10]

Proposed modifications to the regulations that are corrections to errors in the text or are editorial in nature are not summarized below.

[10] A more detailed list and description of all of the proposed changes are found in Appendix J.

PROPOSED AMENDMENT TO CALIFORNIA'S PASSENGER VEHICLE GREENHOUSE GAS REGULATIONS

"Deemed to Comply" Provision

In accordance with California's commitment, the current proposed amendments to California's passenger motor vehicle regulations would accept compliance with the national greenhouse gas program as compliance with the California program for the 2017 through 2025 model years.

Changes to Motor Vehicle A/C Direct Credits

Section 1961.3 (a)(6)(C) prescribes a method for estimating initial refrigerant leak from new motor vehicle A/C systems. This method incorporates SAE J2727 by reference. The regulation is being amended to use the February 2012 version of SAE J2727 instead of the August 2008 version of SAE J2727. These changes are needed to use the most up to date procedures and be consistent with best engineering practice.

PROPOSED AMENDMENT TO CALIFORNIA'S LIGHT- AND MEDIUM-DUTY EXHAUST EMISSION REGULATIONS

Changes to Supplemental Federal Test Procedure Requirements

Staff is proposing a number of modifications to the California Supplemental Federal Test Procedure (SFTP) requirements in order to add clarity. Such changes include clarifications of vehicle test weight, LEV III bin value restrictions, the treatment of federally-certified vehicles that certify in California in accordance with section H subparagraph 1.4 of the "California 2015 and Subsequent Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles," and specifications for fixed speed cooling fans used during testing. Staff is also proposing a number of corrections to the existing SFTP regulations and test procedures. The proposed changes, further detailed in Appendix J, are administrative in nature and would not have an impact on emissions.

Changes to the Carbon Monoxide Standards for Medium-Duty Vehicles

Staff inadvertently included the incorrect CO standards for LEV III medium-duty vehicles (MDVs) in the regulations. The correct standards are listed table II-A-2-6 in the "Initial Statement of Reasons for Proposed Rulemaking, Public Hearing to Consider the "LEV III" Amendments to the

California Greenhouse Gas and Criteria Pollutant Exhaust and Evaporative Emission Standards and Test Procedures and to the On-Board Diagnostic System Requirements for Passenger Cars, Light-Duty Trucks, and Medium-duty vehicles, and to the Evaporative Emission Requirements for Heavy-Duty Vehicles,"[11] (LEV III ISOR). The CO standards in the LEV III ISOR are the standards ARB presented at the LEV III public workshops, but for some reason were not included in the regulations. The LEV III emission benefits will not change as a result of this correction, since the published emission benefits for LEV III included the correct CO standards as listed in the ISOR.

Changes to the High Mileage Testing Requirements for LEV III Vehicles and LEV II Vehicles that Certify to 150,000-mile Emission Standards

The regulations require in-use verification high mileage testing of LEV III vehicles and LEV II Vehicles that Certify to 150,000-mile Emission Standards to be conducted at a minimum odometer mileage of 112,500 miles. However, for certain test groups, it is extremely difficult to find test vehicles that meet this minimum odometer requirement. It is, therefore, necessary to amend this requirement to lower the minimum allowable odometer mileage to 105,000 miles.

PROPOSED AMENDMENT TO CALIFORNIA'S EVAPORATIVE EMISSION REGULATIONS

Staff is proposing to amend the evaporative emission program to clarify that for evaporative families carried over in accordance with 13 CCR 1976 (b)(1)(G)3., in-use compliance is based on the actual emission standards they certify to and not on the emission limits assigned to the families for the purpose of calculating the fleet-average hydrocarbon emission values. This change is only being proposed for clarification purposes and, therefore, would not have an impact on emissions.

PROPOSED AMENDMENT TO CALIFORNIA'S HEAVY-DUTY EXHAUST EMISSION REGULATIONS

Staff is proposing modifications to the exhaust test procedures for heavy-duty gasoline engines and for heavy-duty diesel engines, which clarify that all medium-duty vehicles with a gross vehicle weight of 8,501 to 10,000 pounds gross vehicle weight must certify to LEV III chassis standards for the 2022 and subsequent model years. Staff is proposing to allow incomplete heavy-duty vehicles that share engines with medium-duty

[11] The "Initial Statement of Reasons for Proposed Rulemaking, Public Hearing to Consider the "LEV III" Amendments to the California Greenhouse Gas and Criteria Pollutant Exhaust and Evaporative Emission Standards and Test Procedures and to the On-Board Diagnostic System Requirements for Passenger Cars, Light-Duty Trucks, and Medium-duty vehicles, and to the Evaporative Emission Requirements for Heavy-Duty Vehicles," is found at: http://www.arb.ca.gov/regact/2012/leviiighg2012/levisor.pdf.

vehicles to be certified to medium-duty chassis standards if they share the same engine.

PROPOSED AMENDMENT TO THE "SMALL VOLUME MANUFACTURER" DEFINITION IN TITLE 13, CCR, SECTION 1900

The definition of a "small volume manufacturer" contains qualifying language that allows manufacturers that meet the 4,500 vehicle sales threshold for a small volume manufacturer, but are partially or fully owned by another manufacturer, to still qualify as "small volume manufacturers," if they remain operationally independent from the company that owns them. This definition is being modified to remove language that restricts the model years to which this qualifying language applies.

PROPOSED AMENDMENT TO CALIFORNIA'S ZERO-EMISSION VEHICLE REGULATIONS

In changes presented to the Board in January 2012, staff proposed a provision in the ZEV regulation that rewarded systematic over-compliance with the greenhouse gas fleet standard. At the time, references to the greenhouse gas fleet standard were made to only the California greenhouse gas fleet standard, since there was no national greenhouse gas fleet standard to reference. With this rulemaking and changes proposed for the greenhouse gas fleet standard, regulatory language in title 13, section 1962.2, and the incorporated test procedure is proposed for updating to reference the national greenhouse gas fleet standard, if manufacturers choose to comply in California by demonstrating compliance with those federal standards. Additionally, the ZEV regulation has proposed minor modifications to improve readability, and update references to J2481 and the incorporated test procedures.

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2. BMW, Letter from Dr.-Ing. E.h. Norbert Reithofer, Chairman of the Board of Management, BMW, to The Honorable Lisa Jackson, Administrator, United States Environmental Protection Agency and The Honorable Ray LaHood, Secretary, United States Department of Transportation, July 27, 2011.

3. California Air Resources Board, Letter from Mary D. Nichols, Chairman, to The Honorable Lisa Jackson, Administrator, United States Environmental Protection Agency and The Honorable Ray LaHood, Secretary, United States Department of Transportation, July 28, 2011.

4. Chrysler LLC, Letter from Sergio Marchionne, Chief Executive Officer, Chrysler LLC to The Honorable Ray LaHood, Secretary, United States Department of Transportation and The Honorable Lisa Jackson, Administrator, United States Environmental Protection Agency, July 28, 2011.

5. Federal Register, Volume 76, No. 153 / Tuesday, August 9, 2011 / Proposed Rules, Environmental Protection Agency and National Highway Traffic Safety Administration, "2017–2025 Model Year Light-Duty Vehicle GHG Emissions and CAFE Standards: Supplemental Notice of Intent."

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7. Ford Motor Company, Letter from Alan R. Mulally, President and Chief Executive Officer, Ford Motor Company, to The Honorable Ray LaHood, Secretary, United States Department of Transportation and The Honorable Lisa Jackson, Administrator, United States Environmental Protection Agency, July 29, 2011.

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14. Mitsubishi Motors North America, Inc., Letter from Yoichi Yokozawa, President and Chief Executive Officer, Mitsubishi Motors North America, Inc., to The Honorable Ray LaHood, Secretary, United States Department of Transportation and The Honorable Lisa P. Jackson, Administrator, United States Environmental Protection Agency, July 29, 2011.

15. Nissan North America, Inc., Letters from Scott E. Becker, Senior Vice President of Administration and Finance, and Andrew J. Tavi, Vice President Legal and Government Affairs and General Counsel, Nissan North America, Inc., to The Honorable Ray LaHood, Secretary, United States Department of Transportation and The Honorable Lisa P. Jackson, Administrator, United States Environmental Protection Agency, July 29, 2011.

16. Society of Automotive Engineers, SAE Standard J2727, Revision Feb2012, Published 02/23/2012. "Mobile Air Conditioning System Refrigerant Emission Charts for R-134a and R-1234yf".

17. Toyota Motor Sales USA, Inc., Letter from James E. Lentz, President and Chief Executive Officer, Toyota Motor Sales, to The Honorable Ray LaHood, Secretary, United States Department of Transportation and The Honorable Lisa P. Jackson, Administrator, United States Environmental Protection Agency, July 29, 2011.

18. U.S. Environmental Protection Agency (USEPA), National Highway Traffic Safety Administration (NHTSA), and California Air Resources Board (CARB), 2010. *Interim Technical Assessment Report: Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards in Model Years 2017-2025.* http://www.epa.gov/otaq/climate/regulations/ldv-ghg-tar.pdf. September 2010.

19. Volvo Cars of North America, LLC, Letter from Doug Speck, Senior Vice President, Marketing, Sales and Customer Service, Volvo Car Corporation, to The Honorable Ray LaHood, Secretary, United States Department of Transportation and The Honorable Lisa Jackson, Administrator, United States Environmental Protection Agency, July 29, 2011.

XI. APPENDICES

Appendix A: Proposed Regulation Order

Appendix B: Proposed Amendments to the "California 2015 and Subsequent Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles"

Appendix C: Proposed Amendments to the "California 2001 through 2014 Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2009 through 2016 Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Model Passenger Cars, Light Duty Trucks, and Medium Duty Vehicles"

Appendix D: Proposed Amendments to the "California Non-Methane Organic Gas Test Procedures"

Appendix E: Proposed Amendments to the "California Evaporative Emission Standards and Test Procedures for 2001 and Subsequent Model Motor Vehicles"

Appendix F: Proposed Amendments to the "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Otto-Cycle Engines"

Appendix G: Proposed Amendments to the "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles"

Appendix H: Proposed Amendments to the : Proposed Amendments to the "California Exhaust Emission Standards and Test Procedures for 2009 through 2017 Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes"

Appendix I: Proposed Amendments to the "California Exhaust Emission Standards and Test Procedures for 2018 and Subsequent Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes"

Appendix J: List of Proposed Changes to Title 13, CCR and Incorporated Test Procedures

APPENDIX A - PROPOSED REGULATION ORDER

Amendments to Sections 1900, 1956.8, 1960.1, 1961, 1961.2, 1961.3, 1962.1, 1962.2, and 1976, Title 13, California Code of Regulations

Set forth below are the proposed amendments to title 13 of the California Code of Regulations. Amendments to existing section proposed and subject to comment in this rulemaking are shown in underline to indicate additions and ~~strikeout~~ to indicate deletions. Subsections for which no changes are proposed in this rulemaking are indicated with [No change] or "* * * *".

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1. Amend title 13, CCR, section 1900 to read as follows:

§ 1900. Definitions.

* * * *

(b) In addition to the definitions incorporated under subdivision (a), the following definitions shall govern the provisions of this chapter.

* * * *

(22) "Small volume manufacturer" means, with respect to the 2001 and subsequent model-years, a manufacturer with California sales less than 4,500 new passenger cars, light-duty trucks, medium-duty vehicles, heavy-duty vehicles and heavy-duty engines based on the average number of vehicles sold for the three previous consecutive model years for which a manufacturer seeks certification as a small volume manufacturer; however, for manufacturers certifying for the first time in California model-year sales shall be based on projected California sales. A manufacturer's California sales shall consist of all vehicles or engines produced by the manufacturer and delivered for sale in California, except that vehicles or engines produced by the manufacturer and marketed in California by another manufacturer under the other manufacturer's nameplate shall be treated as California sales of the marketing manufacturer.

Except as provided in the next paragraph, for the 2009 through 2017 model years, the annual sales from different firms shall be aggregated in the following situations: (1) vehicles produced by two or more firms, one of which is 10% or greater part owned by another; or (2) vehicles produced by any two or more firms if a third party has equity ownership of 10% or more in each of the firms; or (3) vehicles produced by two or more firms having a common corporate officer(s) who is (are) responsible for the overall direction of the companies; or (4) vehicles imported or distributed by any firms where the vehicles are manufactured by the same entity and the importer or distributor is an authorized agent of the entity. Notwithstanding the provisions of this paragraph, upon application to the Executive Officer, a manufacturer may be classified as a "small volume manufacturer" for the ~~2015~~ 2013 through 2017 model years if the Executive Officer determines that it is operationally independent of the firm that owns 10% or more of the applicant or has a greater than 10% equity ownership in the applicant based on the criteria provided in the last paragraph of this subsection (b)(22).

For purposes of compliance with the zero-emission vehicle requirements, heavy-duty vehicles and engines shall not be counted as part of a manufacturer's sales. For purposes of applying the 2005 through 2017 model year zero-emission vehicle requirements for small-volume manufacturers under sections 1962(b) and

1962.1(b), the annual sales from different firms shall be aggregated in the case of (1) vehicles produced by two or more firms, each one of which either has a greater than 50% equity ownership in another or is more than 50% owned by another; or (2) vehicles produced by any two or more firms if a third party has equity ownership of greater than 50% in each firm. Notwithstanding the provisions of this paragraph, upon application to the Executive Officer, a manufacturer may be classified as a "small volume manufacturer" for the ~~2015~~ 2013 through 2017 model years if the Executive Officer determines that it is operationally independent of the firm that owns 50% or more of the applicant or has a greater than 50% equity ownership in the applicant based on the criteria provided in the last paragraph of this subsection (b)(22).

Except as provided in the next paragraph, for the 2018 and subsequent model years, the annual sales from different firms shall be aggregated in the following situations: (1) vehicles produced by two or more firms, one of which is 33.4% or greater part owned by another; or (2) vehicles produced by any two or more firms if a third party has equity ownership of 33.4% or more in each of the firms; or (3) vehicles produced by two or more firms having a common corporate officer(s) who is (are) responsible for the overall direction of the companies; or (4) vehicles imported or distributed by any firms where the vehicles are manufactured by the same entity and the importer or distributor is an authorized agent of the entity. Notwithstanding the provisions of this paragraph, upon application to the Executive Officer, a manufacturer may be classified as a "small volume manufacturer" for the 2018 and subsequent model years if the Executive Officer determines that it is operationally independent of the firm that owns 33.4% or more of the applicant or has a greater than 33.4% equity ownership in the applicant based on the criteria provided in the last paragraph of this subsection (b)(22).

For the purposes of this paragraph, all manufacturers whose annual sales are aggregated together under the provisions of this subsection (b)(22) shall be defined as "related manufacturers." Notwithstanding such aggregation, the Executive Officer may make a determination of operational independence if all of the following criteria are met for at least 24 months preceding the application submittal: (1) for the three years preceding the year in which the initial application is submitted, the average California sales for the applicant does not exceed 4,500 vehicles per year; (2) no financial or other support of economic value is provided by related manufacturers for purposes of design, parts procurement, R&D and production facilities and operation, and any other transactions between related manufacturers are conducted under normal commercial arrangements like those conducted with other parties, at competitive pricing rates to the manufacturer; (3) related manufacturers maintain separate and independent research and development, testing, and production facilities; (4) related manufacturers do not use any vehicle powertrains or platforms developed or produced by related manufacturers; (5) patents are not held jointly with related manufacturers; (6) related manufacturers maintain separate business

administration, legal, purchasing, sales, and marketing departments, as well as autonomous decision-making on commercial matters; (7) the overlap of the Board of Directors between related manufacturers is limited to 25% with no sharing of top operational management, including president, chief executive officer, chief financial officer, and chief operating officer, and provided that no individual overlapping director or combination of overlapping directors exercises exclusive management control over either or both companies; and (8) parts or components supply between related companies must be established through open market process, and to the extent that the manufacturer sells parts/components to non-related manufacturers, it does so through the open market a competitive pricing. Any manufacturer applying for operational independence must submit to ARB an Attestation Engagement from an independent certified public accountant or firm of such accountants verifying the accuracy of the information contained in the application, as defined by and in accordance with the procedures established in 40 C.F.R. §80.125, as last amended January 19, 2007, which is incorporated herein by reference. The applicant must submit information to update any of the above eight criteria as material changes to any of the criteria occur. If there are no material changes to any of the criteria, the applicant must certify that to the Executive Officer annually. With respect to any such changes, the Executive Officer may consider extraordinary conditions (e.g., changes to economic conditions, unanticipated market changes, etc.) and may continue to find the applicant to be operationally independent. In the event that a manufacturer loses eligibility as a "small volume manufacturer" after a material change occurs, the manufacturer must begin compliance with the primary emissions program in the third model year after the model year in which the manufacturer loses its eligibility. The Executive Officer may, in his or her discretion, re-establish lost "small volume manufacturer" status if the manufacturer shows that it has met the operational independence criteria for three consecutive years.

* * * *

NOTE: Authority cited: Sections 39600, 39601, 43013, 43018, 43101 and 43104, Health and Safety Code. Reference: Sections 39002, 39003, 39010, 39500, 40000, 43000, 43013, 43018.5, 43100, 43101, 43101.5, 43102, 43103, 43104, 43106 and 43204, Health and Safety Code; and Section 27156, Vehicle Code.

2. Amend title 13, CCR, section 1956.8 to read as follows:

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

* * * *

(b) *Test Procedures.* The test procedures for determining compliance with standards applicable to 1985 and subsequent model heavy-duty diesel engines and vehicles and the requirements for participating in the averaging, banking and trading programs, are set forth in the "California Exhaust Emission Standards and Test Procedures for 1985 through 2003 Model Heavy-Duty Diesel-Engines and Vehicles, " adopted April 8, 1985, as last amended December 12, 2002, the "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel-Engines and Vehicles," adopted December 12, 2002, as last amended ~~March 22, 2012~~ [INSERT DATE OF AMENDMENT], and the "California Interim Certification Procedures for 2004 and Subsequent Model Hybrid-Electric Vehicles, in the Urban Bus and Heavy-Duty Vehicle Classes," adopted October 24, 2002, which are incorporated by reference herein.

* * * *

(3) *Optional Standards for Complete and Incomplete Heavy-Duty Vehicles that Use Heavy-Duty Otto-Cycle Engines.* Manufacturers may request to group complete and incomplete heavy-duty Otto-cycle vehicles into the same test group as Otto-cycle vehicles certifying to the LEV III exhaust emission standards and test procedures specified in title 13, CCR, §1961.2, so long as those complete and incomplete heavy-duty Otto-cycle vehicles meet the most stringent LEV III standards to which any vehicle within that test group certifies.

* * * *

(d) The test procedures for determining compliance with standards applicable to 1987 and subsequent model heavy-duty Otto-cycle engines and vehicles are set forth in the "California Exhaust Emission Standards and Test Procedures for 1987 through 2003 Model Heavy-Duty Otto-Cycle Engines and Vehicles," adopted April 25, 1986, as last amended December 27, 2000, the "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Otto-Cycle Engines," adopted December 27, 2000, as last amended ~~March 22, 2012~~ [INSERT DATE OF AMENDMENT], the "California Non-Methane Organic Gas Test Procedures," adopted July 12, 1991, as last amended ~~March 22, 2012~~ [INSERT DATE OF AMENDMENT], and the "California Interim Certification Procedures for 2004 and Subsequent Model Hybrid-Electric Vehicles, in the Urban Bus and Heavy-Duty Vehicle Classes," adopted October 24, 2002, which are incorporated by reference herein.

* * * *

(h) The exhaust emissions from new:

* * * *

(5) *Optional Standards for Complete and Incomplete Heavy-Duty Vehicles that Use Heavy-Duty Diesel Engines.* Manufacturers may request to group complete and incomplete heavy-duty diesel vehicles into the same test group as medium-duty diesel vehicles certifying to the LEV III exhaust emission standards and test procedures specified in title 13, CCR, §1961.2, so long as those complete and incomplete heavy-duty diesel vehicles meet the most stringent LEV III standards to which any vehicle within that test group certifies.

NOTE: Authority cited: Sections 39500, 39600, 39601, 43013, 43018, 43100, 43101, 43102, 43104, 43105, 43106, 43107 and 43806, Health and Safety Code; and Section 28114, Vehicle Code. Reference: Sections 39002, 39003, 39500, 39667, 43000, 43009.5, 43013, 43017, 43018, 43100, 43101, 43101.5, 43102, 43104, 43105, 43106, 43107, 43202, 43204, 43205, 43205.5, 43206, 43210, 43211, 43212, 43213 and 43806, Health and Safety Code; and Section 28114, Vehicle Code.

3. Amend title 13, CCR, section 1960.1 to read as follows:

§ 1960.1. Exhaust Emission Standards and Test Procedures - 1981 through 2006 Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles.

* * * *

(r) *4000-Mile Supplemental FTP Emission Standards.* The Supplemental Federal Test Procedure (SFTP) standards in this section are the maximum SFTP exhaust emissions at 4,000 miles + 250 miles or at the mileage determined by the manufacturer for emission-data vehicles in accordance with the "California Exhaust Emission Standards and Test Procedures for 1988 Through 2000 Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles," as incorporated by reference in section 1960.1(k), and with the "California 2001 through 2014 Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2009 through 2016 Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles," as incorporated by reference in section 1961(d). The SFTP exhaust emission levels from new 2001 through ~~2020~~2021 model low-emission vehicles, ultra-low-emission vehicles and super-ultra-low-emission vehicles in the passenger car and light-duty truck class certifying to the LEV II exhaust emission standards in section 1961, and new 2003 through ~~2020~~ 2021 model low-emission vehicles, ultra-low-emission vehicles, and super-ultra-low-emission vehicles in the medium-duty class certifying to the LEV II exhaust emission standards in section 1961, shall not exceed:

* * * *

NOTE: Authority cited: Sections 39600, 39601, 43013, 43018, 43101, 43104 and 43105, Health and Safety Code. Reference: Sections 39002, 39003, 39667, 43000, 43009.5, 43013, 43018, 43100, 43101, 43101.5, 43102, 43103, 43104, 43105, 43106, 43107 and 43204-43205.5, Health and Safety Code.

4. Amend title 13, CCR, section 1961 to read as follows:

§ 1961. Exhaust Emission Standards and Test Procedures - 2004 through 2019 Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles.

Introduction. This section 1961 contains the California "LEV II" exhaust emission standards for 2004 through 2019 model passenger cars, light-duty trucks and medium-duty vehicles. A manufacturer must demonstrate compliance with the exhaust standards in section 1961(a) applicable to specific test groups, and with the composite phase-in requirements in section 1961(b) applicable to the manufacturer's entire fleet. Section 1961(b) also includes the manufacturer's fleet-wide composite phase-in requirements for the 2001 - 2003 model years.

* * * *

(a) *Exhaust Emission Standards.*

(1) *"LEV II" Exhaust Standards.* The following standards are the maximum exhaust emissions for the intermediate and full useful life from new 2004 through 2019 model-year "LEV II" LEVs, ULEVs, and SULEVs, including fuel-flexible, bi-fuel and dual fuel vehicles when operating on the gaseous or alcohol fuel they are designed to use. 2015 – 2019 model-year LEV II LEV vehicles may be certified to the NMOG+NOx numerical values for LEV160, LEV395, or LEV630, as applicable, in subsection 1961.2(a)(1) and the corresponding NMOG+NOx numerical values in subsection 1961.2(a)(4), in lieu of the separate NMOG and NOx exhaust emission standards in this subsection (a)(1) and subsection (a)(4)~~;~~ and LEV II ULEV vehicles may be certified to the NMOG+NOx numerical values for ULEV125, ULEV340, or ULEV570, as applicable, in subsection 1961.2(a)(1) and the corresponding NMOG+NOx numerical values in subsection 1961.2(a)(4), in lieu of the separate NMOG and NOx exhaust emission standards in this subsection (a)(1) and the corresponding NMOG+NOx numerical values in subsection (a)(4)~~; and LEV II SULEV vehicles may be certified to the NMOG+NOx numerical values for SULEV30, SULEV170, or SULEV230, as applicable, in subsection 1961.2(a)(1) and the corresponding NMOG+NOx numerical values in subsection 1961.2(a)(4), in lieu of the separate NMOG and NOx exhaust emission standards in this subsection (a)(1) and the corresponding NMOG+NOx numerical values in subsection (a)(4)~~.

* * * *

(b) *Emission Standards Phase-In Requirements for Manufacturers.*

(1) *Fleet Average NMOG Requirements for Passenger Cars and Light-Duty Trucks.*

(A) The fleet average non-methane organic gas exhaust mass emission values from the passenger cars and light-duty trucks certified to the Tier 1, LEV I, and LEV II standards that are produced and delivered for sale in California each model year from 2001 through 2014 by a manufacturer other than a small volume manufacturer or an independent low volume manufacturer shall not exceed:

FLEET AVERAGE NON-METHANE ORGANIC GAS EXHAUST MASS EMISSION REQUIREMENTS FOR LIGHT-DUTY VEHICLE WEIGHT CLASSES
(50,000 mile Durability Vehicle Basis)

Model Year	*Fleet Average NMOG (grams per mile)*	
	All PCs; LDTs 0-3750 lbs. LVW	*LDTs 3751 lbs. LVW - 8500 lbs. GVW*
2001	0.070	0.098
2002	0.068	0.095
2003	0.062	0.093
2004	0.053	0.085
2005	0.049	0.076
2006	0.046	0.062
2007	0.043	0.055
2008	0.040	0.050
2009	0.038	0.047
2010 through 2014[1]	0.035	0.043

[1] For the 2014 model year only, a manufacturer may comply with the fleet average NMOG+NOx values in subsection 1961.2(b)(1)(A) in lieu of complying with the NMOG fleet average values in this table. A manufacturer must either comply with the NMOG+NOx fleet average requirements for both its PC/LDT1 fleet and its LDT2/MDPV fleet or comply with the NMOG fleet average requirements for both its PC/LDT1 fleet and its LDT2/~~MDPV~~ fleet. A manufacturer must calculate its fleet average NMOG+NOx values using the applicable full useful life standards.

* * * *

(d) *Test Procedures.* The certification requirements and test procedures for determining compliance with the emission standards in this section are set forth in the "California 2001 through 2014 Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2009 through 2016 Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles," as amended ~~March 22, 2012~~ INSERT DATE OF AMENDMENT, the "California Non-Methane Organic Gas Test Procedures," as amended ~~March 22, 2012~~ INSERT DATE OF AMENDMENT, which are incorporated herein by reference. In the case of hybrid electric vehicles and on-board fuel-fired heaters, the certification requirements and test procedures for determining compliance with the emission standards in this section are set forth in the "California Exhaust Emission Standards and Test Procedures for 2005 through 2008 Model Zero-Emission Vehicles, and 2001 through 2008 Model Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes," incorporated by reference in section 1962, the "California Exhaust Emission Standards and Test Procedures for 2009 through 2017 Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes," incorporated by reference in section 1962.1, and the "California Exhaust Emission Standards and Test Procedures for 2018 and Subsequent Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes" incorporated by reference in section 1962.2.

* * * *

NOTE: Authority cited: Sections 39500, 39600, 39601, 43013, 43018, 43101, 43104, 43105 and 43106, Health and Safety Code. Reference: Sections 39002, 39003, 39667, 43000, 43009.5, 43013, 43018, 43100, 43101, 43101.5, 43102, 43104, 43105, 43106, 43204 and 43205, Health and Safety Code.

5. Amend title 13, CCR, section 1961.2 to read as follows:

§ 1961.2. Exhaust Emission Standards and Test Procedures - 2015 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles.

Introduction. This section 1961.2 contains the California "LEV III" exhaust emission standards for 2015 and subsequent model year passenger cars, light-duty trucks, and medium-duty vehicles. A manufacturer must demonstrate compliance with the exhaust standards in subsection (a) applicable to specific test groups, and with the composite phase-in requirements in subsection (b) applicable to the manufacturer's entire fleet.

Before the 2015 model year, a manufacturer that produces vehicles that meet the standards in subsection (a) has the option of certifying the vehicles to those standards, in which case the vehicles will be treated as LEV III vehicles for purposes of the fleet-wide phase-in requirements. Similarly, 2015 - 2019 model-year vehicles may be certified to the "LEV II" exhaust emission standards in subsection 1961(a)(1), in which case the vehicles will be treated as LEV II vehicles for purposes of the fleet-wide phase-in requirements.

A manufacturer has the option of certifying engines used in incomplete and diesel medium-duty vehicles with a gross vehicle weight rating of greater than 10,000 lbs. GVW to the heavy-duty engine standards and test procedures set forth in title 13, CCR, subsections 1956.8(c) and (h). All medium-duty vehicles with a gross vehicle weight rating of less than or equal to 10,000 lbs. GVW, including incomplete otto-cycle medium-duty vehicles and medium-duty vehicles that use diesel cycle engines, must be certified to the LEV III chassis standards and test procedures set forth in this section 1961.2 in 2020 and subsequent model years.

* * * *

(a) *Exhaust Emission Standards.*

(1) *"LEV III" Exhaust Standards.* The following standards are the maximum exhaust emissions for the full useful life from new 2015 and subsequent model year "LEV III" passenger cars, light-duty trucks, and medium-duty vehicles, including fuel-flexible, bi-fuel and dual-fuel vehicles when operating on the gaseous or alcohol fuel they are designed to use. 2015 – 2019 model-year LEV II LEV vehicles may be certified to the NMOG+NOx numerical values for LEV160, LEV395, or LEV630, as applicable, in this subsection (a)(1) and the corresponding NMOG+NOx numerical values in subsection (a)(4), in lieu of the separate NMOG and NOx exhaust emission standards in subsections 1961(a)(1) and the corresponding NMOG numerical values in subsection 1961(a)(4); and

LEV II ULEV vehicles may be certified to the NMOG+NOx numerical values for ULEV125, ULEV340, or ULEV570, as applicable, in this subsection (a)(1) and the corresponding NMOG+NOx numerical values in subsection (a)(4), in lieu of the separate NMOG and NOx exhaust emission standards in subsections 1961(a)(1) and the corresponding NMOG numerical values in subsection 1961(a)(4).~~; and LEV II SULEV vehicles may be certified to the NMOG+NOx numerical values for SULEV30, SULEV170, or SULEV230, as applicable, in subsection (a)(1) and the corresponding NMOG+NOx numerical values in subsection (a)(4), in lieu of the separate NMOG and NOx exhaust emission standards in subsections 1961(a)(1) and 1961(a)(4).~~ Such vehicles will be treated as LEV II vehicles for purposes of the fleet-wide phase-in requirements.

LEV III Exhaust Mass Emission Standards for New 2015 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles						
Vehicle Type	*Durability Vehicle Basis (mi)*	*Vehicle Emission Category*[2]	*NMOG + Oxides of Nitrogen (g/mi)*	*Carbon Monoxide (g/mi)*	*Formaldehyde (mg/mi)*	*Particulates*[1] *(g/mi)*
All PCs; LDTs 8500 lbs. GVWR or less; MDPVs Vehicles in this category are tested at their loaded vehicle weight	150,000	LEV160	0.160	4.2	4	0.01
		ULEV125	0.125	2.1	4	0.01
		ULEV70	0.070	1.7	4	0.01
		ULEV50	0.050	1.7	4	0.01
		SULEV30	0.030	1.0	4	0.01
		SULEV20	0.020	1.0	4	0.01
MDVs 8501 - 10,000 lbs. GVWR Vehicles in this category are tested at their adjusted loaded vehicle weight	150,000	LEV395	0.395	6.4	6	0.12
		ULEV340	0.340	~~3.2~~6.4	6	0.06
		ULEV250	0.250	~~2.~~6.4	6	0.06
		ULEV200	0.200	~~2.6~~4.2	6	0.06
		SULEV170	0.170	~~1.5~~4.2	6	0.06
		SULEV150	0.150	~~1.5~~3.2	6	0.06
MDVs 10,001-14,000 lbs. GVWR Vehicles in this category are tested at their adjusted loaded vehicle weight	150,000	LEV630	0.630	7.3	6	0.12
		ULEV570	0.570	~~3.~~7.3	6	0.06
		ULEV400	0.400	~~3.0~~7.3	6	0.06
		ULEV270	0.270	~~3.0~~4.2	6	0.06
		SULEV230	0.230	~~1.7~~4.2	6	0.06
		SULEV200	0.200	~~1.7~~3.7	6	0.06

[1] These standards shall apply only to vehicles not included in the phase-in of the particulate standards set forth in subsection (a)(2).

[2] The numeric portion of the category name is the NMOG+NOx value in thousandths of grams per mile.

* * * *

(2) *"LEV III" Particulate Standards.*

(A) *Particulate Standards for Passenger Cars, Light-Duty Trucks, and Medium-Duty Passenger Vehicles.* Beginning in the 2017 model year, a manufacturer, except a small volume manufacturer, shall certify a percentage of its passenger car, light-duty truck, and medium-duty passenger vehicle fleet to the following particulate standards according to the following phase-in

schedule. These standards are the maximum particulate emissions allowed at full useful life. All vehicles certifying to these particulate standards must certify to the LEV III exhaust emission standards set forth in subsection (a)(1).

* * * *

(D) *Alternative Phase-in Schedule for Particulate Standards.*

1. *Alternative Phase-in Schedules for the 3 mg/mi Particulate Standard for Passenger Cars, Light-Duty Trucks, and Medium-Duty Passenger Vehicles.* A manufacturer may use an alternative phase-in schedule to comply with the 3 mg/mi particulate standard phase-in requirements as long as equivalent PM emission reductions are achieved by the 2021 model year from passenger cars, light-duty trucks, and medium-duty passenger vehicles. Model year emission reductions shall be calculated by multiplying the percent of PC+LDT+MDPV vehicles meeting the 3 mg/mi particulate standard in a given model year (based on a manufacturer's projected sales volume of vehicles in each category) by 5 for the 2017 model year, 4 for the 2018 model year, 3 for the 2019 model year, 2 for the 2020 model year, and 1 for the 2021 model year. The yearly results for PC+LDT+MDPV vehicles shall be summed together to determine a cumulative total for PC+LDT+MDPV vehicles. In the 2021 model year, t~~T~~he cumulative total must be equal to or greater than 490 and 100 percent of the manufacturer's passenger cars, light-duty trucks, and medium-duty passenger vehicles must be certified to the 3 mg/mi particulate standard ~~in the 2021 model year~~ to be considered equivalent. A manufacturer may add vehicles introduced before the 2017 model year (e.g., the percent of vehicles introduced in 2016 would be multiplied by 5) to the cumulative total.

2. *Alternative Phase-in Schedules for the 1 mg/mi Particulate Standard for Passenger Cars, Light-Duty Trucks, and Medium-Duty Passenger Vehicles.* A manufacturer may use an alternative phase-in schedule to comply with the 1 mg/mi particulate standard phase-in requirements as long as equivalent PM emission reductions are achieved by the 2028 model year from passenger cars, light-duty trucks, and medium-duty passenger vehicles. Model year emission reductions shall be calculated by multiplying the percent of PC+LDT+MDPV vehicles meeting the 1 mg/mi particulate standard in a given model year (based on a manufacturer's projected sales volume of vehicles in each category) by 4 for the 2025 model year, 3 for the 2026 model year, 2 for the 2027 model year, and 1 for the 2028 model year. The yearly results for PC+LDT+MDPV vehicles shall be summed together to determine a cumulative total for PC+LDT+MDPV vehicles. In the 2028 model year, t~~T~~he cumulative total must be equal to or greater than 500 and 100 percent of the manufacturer's passenger cars, light-duty trucks, and

medium-duty passenger vehicles must be certified to the 1 mg/mi particulate standard ~~in the 2028 model year~~ to be considered equivalent. A manufacturer may add vehicles introduced before the 2025 model year (e.g., the percent of vehicles introduced in 2024 would be multiplied by 4) to the cumulative total.

3. *Alternative Phase-in Schedules for the Particulate Standards for Medium-Duty Vehicles Other than Medium-Duty Passenger Vehicles.* A manufacturer may use an alternative phase-in schedule to comply with the particulate standard phase-in requirements as long as equivalent PM emission reductions are achieved by the 2021 model year from medium-duty vehicles other than medium-duty passenger vehicles. Model year emission reductions shall be calculated by multiplying the total percent of MDVs certified to the 8 mg/mi PM standard or to the 10 mg/mi PM standard, as applicable, in a given model year (based on a manufacturer's projected sales volume of vehicles in each category) by 5 for the 2017 model year, 4 for the 2018 model year, 3 for the 2019 model year, 2 for the 2020 model year, and 1 for the 2021 model year. The yearly results for MDVs shall be summed together to determine a cumulative total for MDVs. In the 2021 model year, t~~T~~he cumulative total must be equal to or greater than 490 and 100 percent of the manufacturer's MDVs must be certified to the 8 mg/mi PM standard or to the 10 mg/mi PM standard, as applicable, ~~in the 2021 model year~~ to be considered equivalent. A manufacturer may add vehicles introduced before the 2017 model year (e.g., the percent of vehicles introduced in 2016 would be multiplied by 5) to the cumulative total.

* * * *

(7) *Supplemental Federal Test Procedure (SFTP) Off-Cycle Emission Standards.*

(A) *SFTP NMOG+NOx and CO Exhaust Emission Standards for Passenger Cars, Light-Duty Trucks, and Medium-Duty Passenger Vehicles.* Manufacturers shall certify 2015 and subsequent model year LEVs, ULEVs, and SULEVs in the PC, LDT, and MDPV classes to either the *SFTP NMOG+NOx and CO Stand-Alone Exhaust Emission Standards* set forth in subsection (a)(7)(A)1, or in accordance with the *SFTP NMOG+NOx and CO Composite Exhaust Emission Standards and Fleet-Average Requirements* set forth in subsection (a)(7)(A)2. A manufacturer may also certify 2014 model LEVs, ULEVs, or SULEVs in the PC, LDT, or MDPV classes to LEV III SFTP standards, in which case, the manufacturer shall be subject to the LEV III SFTP emission standards and requirements, including the sales-weighted fleet-average NMOG+NOx composite emission standard applicable to 2015 model vehicles if choosing to comply with the *SFTP NMOG+NOx and CO Composite Exhaust Emission Standards and Fleet-Average Requirements* set forth in subsection (a)(7)(A)2.

The manufacturer shall notify the Executive Officer of its selected emission standard type in the Application for Certification of the first test group certifying to SFTP NMOG+NOx and CO emission standards on a 150,000 mile durability basis. Once an emission standard type for NMOG+NOx and CO is selected for a fleet, and the Executive Officer is notified of such selection, the selection must be kept through the 2025 model year for the entire fleet, which includes LEV II vehicles if selecting to comply with subsection (a)(7)(A)2. The manufacturer may not change its selection until the 2026 model year. Test groups not certifying to the 150,000-mile SFTP NMOG+NOx and CO emission standards pursuant to this subsection (a)(7)(A) shall be subject to the 4,000-mile SFTP NMOG+NOx and CO emission standards set forth in subsection 1960.1(r).

* * * *

2. *SFTP NMOG+NOx and CO Composite Exhaust Emission Standards*. For the 2015 and subsequent model years, a manufacturer selecting this option must certify LEV II and LEV III LEVs, ULEVs, and SULEVs, such that the manufacturer's sales-weighted fleet-average NMOG+NOx composite emission value does not exceed the applicable NMOG+NOx composite emission standard set forth in the following table. In addition, the CO composite emission value of any LEV III test group shall not exceed the CO composite emission standard set forth in the following table. SFTP compliance shall be demonstrated using the same gaseous or liquid fuel used for FTP certification. In the case of fuel-flexible vehicles, SFTP compliance shall be demonstrated using the LEV III certification gasoline specified in Part II, Section A.100.3.1.2 of the "California 2015 and Subsequent Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles."

For each test group subject to this subsection, manufacturers shall calculate a Composite Emission Value for NMOG+NOx and, for LEV III test groups, a separate Composite Emission Value for CO, using the following equation:

Composite Emission Value = 0.28 x US06 + 0.37 x SC03 + 0.35 x FTP [Eq. 1]

where "US06" = the test group's NMOG+NOx or CO emission value, as applicable, determined through the US06 test;
"SC03" = the test group's NMOG+NOx or CO emission value, as applicable, determined through the SC03 test; and
"FTP" = the test group's NMOG+NOx or CO emission value, as applicable, determined through the FTP test.

If no vehicles in a test group have air conditioning units, the FTP cycle emission value can be used in place of the SC03 cycle emission value in Equation 1. To determine compliance with the SFTP NMOG+NOx composite emission standard applicable to the model year, manufacturers shall use a sales-weighted fleet average of the NMOG+NOx composite emission values of every applicable test group. The sales-weighted fleet average shall be calculated using a combination of carry-over and new certification SFTP composite emission values (converted to NMOG+NOx, as applicable). LEV II test groups will use their emission values in the fleet average calculation but will not be considered LEV III test groups. Compliance with the CO composite emission standard cannot be demonstrated through fleet averaging. The NMOG+NOx sales-weighted fleet-average composite emission value for the fleet and the CO composite emission value for each test group shall not exceed:

SFTP NMOG+NOx and CO Composite Emission Standards for 2015 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Passenger Vehicles (g/mi) [1]

Model Year	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025+
All PCs; LDTs 8,500 lbs. GVWR or less; and MDPVs[3]	***Sales-Weighted Fleet Average NMOG+NOx Composite Exhaust Emission Standards***[2,4,5,6]										
	0.140	0.110	0.103	0.097	0.090	0.083	0.077	0.070	0.063	0.057	0.050
Vehicles in this category are tested at their loaded vehicle weight (curb weight plus 300 pounds) except LEV II vehicles which are subject to the test weights specified in 1960.1(r), title 13, CCR.	***CO Composite Exhaust Emission Standard***[7]										
	4.2										

[1] *Mileage for Compliance.* All test groups certifying to LEV III FTP emission standards on a 150,000-mile durability basis shall also certify to the SFTP on a 150,000-mile durability basis, as tested in accordance with the "California 2015 and Subsequent Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles."

[2] *Determining NMOG+NOx Composite Emission Values of LEV II Test Groups and Cleaner Federal Vehicles.* For test groups certified to LEV II FTP emission standards, SFTP emission values shall be converted to NMOG+NOx and projected out to 120,000 miles or 150,000 miles (depending on LEV II FTP certification) using deterioration factors or aged components. ~~NMHC emission values for the US06 and SC03 test cycles shall be converted to NMOG emission values by multiplying by a factor of 1.03.~~ In lieu of deriving a deterioration factor specific to SFTP test cycles, carry-over LEV II test groups may use the applicable deterioration factor from the FTP cycle in order to determine the carry-over composite emission values for the purpose of the NMOG+NOx sales-weighted fleet-average calculation. If an SFTP full-useful life emission value is used to comply with the LEV II SFTP 4k standards, that value

may be used in the sales-weighted fleet-average without applying an additional deterioration factor. For federally-certified test groups certifying in California in accordance with Section H.1.4 of the "California 2015 and Subsequent Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles," the full-useful life emission value used to comply with federal full-useful life SFTP requirements may be used in the sales-weighted fleet-average without applying an additional deterioration factor. In all cases, NMHC emission values for the US06 and SC03 test cycles shall be converted to NMOG emission values by multiplying by a factor of 1.03.

[3] MDPVs are excluded from SFTP NMOG+NOx and CO emission standards and the sales-weighted fleet average until they are certified to LEV III FTP 150,000-mile NMOG+NOx and CO requirements.

[4] LEV III ~~T~~test groups shall certify to bins in increments of 0.010 g/mi. Beginning with the 2018 model year, vehicles may not certify to bin values above a maximum of 0.180 g/mi.

[5] *Calculating the sales-weighted average for NMOG+NOx.* For each model year, the manufacturer shall calculate its sales-weighted fleet-average NMOG+NOx composite emission value as follows.

$$\frac{\left[\sum_{i=1}^{n}(\textit{number of vehicles in the test group})_i \times (\textit{composite value of bin})_i\right]}{\sum_{i=1}^{n}(\textit{number of vehicles in the test group})_i} \qquad \text{[Eq. 2]}$$

where "n" = a manufacturer's total number of PC, LDT, and, if applicable, MDPV certification bins, in a given model year including carry-over certification bins, certifying to SFTP composite emission standards in that model year;

"number of vehicles in the test group" = the number of vehicles produced and delivered for sale in California in the certification test group; and

"Composite Value of Bin" = the numerical value selected by the manufacturer for the certification bin that serves as the emission standard for the vehicles in the test group with respect to all testing for test groups certifying to SFTP on a 150,000-mile durability basis, and the SFTP carry-over composite emission value, as described in footnote ~~7~~ 2 of this table, for carry-over LEV II test groups.

* * * *

(9) *Requirement to Generate Additional NMOG+NOx Fleet Average Credit.* For a vehicle that is certified to the LEV III standards in subsection (a)(1), which does not generate a partial ZEV allocation according to the criteria set forth in section C.3 of the "California Exhaust Emission Standards and Test Procedures for 2009 through 2017 Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes" and the "California Exhaust Emission Standards and Test Procedures for 2018 and Subsequent Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes," a manufacturer may subtract 5 mg/mi from the NMOG+NOx emission standards value set forth in subsection (b)(1)(B)1.c when calculating the manufacturer's fleet average, provided that the manufacturer extends the performance and defects warranty period to 15 years or 150,000 miles, whichever occurs first, except that the time period is to be 10 years for a zero emission energy storage device (such as battery, ultracapacitor, or other electric storage device).

* * * *

(b) *Emission Standards Phase-In Requirements for Manufacturers.*

(1) *Fleet Average NMOG + NOx Requirements for Passenger Cars, Light-Duty Trucks, and Medium-Duty Passenger Vehicles.*

(A) The fleet average non-methane organic gas plus oxides of nitrogen exhaust mass emission values from the passenger cars, light-duty trucks, and medium-duty passenger vehicles that are produced and delivered for sale in California each model year by a manufacturer other than a small volume manufacturer shall not exceed:

FLEET AVERAGE NON-METHANE ORGANIC GAS PLUS OXIDES OF NITROGEN EXHAUST MASS EMISSION REQUIREMENTS FOR PASSENGER CARS, LIGHT-DUTY TRUCKS, AND MEDIUM-DUTY PASSENGER VEHICLES (150,000 mile Durability Vehicle Basis)		
Model Year	*Fleet Average NMOG + NOx (grams per mile)*	
	All PCs; LDTs 0-3750 lbs. LVW	*LDTs 3751 lbs. LVW - 8500 lbs. GVWR; All MDPVs*
2014[1]	0.107	0.128
2015	0.100	0.119
2016	0.093	0.110
2017	0.086	0.101
2018	0.079	0.092
2019	0.072	0.083
2020	0.065	0.074
2021	0.058	0.065
2022	0.051	0.056
2023	0.044	0.047
2024	0.037	0.038
2025+	0.030	0.030

[1] For the 2014 model year, a manufacturer may comply with the fleet average NMOG+NOx values in this table in lieu of complying with the NMOG fleet average values in subsection 1961(a)(b)(1)(A). A manufacturer must either comply with the NMOG+NOx fleet average requirements for both its PC/LDT1 fleet and its LDT2/MDPV fleet or comply with the NMOG fleet average requirements for both its PC/LDT1 fleet and its LDT2/~~MDPV~~ fleet. A manufacturer must

calculate its fleet average NMOG+NOx values using the applicable full useful life standards.

* * * *

1. *PZEV Anti-Backsliding Requirement.* In the 2018 and subsequent model years, a manufacturer must produce and deliver for sale in California a minimum percentage of its passenger car and light-duty truck fleet that certifies to SULEV30 and SULEV20 standards. This minimum percentage must be equal to the average percentage of PZEVs produced and deliver for sale in California for that manufacturer for the 2015 through 2017 model year. A manufacturer may calculate this average percentage using the projected sales for these model years in lieu of actual sales. The percentage of a manufacturer's passenger car and light-duty truck fleet that certifies to SULEV30 and SULEV20 standards averaged across the applicable model year and the two previous model years shall be used to determine compliance with this requirement.

* * * *

(D) *Treatment of ZEVs.* ZEVs classified as LDTs (>3750 lbs. LVW) that have been counted toward the ZEV requirement for PCs and LDTs (0-3750 lbs. LVW) as specified in sections 1962.1 and 1962.2 shall be included as LDT1s in the calculation of a fleet average NMOG+NOx value.

* * * *

(4) *SFTP Phase-In Requirements.*

(A) *Phase-In Requirement for Passenger Cars, Light-Duty Trucks, and Medium-Duty Passenger Vehicles.* A test group certifying to LEV III FTP emission categories on a 150,000-mile durability basis shall also certify to SFTP requirements on a 150,000-mile durability basis.

Manufacturers shall have two options for phase in to the SFTP NMOG+NOx and CO emission standards.

1. Under Option 1, beginning with the 2015 model year, a manufacturer shall certify its PCs, LDTs, and MDPVs to the SFTP NMOG+NOx and CO emission standards in subsection (a)(7)(A)1 when the vehicles are also certifying to a LEV III FTP emission category at 150,000-mile durability.

2. Under Option 2, for 2015 and subsequent model years, a manufacturer shall certify its fleet of PCs, LDTs, and MDPVs such that the manufacturer's sales-weighted fleet-average NMOG+NOx composite emission value and each test group's CO composite emission value does not

exceed the applicable composite emission standards in effect for that model year in accordance with subsection (a)(7)(A)2. ~~During the 150,000-mile durability phase-in, the sales-weighted fleet average NMOG+NOx composite emission value shall be calculated using a combination of carry-over values and new certification values. Carry-over test groups shall convert values to NMOG+NOx and may use the applicable deterioration factor from the FTP cycle in lieu of deriving a deterioration factor specific to SFTP test cycles. Any vehicle certified to SFTP requirements on a 150,000-mile durability basis shall be subject to the applicable emission standards for the full useful life of that vehicle. Compliance with the CO composite emission standard cannot be demonstrated through fleet averaging.~~

Beginning with the 2017 model year, a manufacturer shall certify its PCs, LDTs, and MDPVs certifying to LEV III FTP PM emission standards on a 150,000-mile durability basis to the SFTP PM emission standards in subsection (a)(7)(B).

* * * *

(c) *Calculation of NMOG + NOx Credits/Debits*

(1) *Calculation of NMOG+NOx Credits and Debits for Passenger Cars, Light-Duty Trucks, and Medium-Duty Passenger Vehicles.*

* * * *

(B) In 2015 and subsequent model years, a manufacturer that achieves fleet average NMOG+NOx values lower than the fleet average NMOG+NOx requirement for the corresponding model year shall receive credits in units of g/mi NMOG + NOx . A manufacturer with 2015 and subsequent model year fleet average NMOG+NOx values greater than the fleet average requirement for the corresponding model year shall receive debits in units of g/mi NMOG + NOx equal to the amount of negative credits determined by the aforementioned equation. The total g/mi NMOG+NOx credits or debits earned for PCs and LDTs 0-3750 lbs. LVW, ~~for LDTs 3751-5750 lbs. LVW~~ and for LDTs 3751 lbs. LVW - 8500 lbs. GVWR and for MDPVs shall be summed together. The resulting amount shall constitute the g/mi NMOG+NOx credits or debits accrued by the manufacturer for the model year.

* * * *

(d) *Test Procedures.* The certification requirements and test procedures for determining compliance with the emission standards in this section are set forth in the "California 2015 and Subsequent Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles," as ~~adopted~~

~~March 22, 2012~~ amended INSERT DATE OF AMENDMENT, the "California Non-Methane Organic Gas Test Procedures," as amended ~~March 22, 2012~~ INSERT DATE OF AMENDMENT, which are incorporated herein by reference. In the case of hybrid electric vehicles and on-board fuel-fired heaters, the certification requirements and test procedures for determining compliance with the emission standards in this section are set forth in the "California Exhaust Emission Standards and Test Procedures for 2009 through 2017 Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes," incorporated by reference in section 1962.1, and the "California Exhaust Emission Standards and Test Procedures for 2018 and Subsequent Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes," incorporated by reference in section 1962.2.

* * * *

Note: Authority cited: Sections 39500, 39600, 39601, 43013, 43018, 43101, 43104, 43105 and 43106, Health and Safety Code. Reference: Sections 39002, 39003, 39667, 43000, 43009.5, 43013, 43018, 43100, 43101, 43101.5, 43102, 43104, 43105, 43106, 43204 and 43205, Health and Safety Code.

6. Amend title 13, CCR, section 1961.3 to read as follows:

§ 1961.3. Greenhouse Gas Exhaust Emission Standards and Test Procedures - 2017 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles.

* * * *

(a) *Greenhouse Gas Emission Requirements.*

* * * *

(3) *Alternative Fleet Average Standards for Manufacturers with Limited U.S. Sales.* Manufacturers meeting the criteria in this subsection (a)(3) may request that the Executive Officer establish alternative fleet average CO_2 standards that would apply instead of the standards in subsection (a)(1).

* * * *

(C) *How to Request Alternative Fleet Average Standards.* Eligible manufacturers may petition for alternative standards for up to five consecutive model years if sufficient information is available on which to base such standards.

* * * *

4. A manufacturer may elect to petition for alternative standards under this subsection (a)(3)(C) by submitting to ARB a copy of the data and information submitted to EPA as required under 40 CFR §86.1818-12 (g), incorporated by reference in and amended by the "California 2015 and Subsequent Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles," and the EPA approval of the manufacturer's request for alternative fleet average standards for the 2017 through 2025 MY National Greenhouse Gas Program.

* * * *

(6) *Credits for Reduction of Air Conditioning Direct Emissions.* Manufacturers may generate A/C Direct Emissions Credits by implementing specific air conditioning system technologies designed to reduce air conditioning direct emissions over the useful life of their vehicles. A manufacturer may only use an A/C Direct Emissions Credit for vehicles within a model type upon approval of the A/C Direct Emissions Credit for that model type by the Executive

Officer. The conditions and requirements for obtaining approval of an A/C Direct Emissions Credit are described in (A) through (F), below.

* * * *

(C) The calculation of A/C Direct Emissions Credit depends on the refrigerant or type of system, and is specified in paragraphs 1, 2, and 3 of this subsection.

1. HFC-134a vapor compression systems

For A/C systems that use HFC-134a refrigerant, the A/C Direct Emissions Credit is calculated using the following formula:

$$A/C\ Direct\ Credit = Direct\ Credit\ Baseline \times (1 - \frac{LR}{Avg\ LR})$$

Where:

Direct Credit Baseline = 12.6 gCO_2e/mi for passenger cars;
Direct Credit Baseline = 15.6 gCO2e/mi for light-duty trucks and medium-duty passenger vehicles;
Avg LR = 16.6 grams/year for passenger cars;
Avg LR = 20.7 grams/year for light-duty trucks and medium-duty passenger vehicles;

LR = the larger of *SAE LR* or *Min LR*;

Where:

SAE LR = initial leak rate evaluated using SAE International's Surface Vehicle Standard SAE J2727 (Revised <u>February 2012</u> ~~August 2008~~), incorporated by reference, herein;
Min LR = 8.3 grams/year for passenger car A/C systems with belt-driven compressors;
Min LR = 10.4 grams/year for light-duty truck and medium-duty passenger vehicle A/C systems with belt-driven compressors;
Min LR = 4.1 grams/year for passenger car A/C systems with electric compressors;
Min LR = 5.2 grams/year for light-duty truck and medium-duty passenger vehicle A/C systems with electric compressors.

Note: Initial leak rate is the rate of refrigerant leakage from a newly manufactured A/C system in grams of refrigerant per year. The Executive Officer may allow a manufacturer to use an updated version of ~~the August 2008 version of~~ SAE J2727 or an alternate method if s/he determines that the updated SAE J2727 or the alternate method provides more accurate estimates of the initial

leak rate of A/C systems than the ~~Revised~~ February 2012 ~~August 2008~~version of SAE J2727 does.

2. Low-GWP vapor compression systems

For A/C systems that use a refrigerant having a GWP of 150 or less, the A/C Direct Emissions Credit shall be calculated using the following formula:

$$A/C\ Direct\ Credit = Low\ GWP\ Credit - High\ Leak\ Penalty$$

Where:

$$Low\ GWP\ Credit = Max\ Low\ GWP\ Credit \times (1 - \frac{GWP}{1{,}430}),$$

and

$$High\ Leak\ Penalty = \begin{cases} Max\ High\ Leak\ Penalty, & \text{if } SAE\ LR > Avg\ LR; \\ Max\ High\ Leak\ Penalty \times \frac{SAE\ LR - Min\ LR}{Avg\ LR - Min\ LR}, & \text{if } Min\ LR < SAE\ LR \leq Avg\ LR; \\ 0, & \text{if } SAE\ LR \leq Min\ LR. \end{cases}$$

Where:

Max Low GWP Credit = 13.8 gCO_2e/mi for passenger cars;

Max Low GWP Credit = 17.2 gCO_2e/mi for light-duty trucks and medium-duty passenger vehicles;

GWP = the global warming potential of the refrigerant over a 100-year horizon, as specified in section (a)(6)(F);

Max High Leak Penalty = 1.8 gCO_2e/mi for passenger cars;

Max High Leak Penalty = 2.1 gCO_2e/mi for light-duty trucks and medium-duty passenger vehicles;

Avg LR = 13.1 g/yr for passenger cars;

Avg LR = 16.6 g/yr for light-duty trucks and medium-duty passenger vehicles;

and where:

SAE LR = initial leak rate evaluated using SAE International's Surface Vehicle Standard SAE J2727 (Revised February 2012 ~~August 2008~~);

Min LR = 8.3 g/yr for passenger cars;

Min LR = 10.4 g/yr for light-duty trucks and medium-duty passenger vehicles.

Note: Initial leak rate is the rate of refrigerant leakage from a newly manufactured A/C system in grams of refrigerant per year. The Executive Officer may allow a manufacturer to use an updated version of ~~the August 2008 version of~~ SAE J2727 or an alternate method if s/he determines that the updated SAE J2727 or the alternate method provides more accurate estimates of the initial leak rate of A/C systems than the ~~Revised~~ February 2012 ~~August 2008~~version of SAE J2727 does.

* * * *

(7) *Credits for Improving Air Conditioning System Efficiency.* Manufacturers may generate CO_2 credits by implementing specific air conditioning system technologies designed to reduce air conditioning-related CO_2 emissions over the useful life of their passenger cars, light-duty trucks, and/or medium-duty passenger vehicles. Credits shall be calculated according to this subsection (a)(7) for each air conditioning system that the manufacturer is using to generate CO_2 credits. The eligibility requirements specified in subsection (a)(7)(E) must be met before an air conditioning system is allowed to generate credits.

* * * *

(E) For the purposes of this subsection (a)(7)(E), the AC17 Test Procedure shall mean the AC17 Air Conditioning Efficiency Test Procedure set forth in 40 CFR §86.167-17, incorporated in and amended by the "California 2015 and Subsequent Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles."

* * * *

(11) *Mid-Term Review of the 2022 through 2025 MY Standards.* The Executive Officer shall conduct a mid-term review to re-evaluate the state of vehicle technology to determine whether any adjustments to the stringency of the 2022 through 2025 model year standards are appropriate. California's mid-term review will be coordinated with its planned full participation in EPA's mid-term evaluation as set forth in 40 CFR §86.1818-12 (h).

(b) *Calculation of Greenhouse Gas Credits/Debits.* Credits that are earned as part of the 2012 through 2016 MY National greenhouse gas program shall not be applicable to California's greenhouse gas program. Debits that are earned as part of the 2012 through 2016 MY National greenhouse gas program shall not be applicable to California's greenhouse gas program.

* * * *

(4) *Use of Greenhouse Gas Emission Credits to Offset a Manufacturer's ZEV Obligations.*

(A) For a given model year, a manufacturer that has Greenhouse Gas credits remaining after equalizing all of its Greenhouse Gas debits may use those Greenhouse Gas credits to comply with its ZEV obligations for that model year, in accordance with the provisions set forth in the ~~"California Exhaust Emission Standards and Test Procedures for 2009 through 2017 Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes," incorporated by reference in section 1962.1, or the~~ "California Exhaust Emission Standards and Test Procedures for 2018 and Subsequent Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes," incorporated by reference in section 1962.2.

* * * *

(c) *Optional Compliance with the 2017 through 2025 MY National Greenhouse Gas Program.*

For the 2017 through 2025 model years, a manufacturer may elect to demonstrate compliance with this section 1961.3 by demonstrating compliance with the 2017 through 2025 MY National greenhouse gas program as follows:

(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 must comply with 1961.3 (a) and (b);

(2) The manufacturer must submit to ARB all data that it submits to EPA in accordance with the reporting requirements as required under 40 CFR §86.1865-12, incorporated by reference in and amended by the "California 2015 and Subsequent Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles," for demonstrating compliance with the 2017 through 2025 MY National greenhouse gas program and the EPA determination of compliance. All such data must be submitted within 30 days of receipt of the EPA determination of compliance for each model year that a manufacturer selects compliance with this option;

(3) The manufacturer must provide to the Executive Officer separate values for the number of vehicles in each model type and footprint value produced and delivered for sale in California, the District of Columbia, and each individual state that has adopted California's greenhouse gas emission standards

for that model year pursuant to Section 177 of the federal Clean Air Act (42 U.S.C. § 7507), the applicable fleet average CO_2 standards for each of these model types and footprint values, the calculated fleet average CO_2 value for each of these model types and footprint values, and all values used in calculating the fleet average CO_2 values.

(ed) *Test Procedures.* The certification requirements and test procedures for determining compliance with the emission standards in this section are set forth in the "California 2015 and Subsequent Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles," incorporated by reference in section 1961.2. In the case of hybrid electric vehicles, the certification requirements and test procedures for determining compliance with the emission standards in this section are set forth in the "California Exhaust Emission Standards and Test Procedures for 2009 through 2017 Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes," incorporated by reference in section 1962.1, or the "California Exhaust Emission Standards and Test Procedures for 2018 and Subsequent Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes," incorporated by reference in section 1962.2, as applicable.

(de) *Abbreviations.* The following abbreviations are used in this section 1961.3:

* * * *

(ef) *Definitions Specific to this Section.* The following definitions apply to this section 1961.3:

* * * *

(13) "EPA Vehicle Simulation Tool" means the "EPA Vehicle Simulation Tool" as incorporated by reference in 40 CFR §86.1 in the Notice of Proposed Rulemaking for EPA's 2017 and subsequent MY National Greenhouse Gas Program, as proposed ~~November 16, 2011 [Insert Federal Register for the 2017 and subsequent MY National Greenhouse Gas Final Rule as proposed~~ at 76 Fed. Reg. 74854, 75357 (December 1, 2011)~~]~~.

* * * *

(17) "Full-size pickup truck" means a light-duty truck that has a passenger compartment and an open cargo box and which meets the following specifications:

1. A minimum cargo bed width between the wheelhouses of 48 inches, measured as the minimum lateral distance between the limiting interferences (pass-through) of the wheelhouses. The measurement shall exclude the transitional arc, local protrusions, and depressions or pockets, if present. An open cargo box means a vehicle where the cargo box does not have a permanent roof or cover. Vehicles ~~sold~~ produced with detachable covers are considered "open" for the purposes of these criteria.

2. A minimum open cargo box length of 60 inches, where the length is defined by the lesser of the pickup bed length at the top of the body and the pickup bed length at the floor, where the length at the top of the body is defined as the longitudinal distance from the inside front of the pickup bed to the inside of the closed endgate as measured at the height of the top of the open pickup bed ~~cargo floor surface~~ along vehicle centerline, and the length at the floor is defined as the longitudinal distance from the inside front of the pickup bed to the inside of the closed endgate as measured at the cargo floor surface along vehicle centerline.

3. A minimum towing capability of 5,000 pounds, where minimum towing capability is determined by subtracting the gross vehicle weight rating from the gross combined weight rating, or a minimum payload capability of 1,700 pounds, where minimum payload capability is determined by subtracting the curb weight from the gross vehicle weight rating.

* * * *

(25) "2017 through 2025 MY National Greenhouse Gas Program" means the national program that applies to new 2017 through 2025 model year passenger cars, light-duty-trucks, and medium-duty passenger vehicles as adopted by the U.S. Environmental Protection Agency as codified in 40 CFR Part 86, Subpart S.

(2~~5~~6) "Oil separator" means a mechanism that removes at least 50 percent of the oil entrained in the oil/refrigerant mixture exiting the compressor and returns it to the compressor housing or compressor inlet, or a compressor design that does not rely on the circulation of an oil/refrigerant mixture for lubrication.

(26~~7~~) "Passive Cabin Ventilation" means ducts or devices which utilize convective airflow to move heated air from the cabin interior to the exterior of the vehicle.

(27~~8~~) "Plug-in Hybrid Electric Vehicle" means "off-vehicle charge capable hybrid electric vehicle" as defined in the "California Exhaust Emission Standards and Test Procedures for 2018 and Subsequent Model Zero-Emission Vehicles

and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes."

(2~~8~~9) "Reduced reheat, with externally controlled, fixed-displacement or pneumatic variable displacement compressor" means a system in which the output of either compressor is controlled by cycling the compressor clutch off-and-on via an electronic signal, based on input from sensors (e.g., position or setpoint of interior temperature control, interior temperature, evaporator outlet air temperature, or refrigerant temperature) and air temperature at the outlet of the evaporator can be controlled to a level at 41°F, or higher.

(~~29~~30) "Reduced reheat, with externally-controlled, variable displacement compressor" means a system in which compressor displacement is controlled via an electronic signal, based on input from sensors (e.g., position or setpoint of interior temperature control, interior temperature, evaporator outlet air temperature, or refrigerant temperature) and air temperature at the outlet of the evaporator can be controlled to a level at 41°F, or higher.

(3~~0~~1) "SC03" means the SC03 test cycle as set forth in the "California 2015 and Subsequent Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light Duty Trucks, and Medium Duty Vehicles."

(3~~1~~2) "Solar Reflective Paint" means a vehicle paint or surface coating which reflects at least 65 percent of the impinging infrared solar energy, as determined using ASTM standards E903-96 (Standard Test Method for Solar Absorptance, Reflectance, and Transmittance of Materials Using Integrating Spheres, DOI: 10.1520/E0903-96 (Withdrawn 2005)), E1918-06 (Standard Test Method for Measuring Solar Reflectance of Horizontal and Low-Sloped Surfaces in the Field, DOI: 10.1520/E1918-06), or C1549-09 (Standard Test Method for Determination of Solar Reflectance Near Ambient Temperature Using a Portable Solar Reflectometer, DOI: 10.1520/C1549-09). These ASTM standards are incorporated by reference, herein.

(3~~2~~3) "Solar Roof Panels" means the installation of solar panels on an electric vehicle or a plug-in hybrid electric vehicle such that the solar energy is used to provide energy to the electric drive system of the vehicle by charging the battery or directly providing power to the electric motor with the equivalent of at least 50 Watts of rated electricity output.

(3~~3~~4) "Strong hybrid gasoline-electric vehicle" means a vehicle that has start/stop capability and regenerative braking capability, where the recaptured braking energy over the Federal Test Procedure is at least 75 percent of the total braking energy, where the percent of recaptured braking energy is measured and calculated according to 40 CFR §600.108(g).

(345) "Subconfiguration" means a unique combination within a vehicle configuration of equivalent test weight, road load horsepower, and any other operational characteristics or parameters which is accepted by USEPA.

(356) "US06" means the US06 test cycle as set forth in the "California 2015 and Subsequent Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light Duty Trucks, and Medium Duty Vehicles."

(367) "Worst-Case" means the vehicle configuration within each test group that is expected to have the highest CO_2-equivalent value, as calculated in section (a)(5).

(fg) *Severability*. Each provision of this section is severable, and in the event that any provision of this section is held to be invalid, the remainder of both this section and this article remains in full force and effect.

Note: Authority cited: Sections 39500, 39600, 39601, 43013, 43018, 43018.5, 43101, 43104 and 43105, Health and Safety Code. Reference: Sections 39002, 39003, 39667, 43000, 43009.5, 43013, 43018, 43018.5, 43100, 43101, 43101.5, 43102, 43104, 43105, 43106, 43204, 43205 and 43211, Health and Safety Code.

7. Amend title 13, CCR, section 1962.1 to read as follows:

§ 1962.1. Zero-Emission Vehcile Standards for 2009 through 2017 Model Year Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles.

* * * * *

(b) ***Percentage ZEV Requirements.***

* * * * *

(2) ***Requirements for Large Volume Manufacturers.***

* * * * *

(D) ***Requirements for Large Volume Manufacturers in Model Years 2012 through 2017.***

1. ***2012 through 2014 Requirements.*** On an annual basis, a manufacturer must meet the total ZEV obligation with ZEV credits generated by such vehicles, excluding credits generated by NEVs and Type 0 ZEVs equal to at least 0.79% of its annual sales, using either production volume determination method described in subdivision 1962.1(b)(1)(B). No more than 50% of the total obligation may be met with credits generated from PZEVs. No more than 75% of the total obligation may be met with credits generated from AT PZEVs. No more than 93.4% may be met with credits generated from TZEVs, Type 0 ZEVs, and NEVs, as limited in subdivision 1962.1(g)(6). The entire obligation may be met solely with credits generated from ZEVs.

2. ***2015 through 2017 Requirements.*** On an annual basis, a manufacturer must meet its ZEV obligation with ZEV credits generated by such vehicles, excluding credits generated by NEVs and Type 0 ZEVs, equal to at least 3% of its annual sales, using either production volume determination method described in subdivision 1962.1(b)(1)(B). No more than 42.8% of the total obligation may be met with credits generated from PZEVs. No more than 57.1% of the total obligation may be met with credits generated from AT PZEVs. No more than 78.5% may be met with credits generated from TZEVs, Type 0 ZEVs, and NEVs, as limited in subdivision 1962.1(g)(6). The entire obligation may be met solely with credits generated from ZEVs.

* * * * *

(c) ***Partial ZEV Allowance Vehicles (PZEVs).***

* * * * *

(3) ***Zero-Emission VMT PZEV Allowance.***

(A) ***Calculation of Zero-Emission VMT Allowance.*** A vehicle that meets the requirements of subdivision 1962.1(c)(2) and has zero-emission vehicle miles traveled ("VMT") capability will generate an additional zero emission VMT PZEV allowance calculated as follows:

Range	*Zero-emission VMT Allowance*
$EAER_u$ < 10 miles	0.0
$EAER_u$ ≥10 to 40 miles	$EAER_u \times (1 - UF_{Rcda})/11.028$
$EAER_u$ > 40 miles	~~$(EAER_{u40}) \times [1 - (UF_{40} * R_{cda}/EAER_u)]/11.028$~~ $3.627 \times (1 - UF_n)$ Where, ~~UF_{40}= utility factor at 40 miles~~ ~~$EAER_{u40}$= 40 miles~~ $n = 40 \times (R_{cda}/EAER_u)$

A vehicle cannot generate more than 1.39 zero-emission VMT PZEV allowances.

The urban equivalent all-electric range ($EAER_u$) and urban charge depletion range actual (R_{cda}) shall be determined in accordance with section G.5.4 and G.11.9, respectively, of the "California Exhaust Emission Standards and Test Procedures for 2009 through 2017 Model Zero-Emission Vehicles, and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium Duty Vehicle Classes," adopted December 17, 2008, and last amended ~~March 22, 2012~~ [INSERT DATE OF AMENDMENT], incorporated by reference in section 1962.1(h). The utility Factor (UF) shall be determined according to SAE J2841 SEP2010 from the Fleet Utility Factors (FUF) Table in Appendix B or using a polynomial curve fit with "FUF Fit" coefficients from Table 2 Utility Factor Equation Coefficients ~~based on the charge depleting actual range (urban cycle) (R_{cda}) shall be determined according to Section 4.5.2 Equation 6 and the "Fleet UF" Utility Factor Equation Coefficients in Section 4.5.2, Table 3 of SAE J2841 March 2009~~.

* * * * *

(h) ***Test Procedures.***

(1) ***Determining Compliance.*** The certification requirements and test procedures for determining compliance with this section 1962.1 are set forth in "California Exhaust Emission Standards and Test Procedures for 2009 through 2017 Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes," adopted December 17, 2008, and last amended ~~March 22, 2012~~ INSERT DATE OF AMENDMENT, which is incorporated herein by reference.

* * * * *

Note: Authority cited: Sections 39600, 39601, 43013, 43018, 43101, 43104 and 43105, Health and Safety Code. Reference: Sections 38562, 39002, 39003, 39667, 43000, 43009.5, 43013, 43018, 43018.5, 43100, 43101, 43101.5, 43102, 43104, 43105, 43106, 43204, 43205, 43205.5 and 43206, Health and Safety Code.

8. Amend title 13, CCR, section 1962.2 to read as follows:

§ 1962.2. Zero-Emission Vehicle Standards for 2018 and Subsequent Model Year Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles.

* * * * *

(c) Transitional Zero Emission Vehicles (TZEV).

* * * * *

(2) *TZEV Requirements.*

* * * * *

(B) *Evaporative Emissions.* Certify the vehicle to the evaporative emission standards in subdivision 1976(b)(1)(G). or 1976(b)(1)(E) ~~Manufacturers may certify 2018 and 2019 TZEVs to the evaporative standards for PCs and LDTs in subdivision 1976(b)(1)(E)~~;

* * * * *

(3) *Allowances for TZEVs*

(A) *Zero Emission Vehicle Miles Traveled TZEV Allowance Calculation.*

* * * * *

1. Allowance for US06 Capability. TZEVs with US06 all electric range capability (AER) of at least 10 miles shall earn an additional 0.2 allowance. US06 test cycle range capability shall be determined in accordance with section ~~E~~F.8 of the "California Exhaust Emission Standards and Test Procedures for the 2018 and Subsequent Model Zero-Emission Vehicles, and Hybrid Electric Vehicles in the Passenger Car, Light-Duty Truck, and Medium Duty Vehicle Classes," adopted March 22, 2012, last amended [INSERT DATE OF AMENDMENT], which is incorporated herein by reference.

* * * * *

(g) *Generation and Use of Credits; Calculation of Penalties*

* * * * *

(6) *Use of ZEV Credits.*

* * * * *

(C) *GHG-ZEV Over Compliance Credits.*

1. Application. Manufacturers may apply to the Executive Officer, no later than December 31, 2016, to be eligible for this subdivision 1962.2(g)(6)(C), based on the following qualifications:

a. A manufacturer must have no model year 2017 compliance debits and no outstanding debits from all previous model year compliance with sections 1961.1 and 1961.3, or must have demonstrated compliance with the National greenhouse gas program as allowed by subdivisions 1961.1(a)(1)(A)(ii) and 1961.3 (c), and

b. A manufacturer must have no model year 2017 compliance debits and no outstanding debits from all previous model year compliance with section 1962.1, and

c. A manufacturer must submit documentation of its projected product plans to show over compliance with the manufacturer's section 1961.3 requirements, or over compliance with National greenhouse gas program requirements as allowed by subdivision 1961.3 (c) by at least 2.0 gCO_2/mile in each model year through the entire 2018 through 2021 model year period, and its commitment to do so in each year.

2. Credit Generation and Calculation. Manufacturers must calculate their over compliance with section 1961.3 requirements, or over compliance with the National greenhouse gas program requirements as allowed by subdivision 1961.3 (c) for model years 2018 through 2021 based on compliance with the previous model year standard. For example, to generate credits for this subdivision 1962.2(g)(6)(C) for model year 2018, manufacturers would calculate credits based on model year 2017 compliance with section 1961.3, or over compliance with the National greenhouse gas program as allowed by subdivision 1961.3 (c).

a. At least 2.0 gCO_2/mile over compliance with section 1961.3, or over compliance with the National greenhouse gas program as allowed by subdivision 1961.3 (c) is required in each year and the following equation must be used to calculate the amount of ZEV credits earned for purposes of this subdivision 1962.2(g)(6)(C), and:

[(Manufacturer US PC and LDT Sales) x (gCO_2/mile below manufacturer GHG standard for a given model year)] / (Manufacturer GHG standard for a given model year)

b. Credits earned under ~~section~~ subdivision 1961.3(a)(9), or credits earned under 40 CFR, part 86, Subpart S, §86.1866-12(a), §86.1866-12(b), or §86.1870-12 may not be included in the calculation of gCO_2/mile credits for use in the above equation in subdivision a. All ZEVs included in the calculation above must include upstream emission values found in section 1961.3.

c. Banked gCO_2/mile credits earned under sections 1961.1 and 1961.3, or under the National greenhouse gas program requirements as allowed by subdivision 1961.3 (c) from previous model years or from other manufacturers may not be included in the calculation of gCO_2/mile credits for use in the above equation in subdivision a.

3. Use of GHG-ZEV Over Compliance Credits. A manufacturer may use no more than the percentage enumerated in the table below to meet either the total ZEV requirement nor the portion of their ZEV requirement that must be met with ZEV credits, with credits earned under this subdivision 1962.2(g)(6)(C).

2018	2019	2020	2021
50%	50%	40%	30%

Credits earned in any given model year under this subdivision 1962.2(g)(6)(C) may only be used in the applicable model year and may not be used in any other model year.

gCO_2/mile credits used to calculate GHG-ZEV over compliance credits under this provision must also be removed from the manufacturer's GHG compliance bank, and cannot be banked for future compliance toward section 1961.3, or towards compliance with the National greenhouse gas program requirements as allowed by subdivision 1961.3 (c).

4. Reporting Requirements. Annually, manufacturers are required to submit calculations of credits for this subdivision 1962.2(g)(6)(C) for the model year, any remaining credits/debits from previous model years under section 1961.3, or under the National greenhouse gas program requirements as allowed by subdivision 1961.3 (c) and projected

credits/debits for future years through 2021 under section 1961.3, or under the National greenhouse gas program requirements as allowed by subdivision 1961.3 (c) and this subdivision 1962.2(g)(6)(C).

If a manufacturer, who has been granted the ability to generate credits under this subdivision 1962.2(g)(6)(C), fails to over comply by at least 2.0 gCO_2/mile in any one year, the manufacturer will be subject to the full ZEV requirements for the model year and future model years, and will not be able to earn credits for any other model year under this subdivision 1962.2(g)(6)(C).

~~5. If the Executive Officer does not make a determination that a Federal greenhouse gas fleet standard is functionally equivalent to subdivision 1961.3, than this subdivision 1962.2(g)(6)(C) 1. through 4. is unavailable for use by any manufacturer~~.

* * * * *

(h) ***Test Procedures.***

(1) ***Determining Compliance.*** The certification requirements and test procedures for determining compliance with this section 1962.2 are set forth in "California Exhaust Emission Standards and Test Procedures for 2018 and Subsequent Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes," adopted March 22, 2012, last amended ~~[INSERT DATE OF AMENDMENT]~~, which is incorporated herein by reference.

* * * * *

Note: Authority cited: Sections 39600, 39601, 43013, 43018, 43101, 43104 and 43105, Health and Safety Code. Reference: Sections 38562, 39002, 39003, 39667, 43000, 43009.5, 43013, 43018, 43018.5, 43100, 43101, 43101.5, 43102, 43104, 43105, 43106, 43107, 43204, and 43205.5, Health and Safety Code.

9. Amend title 13, CCR, section 1976 to read as follows:

§ 1976. Standards and Test Procedures for Motor Vehicle Fuel Evaporative Emissions.

* * * *

(b)(1) Evaporative emissions for 1978 and subsequent model gasoline-fueled, 1983 and subsequent model liquefied petroleum gas-fueled, and 1993 and subsequent model alcohol-fueled motor vehicles and hybrid electric vehicles subject to exhaust emission standards under this article, except petroleum-fueled diesel vehicles, compressed natural gas-fueled vehicles, hybrid electric vehicles that have sealed fuel systems which can be demonstrated to have no evaporative emissions, and motorcycles, shall not exceed the following standards:

* * * *

(G) For 2015 and subsequent model motor vehicles, the following evaporative emission requirements apply:

* * * *

3. *Carry-Over of 2014 Model-Year Evaporative Families Certified to the Zero-Fuel Evaporative Emission Standards.* A manufacturer may carry over 2014 model motor vehicles certified to the zero-fuel (0.0 grams per test) evaporative emission standards set forth in section 1976(b)(1)(E) through the 2018 model year and be considered compliant with the requirements of section 1976(b)(1)(G)1. <u>For all motor vehicles that are certified via this carry-over provision, the emission standards set forth in section 1976(b)(1)(E) shall apply when determining in-use compliance throughout the vehicle's useful life.</u> If the manufacturer chooses to participate in the fleet-average option for the highest whole vehicle diurnal plus hot soak emission standard, the following family emission limits are assigned to these evaporative families for the calculation of the manufacturer's fleet-average hydrocarbon emission value.

Vehicle Type	*Highest Whole Vehicle Diurnal + Hot Soak (grams per test)*
Passenger cars	0.300
Light-duty trucks 6,000 lbs. GVWR and under, and 0 - 3,750 lbs. LVW	0.300
Light-duty trucks 6,000 lbs. GVWR and under, and 3,751 – 5,750 lbs. LVW	0.400
Light-duty trucks 6,001 - 8,500 lbs. GVWR	0.500

* * * *

(c) The test procedures for determining compliance with the standards in subsection (b) above applicable to 1978 through 2000 model year vehicles are set forth in "California Evaporative Emission Standards and Test Procedures for 1978-2000 Model Motor Vehicles," adopted by the state board on April 16, 1975, as last amended August 5, 1999, which is incorporated herein by reference. The test procedures for determining compliance with standards applicable to 2001 and subsequent model year vehicles are set forth in the "California Evaporative Emission Standards and Test Procedures for 2001 and Subsequent Model Motor Vehicles," adopted by the state board on August 5, 1999, and as last amended ~~March 22, 2012~~ [INSERT DATE OF AMENDMENT], which is incorporated herein by reference.

* * * *

Note: Authority cited: Sections 39500, 39600, 39601, 39667, 43013, 43018, 43101, 43104, 43105, 43106 and 43107, Health and Safety Code. Reference: Sections 39002, 39003, 39500, 39667, 43000, 43009.5, 43013, 43018, 43100, 43101, 43101.5, 43102, 43104, 43105, 43106, 43107, 43204 and 43205 Health and Safety Code.

APPENDIX B

California Environmental Protection Agency
AIR RESOURCES BOARD

PROPOSED

CALIFORNIA 2015 AND SUBSEQUENT MODEL CRITERIA POLLUTANT EXHAUST EMISSION STANDARDS AND TEST PROCEDURES AND 2017 AND SUBSEQUENT MODEL GREENHOUSE GAS EXHAUST EMISSION STANDARDS AND TEST PROCEDURES FOR PASSENGER CARS, LIGHT-DUTY TRUCKS, AND MEDIUM-DUTY VEHICLES

Adopted: March 22, 2012
Amended: [INSERT DATE OF AMENDMENT]

Note: The proposed amendments to this document are shown in underline to indicate additions and ~~strikeout~~ to indicate deletions compared to the test procedures as adopted March 22, 2012. [No change] indicates proposed federal provisions that are also proposed for incorporation herein without change. Existing intervening text that is not amended in this rulemaking is indicated by "* * * *".

Date of Release: September 14, 2012; 45-day Notice Version
Date of Hearing: November 15, 2012

* * * *

CALIFORNIA 2015 AND SUBSEQUENT MODEL CRITERIA POLLUTANT EXHAUST EMISSION STANDARDS AND TEST PROCEDURES AND 2017 AND SUBSEQUENT MODEL GREENHOUSE GAS EXHAUST EMISSION STANDARDS AND TEST PROCEDURES FOR PASSENGER CARS, LIGHT-DUTY TRUCKS, AND MEDIUM-DUTY VEHICLES

* * * *

PART I: GENERAL PROVISIONS FOR CERTIFICATION AND IN-USE VERIFICATION OF EMISSIONS

A. General Applicability

1. §86.1801 Applicability.

1.1 §86.1801-12. [as adopted by EPA on August 28, 2012, 77 Fed. Reg. [insert page], August [insert date], 2012~~Insert Federal Register for the 2017 and subsequent MY National Greenhouse Gas Final Rule as proposed at 76 Fed. Reg. 74854, 75361 (December 1, 2011)~~]. Amend as follows:

* * * *

B. Definitions, Acronyms and Abbreviations

1. §86.1803 Definitions.

1.1 §86.1803-01. [as adopted by EPA on August 28, 2012, 77 Fed. Reg. [insert page], August [insert date], 2012~~Insert Federal Register for the 2017 and subsequent MY National Greenhouse Gas Final Rule as proposed at 76 Fed. Reg. 74854, 75361 (December 1, 2011)~~]. [No change, except as otherwise noted below.]

2. California Definitions.

* * * *

"**EPA Vehicle Simulation Tool**" means the "EPA Vehicle Simulation Tool" as incorporated by reference in 40 CFR §86.1 in the Notice of Proposed Rulemaking for EPA's 2017 and subsequent MY National Greenhouse Gas Program, as proposed ~~November 16, 2011 [Insert Federal Register for the 2017 and subsequent MY National Greenhouse Gas Final Rule as proposed~~ at 76 Fed. Reg. 74854, 75357 (December 1, 2011)~~]~~, which is incorporated by reference in section 1961.2, title 13, CCR.

* * * *

"**Federal Tier II emission Bin 3 or Bin 4**" means the federal Tier II emission Bin 3 or Bin 4, set forth in 40 CFR §86.1811-04 (February 26, 2007).

* * * *

"**Full-size pickup truck**" means a light-duty truck that has a passenger compartment and an open cargo box and which meets the following specifications:

1. A minimum cargo bed width between the wheelhouses of 48 inches, measured as the minimum lateral distance between the limiting interferences (pass-through) of the wheelhouses. The measurement shall exclude the transitional arc, local protrusions, and depressions or pockets, if present. An open cargo box means a vehicle where the cargo box does not have a permanent roof or cover. Vehicles ~~sold~~ produced with detachable covers are considered "open" for the purposes of these criteria.
2. A minimum open cargo box length of 60 inches, where the length is defined by the lesser of the pickup bed length at the top of the body and the pickup bed length at the floor, where the length at the top of the body is defined as the longitudinal distance from the inside front of the pickup bed to the inside of the closed endgate as measured at the height of the top of the open pickup bed ~~cargo floor surface~~ along vehicle centerline, and the length at the floor is defined as the longitudinal distance from the inside front of the pickup bed to the inside of the closed endgate as measured at the cargo floor surface along vehicle centerline.
3. A minimum towing capability of 5,000 pounds, where minimum towing capability is determined by subtracting the gross vehicle weight rating from the gross combined weight rating, or a minimum payload capability of 1,700 pounds, where minimum payload capability is determined by subtracting the curb weight from the gross vehicle weight rating.

* * * *

"**Methane Reactivity Adjustment Factor**" means a factor applied to the mass of methane emissions from natural gas fueled vehicles for the purpose of determining the gasoline equivalent ozone-forming potential of the methane emissions.

* * * *

"**2017 through 2025 MY National greenhouse gas program**" or "**2017 through 2025 MY National greenhouse gas final rule**" means the national program that applies to new 2017 through 2025 model year passenger cars, light-duty trucks, and medium-duty passenger vehicles as adopted by the U.S. Environmental Protection Agency as codified in 40 CFR Part 86, Subpart S, as incorporated in and amended by these test procedures.

* * * *

"**Small volume manufacturer**" means any manufacturer that meets the "small volume manufacturer" definition as set forth in section 1900, title 13, CCR. ~~whose projected or~~

~~combined California sales of passenger cars, light-duty trucks, medium-duty vehicles, heavy-duty vehicles and heavy-duty engines in its product line are fewer than 4,500 units based on the average number of vehicles sold for the three previous consecutive model years for which a manufacturer seeks certification. A manufacturer's California sales shall consist of all vehicles or engines produced by the manufacturer and delivered for sale in California, except that vehicles or engines produced by the manufacturer and marketed in California by another manufacturer under the other manufacturer's nameplate shall be treated as California sales of the marketing manufacturer.~~

~~Except as provided in the last paragraph of this definition, for the 2015 through 2017 model years, the annual sales from different firms shall be aggregated in the following situations: (1) vehicles produced by two or more firms, one of which is 10% or greater part owned by another; or (2) vehicles produced by any two or more firms if a third party has equity ownership of 10% or more in each of the firms; or (3) vehicles produced by two or more firms having a common corporate officer(s) who is (are) responsible for the overall direction of the companies; or (4) vehicles imported or distributed by any firms where the vehicles are manufactured by the same entity and the importer or distributor is an authorized agent of the entity.~~

~~Except as provided in the last paragraph of this definition, for the 2018 and subsequent model years, the annual sales from different firms shall be aggregated in the following situations: (1) vehicles produced by two or more firms, one of which is 33.4% or greater part owned by another; or (2) vehicles produced by any two or more firms if a third party has equity ownership of 33.4% or more in each of the firms; or (3) vehicles produced by two or more firms having a common corporate officer(s) who is (are) responsible for the overall direction of the companies; or (4) vehicles imported or distributed by any firms where the vehicles are manufactured by the same entity and the importer or distributor is an authorized agent of the entity.~~

~~For the purposes of this paragraph, all manufacturers whose annual sales are aggregated together under the provisions of this definition shall be defined as "related manufacturers." Notwithstanding such aggregation, the Executive Officer may make a determination of operational independence if all of the following criteria are met for at least 24 months preceding the application submittal: (1) for the three years preceding the year in which the initial application is submitted, the average California sales for the applicant does not exceed 4,500 vehicles per year; (2) no financial or other support of economic value is provided by related manufacturers for purposes of design, parts procurement, R&D and production facilities and operation, and any other transactions between related manufacturers are conducted under normal commercial arrangements like those conducted with other parties, at competitive pricing rates to the manufacturer; (3) related manufacturers maintain separate and independent research and development, testing, and production facilities; (4) related manufacturers do not use any vehicle powertrains or platforms developed or produced by related manufacturers; (5) patents are not held jointly with related manufacturers; (6) related manufacturers maintain separate business administration, legal, purchasing, sales, and marketing departments, as well as autonomous decision-making on commercial matters; (7) the overlap of the Board of Directors between related manufacturers is limited to 25% with no sharing of top operational management, including president, chief executive officer, chief financial officer, and chief operating officer, and provided that no individual overlapping director or combination of overlapping directors exercises exclusive management control over either or both companies; and (8) parts or components supply between related companies must be established through open market process, and to the extent that the manufacturer sells parts/components to non-related manufacturers, it~~

~~does so through the open market a competitive pricing. Any manufacturer applying for operational independence must submit to ARB an Attestation Engagement from an independent certified public accountant or firm of such accountants verifying the accuracy of the information contained in the application, as defined by and in accordance with the procedures established in 40 C.F.R. §80.125, as last amended January 19, 2007, which is incorporated by reference in section 1900, title 13, CCR. The applicant must submit information to update any of the above eight criteria as material changes to any of the criteria occur. If there are no material changes to any of the criteria, the applicant must certify that to the Executive Officer annually. With respect to any such changes, the Executive Officer may consider extraordinary conditions (e.g., changes to economic conditions, unanticipated market changes, etc.) and may continue to find the applicant to be operationally independent. In the event that a manufacturer loses eligibility as a "small volume manufacturer" after a material change occurs, the manufacturer must begin compliance with the primary emissions program in the third model year after the model year in which the manufacturer loses its eligibility. The Executive Officer may, in his or her discretion, re-establish lost "small volume manufacturer" status if the manufacturer shows that it has met the operational independence criteria for three consecutive years.~~

* * * *

"**Subconfiguration**" means a unique combination within a vehicle configuration that meets the criteria in 40 CFR §600.002-08 (May 7, 2010).

* * * *

D. §86.1810 General standards; increase in emissions; unsafe conditions; waivers

1. §86.1810-09. ~~July 6, 2011~~ [as adopted by EPA on August 28, 2012, 77 Fed. Reg. [insert page], August [insert date], 2012~~Insert Federal Register for the 2017 and subsequent MY National Greenhouse Gas Final Rule as proposed at 76 Fed. Reg. 74854, 75371 (December 1, 2011)~~]. Amend §86.1810-09 as follows:

This section applies to model year 2015 and later light-duty vehicles, light-duty trucks, and medium-duty vehicles fueled by gasoline, diesel, methanol, ethanol, natural gas and liquefied petroleum gas fuels. Multi-fueled vehicles (including bi-fueled, dual-fueled and flexible-fueled vehicles) shall comply with all requirements established for each consumed fuel (or blend of fuels in the case of flexible-fueled vehicles). This section also applies to hybrid electric vehicles. The standards of this subpart apply to both certification and in-use vehicles unless otherwise indicated.

* * * *

(p) Amend as follows: For gasoline and diesel-fueled LEV II and LEV III vehicles, manufacturers may measure non-methane hydrocarbons (NMHC) in lieu of NMOG. For LEV II vehicles that are certified using the California Gasoline Fuel Specifications set forth in Part II, section 100.3.1.1, manufacturers must multiply NMHC measurements by an

adjustment factor of 1.04 before comparing with the NMOG standard to determine compliance with the standard. For LEV III vehicles and LEV II vehicles that are certified using the California Gasoline Fuel Specifications set forth in Part II, section 100.3.1.2, manufacturers must multiply NMHC measurements by an adjustment factor of 1.10 before adding it to the measured NOx emissions and comparing with the NMOG+NOx standard to determine compliance with that standard. For LEV III vehicles and LEV II vehicles that are certified using a gasoline fuel that contains an ethanol content greater than that allowed by the California Gasoline Fuel Specifications set forth in Part II, section 100.3.1.2 and less than or equal to 25 percent ethanol, the adjustment factor that must be used to demonstrate compliance with this paragraph is calculated using the following formula:

Adjustment factor = 1.0302 + 0.0071 x volume percent fuel ethanol

where the value for the "volume percent fuel ethanol" used in this formula is 15 if the gasoline contains 15 percent ethanol, the "volume percent fuel ethanol" used in this formula is 20 if the gasoline contains 20 percent ethanol, etc. Manufacturers must multiply NMHC measurements by this calculated adjustment factor before adding it to the measured NOx emissions and comparing with the NMOG+NOx standard to determine compliance with that standard. Manufacturers may use other factors to adjust NMHC results to more properly represent NMOG results. Such factors must be based upon comparative testing of NMOG and NMHC emissions and be approved in advance by the Administrator.

* * * *

E. California Exhaust Emission Standards.

* * * *

1. Exhaust Emission Standards.

1.1 FTP Exhaust Emission Standards for Light- and Medium-Duty Vehicles.

The exhaust emission standards set forth in this section refer to the exhaust emitted over the driving schedule set forth in title 40, CFR Part 86, Subparts B and C, except as amended in these test procedures.

1.1.1 **LEV II Exhaust Standards.** The following LEV II standards are the maximum exhaust emissions for the intermediate and full useful life from new 2015 through 2019 model year LEVs, ULEVs, and SULEVs, including fuel-flexible, bi-fuel and dual fuel vehicles when operating on the gaseous or alcohol fuel they are designed to use, except that for the 2015 through 2019 model years, SULEV exhaust standards shall only apply to vehicles that receive partial zero-emission vehicle credits according to the criteria set forth in section C.3 of the "California Exhaust Emission Standards and Test Procedures for 2009 through 2017 Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes" or the "California Exhaust Emission Standards and Test Procedures for 2018 and Subsequent Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes," incorporated by reference in section 1962.2, title 13, CCR. Vehicles

that are certified to the particulate standards in section E.1.1.2.1 may not certify to LEV II standards.

2015 – 2019 model-year LEV II LEV vehicles may be certified to the NMOG+NOx numerical values for LEV160, LEV395, or LEV630, as applicable, in section E.1.1.2 and the corresponding NMOG+NOx numerical values in section E.1.4.2, in lieu of the separate NMOG and NOx exhaust emission standards in this section E.1.1.1 and the corresponding NMOG~~+NOx~~ numerical values in section E.1.4.1; and LEV II ULEV vehicles may be certified to the NMOG+NOx numerical values for ULEV125, ULEV340, or ULEV570, as applicable, in section E.1.1.2 and the corresponding NMOG+NOx numerical values in section E.1.4.2, in lieu of the separate NMOG and NOx exhaust emission standards in this section E.1.1.1 and the corresponding NMOG~~+NOx~~ numerical values in section E.1.4.1~~; and LEV II SULEV vehicles may be certified to the NMOG+NOx numerical values for SULEV30, SULEV170, or SULEV230, as applicable, in section E.1.1.2 and the corresponding NMOG+NOx numerical values in section E.1.4.2, in lieu of the separate NMOG and NOx exhaust emission standards in this section E.1.1.1 and the corresponding NMOG+NOx numerical values in section E.1.4.1~~. Such vehicles will be treated as LEV II vehicles for purposes of the fleet-wide phase-in requirements.

* * * *

1.1.2 **LEV III Exhaust Standards.** The following standards are the maximum exhaust emissions for the full useful life from new 2015 and subsequent model year "LEV III" passenger cars, light-duty trucks, and medium-duty vehicles, including fuel-flexible, bi-fuel and dual fuel vehicles when operating on both of the fuels they are designed to use. Before the 2015 model year, a manufacturer that produces vehicles meeting these standards has the option of certifying the vehicles to the standards, in which case the vehicles will be treated as LEV III vehicles for purposes of the fleet-wide phase-in requirements.

LEV III Exhaust Mass Emission Standards for New 2015 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles

Vehicle Type	Durability Vehicle Basis (mi)	Vehicle Emission Category[2]	NMOG + Oxides of Nitrogen (g/mi)	Carbon Monoxide (g/mi)	Formaldehyde (mg/mi)	Particulates[1] (g/mi)
All PCs; LDTs 8500 lbs. GVWR or less; and MDPVs Vehicles in this category are tested at their loaded vehicle weight	150,000	LEV160	0.160	4.2	4	0.01
		ULEV125	0.125	2.1	4	0.01
		ULEV70	0.070	1.7	4	0.01
		ULEV50	0.050	1.7	4	0.01
		SULEV30	0.030	1.0	4	0.01
		SULEV20	0.020	1.0	4	0.01
MDVs 8501 - 10,000 lbs. GVWR, excluding MDPVs	150,000	LEV395	0.395	6.4	6	0.12
		ULEV340	0.340	~~3.2~~6.4	6	0.06

Vehicles in this category are tested at their adjusted loaded vehicle weight		ULEV250	0.250	~~2.6~~.4	6	0.06
		ULEV200	0.200	~~2.64~~.2	6	0.06
		SULEV170	0.170	~~1.54~~.2	6	0.06
		SULEV150	0.150	~~1.53~~.2	6	0.06
MDVs 10,001-14,000 lbs. GVWR Vehicles in this category are tested at their adjusted loaded vehicle weight	150,000	LEV630	0.630	7.3	6	0.12
		ULEV570	0.570	~~3.7~~.3	6	0.06
		ULEV400	0.400	~~3.07~~.3	6	0.06
		ULEV270	0.270	~~3.04~~.2	6	0.06
		SULEV230	0.230	~~1.74~~.2	6	0.06
		SULEV200	0.200	~~1.73~~.7	6	0.06

[1] These standards shall apply only to vehicles not included in the phase-in of the particulate standards set forth in Section E.1.1.2.1.

[2] The numeric portion of the category name is the NMOG+NOx value in thousandths of grams per mile.

* * * *

1.1.2.1 **LEV III Particulate Standards.**

1.1.2.1.1 **Particulate Standards for Passenger Cars, Light-Duty Trucks, and Medium-Duty Passenger Vehicles.** Beginning in the 2017 model year, a manufacturer, except a small volume manufacturer, shall certify a percentage of its passenger car, light-duty truck, and medium-duty passenger vehicle fleet to the following particulate standards according to the following phase-in schedule. These standards represent the maximum particulate emissions allowed at full useful life. All vehicles certifying to these particulate standards must certify to the LEV III exhaust emission standards set forth in section E.1.1.2.

* * * *

1.1.2.1.4 **Alternative Phase-in Schedule for Particulate Standards.**

1.1.2.1.4.1 **Alternative Phase-in Schedules for the 3 mg/mi Particulate Standard for Passenger Cars, Light-Duty Trucks, and Medium-Duty Passenger Vehicles.** A manufacturer may use an alternative phase-in schedule to comply with the 3 mg/mi particulate standard phase-in requirements as long as equivalent PM emission reductions are achieved by the 2021 model year from passenger cars, light-duty trucks, and medium-duty passenger vehicles. Model year emission reductions shall be calculated by multiplying the percent of PC+LDT+MDPV vehicles meeting the 3 mg/mi particulate standard in a given model year (based on a manufacturer's projected sales volume of vehicles in each category) by 5 for the 2017 model year, 4 for the 2018 model year, 3 for the 2019 model year, 2 for the 2020 model year, and 1 for the 2021 model year. The yearly

results for PC+LDT+MDPV vehicles shall be summed together to determine a cumulative total for PC+LDT+MDPV vehicles. In the 2021 model year, t~~T~~he cumulative total must be equal to or greater than 490 and 100 percent of the manufacturer's passenger cars, light-duty trucks, and medium-duty passenger vehicles must be certified to the 3 mg/mi particulate standard ~~in the 2021 model year~~ to be considered equivalent. A manufacturer may add vehicles introduced before the 2017 model year (e.g., the percent of vehicles introduced in 2016 would be multiplied by 5) to the cumulative total.

1.1.2.1.4.2 **Alternative Phase-in Schedules for the 1 mg/mi Particulate Standard for Passenger Cars, Light-Duty Trucks, and Medium-Duty Passenger Vehicles.** A manufacturer may use an alternative phase-in schedule to comply with the 1 mg/mi particulate standard phase-in requirements as long as equivalent PM emission reductions are achieved by the 2028 model year from passenger cars, light-duty trucks, and medium-duty passenger vehicles. Model year emission reductions shall be calculated by multiplying the percent of PC+LDT+MDPV vehicles meeting the 1 mg/mi particulate standard in a given model year (based on a manufacturer's projected sales volume of vehicles in each category) by 4 for the 2025 model year, 3 for the 2026 model year, 2 for the 2027 model year, and 1 for the 2028 model year. The yearly results for PC+LDT+MDPV vehicles shall be summed together to determine a cumulative total for PC+LDT+MDPV vehicles. In the 2028 model year, t~~T~~he cumulative total must be equal to or greater than 500 and 100 percent of the manufacturer's passenger cars, light-duty trucks, and medium-duty passenger vehicles must be certified to the 1 mg/mi particulate standard ~~in the 2028 model year~~ to be considered equivalent. A manufacturer may add vehicles introduced before the 2025 model year (e.g., the percent of vehicles introduced in 2024 would be multiplied by 4) to the cumulative total.

1.1.2.1.4.3 **Alternative Phase-in Schedules for the Particulate Standards for Medium-Duty Vehicles Other than Medium-Duty Passenger Vehicles.** A manufacturer may use an alternative phase-in schedule to comply with the particulate standard phase-in requirements as long as equivalent PM emission reductions are achieved by the 2021 model year from medium-duty vehicles other than medium-duty passenger vehicles. Model year emission reductions shall be calculated by multiplying the total percent of MDVs certified to the 8 mg/mi PM standard or to the 10 mg/mi PM standard, as applicable, in a given model year (based on a manufacturer's projected sales volume of vehicles in each category) by 5 for the 2017 model year, 4 for the 2018 model year, 3 for the 2019 model year, 2 for the 2020 model year, and 1 for the 2021 model year. The yearly results for MDVs shall be summed together to determine a cumulative total for MDVs. In the 2021 model year, t~~T~~he cumulative total must be equal to or greater than 490 and 100 percent of the manufacturer's MDVs must be certified to the 8 mg/mi PM standard or to the 10 mg/mi PM standard, as applicable, ~~in the 2021 model year~~ to be considered equivalent. A manufacturer may add vehicles

introduced before the 2017 model year (e.g., the percent of vehicles introduced in 2016 would be multiplied by 5) to the cumulative total.

* * * *

1.2 Supplemental Federal Test Procedure ("SFTP") Exhaust Emission Standards for Light- and Medium-Duty Vehicles.

1.2.1 **4,000-mile SFTP Exhaust Emission Standards for Light- and Medium-Duty Vehicles.** The following standards represent the maximum SFTP exhaust emissions at 4,000 miles for 2015 through ~~2020~~ 2021 model year passenger cars, and light-duty truck and medium-duty vehicles (less than 8,501 pounds gross vehicle weight rating) certifying to the LEV II exhaust emission standards in section E.1.1.1:

SFTP Exhaust Emission Standards for LEV II Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles[1,2]

Vehicle Type	*Gross Vehicle Weight Rating (lbs.)*	*Test Weight*[3] *(lbs.)*	*US06 Test (g/mi)*		*A/C Test (g/mi)*	
			NMHC + NOx	*CO*	*NMHC + NOx*	*CO*
PC	All	All	0.14	8.0	0.20	2.7
LDT	≤ 6000 lbs.	0-3750 lbs.	0.14	8.0	0.20	2.7
		3751-5750 lbs.	0.25	10.5	0.27	3.5
MDV	6,001-8,500 lbs.	3751-5750 lbs.	0.40	10.5	0.31	3.5
		5751-8500 lbs.	0.60	11.8	0.44	4.0

[1] For certification purposes, testing shall be conducted at 4000 miles ±250 miles or at the mileage determined by the manufacturer for emission-data vehicles.

[2] The following definitions apply for purposes of this SFTP standards table only:

"LDT" (light-duty truck) is any motor vehicle rated at 6,000 pounds gross vehicle weight rating or less, which is designed primarily for purposes of transportation of property or is a derivative of such a vehicle, or is available with special features enabling off-street or off-highway operation and use.

"MDV" (medium-duty vehicle) is any motor vehicle having a manufacturer's gross vehicle weight rating of greater than 6,000 pounds and less than 14,001 pounds, except passenger cars and light-duty trucks. Vehicles with a gross vehicle weight rating over 8,500 pounds are exempted from the requirements of this section E.1.2.1.

[3] PCs and LDTs are tested at their loaded vehicle weight (curb weight plus 300 lbs.). MDVs are tested at their adjusted loaded vehicle weight (average of curb weight and GVWR).

1.2.2 **150,000-mile SFTP Exhaust Emission Standards for Light- and Medium-Duty Vehicles.**

1.2.2.1 **SFTP NMOG+NOx and CO Exhaust Emission Standards for Passenger Cars, Light-Duty Trucks, and Medium-Duty Passenger Vehicles.** Manufacturers shall certify 2015 and subsequent model year LEVs, ULEVs, and SULEVs in the PC, LDT, and MDPV classes to either the *SFTP NMOG+NOx and CO*

Stand-Alone Exhaust Emission Standards set forth in section E.1.2.2.1.1, or in accordance with the *SFTP NMOG+NOx and CO Composite Exhaust Emission Standards and Fleet-Average Requirements* set forth in section E.1.2.2.1.2. A manufacturer may also certify 2014 model LEVs, ULEVs, or SULEVs in the PC, LDT, or MDPV classes to LEV III SFTP standards, in which case, the manufacturer shall be subject to the LEV III SFTP emission standards and requirements, including the sales-weighted fleet-average NMOG+NOx composite emission standard applicable to 2015 model vehicles if choosing to comply with the *SFTP NMOG+NOx and CO Composite Exhaust Emission Standards and Fleet-Average Requirements* set forth in subsection E.1.2.2.1.2. The manufacturer shall notify the Executive Officer of its selected emission standard type in the Application for Certification of the first test group certifying to SFTP NMOG+NOx and CO emission standards on a 150,000 mile durability basis. Once an emission standard type for NMOG+NOx and CO is selected for a fleet, and the Executive Officer is notified of such selection, the selection must be kept through the 2025 model year for the entire fleet, which includes LEV II vehicles if selecting to comply with section E.1.2.2.1.2. The manufacturer may not change its selection until the 2026 model year. Test groups not certifying to the 150,000-mile SFTP NMOG+NOx and CO emission standards pursuant to this section E.1.2.2 shall be subject to the 4,000-mile SFTP NMOG+NOx and CO emission standards set forth in section E.1.2.1.

* * * *

1.2.2.1.2 **SFTP NMOG+NOx and CO Composite Exhaust Emission Standards.** For the 2015 and subsequent model years, a manufacturer must certify LEV II and LEV III LEVs, ULEVs, and SULEVs, such that the manufacturer's sales-weighted fleet-average NMOG+NOx composite emission value, does not exceed the applicable NMOG+NOx composite emission standard set forth in the following table. In addition, the CO composite emission value of any LEV III test group shall not exceed the CO composite emission standard set forth in the following table. SFTP compliance shall be demonstrated using the same gaseous or liquid fuel used for FTP certification. In the case of fuel-flexible vehicles, SFTP compliance shall be demonstrated using the LEV III certification gasoline specified in Part II, Section A.100.3.1.2.

For each test group subject to this subsection, manufacturers shall calculate a Composite Emission Value for NMOG+NOx and, for LEV III test groups, a separate Composite Emission Value for CO, using the following equation:

Composite Emission Value = 0.28 x US06 + 0.37 x SC03 + 0.35 x FTP [Eq. 1]

where "US06" = the test group's NMOG+NOx or CO emission value, as applicable, determined through the US06 test;

"SC03" = the test group's NMOG+NOx or CO emission value, as applicable, determined through the SC03 test; and

"FTP" = the test group's NMOG+NOx or CO emission value, as applicable, determined through the FTP test.

If no vehicles in a test group have air conditioning units, the FTP cycle emission value can be used in place of the SC03 value in Equation 1. To determine compliance with the SFTP NMOG+NOx composite emission standard applicable to the model year, manufacturers shall use a sales-weighted fleet average of the NMOG+NOx composite emission values of every applicable test group. The sales-weighted fleet average shall be calculated using a combination of carry-over and new certification SFTP composite emission values (converted to NMOG+NOx, as applicable). LEV II test groups will use their emission values in the fleet average calculation but will not be considered LEV III test groups. Compliance with the CO composite emission standard cannot be demonstrated through fleet averaging. The NMOG+NOx sales-weighted fleet-average composite emission value for the fleet and the CO composite emission value for each test group shall not exceed:

SFTP NMOG+NOx and CO Composite Emission Standards for 2015 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Passenger Vehicles (g/mi) [1]

Model Year	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025+
All PCs; LDTs 8,500 lbs. GVWR or less; and MDPVs[3]	***Sales-Weighted Fleet Average NMOG+NOx Composite Exhaust Emission Standards*** [2,4,5,6]										
	0.140	0.110	0.103	0.097	0.090	0.083	0.077	0.070	0.063	0.057	0.050
Vehicles in this category are tested at their loaded vehicle weight (curb weight plus 300 pounds) except LEV II vehicles which are subject to the test weights specified in 1960.1(r), title 13, CCR.	***CO Composite Exhaust Emission Standard*** [7]										
	4.2										

[1] *Mileage for Compliance.* All test groups certifying to LEV III FTP emission standards on a 150,000-mile durability basis shall also certify to the SFTP on a 150,000-mile durability basis, as tested in accordance with these test procedures.

[2] *Determining NMOG+NOx Composite Emission Values of LEV II Test Groups and Cleaner Federal Vehicles.* For test groups certified to LEV II FTP emission standards, SFTP emission values shall be converted to NMOG+NOx and projected out to 120,000 miles or 150,000 miles (depending on LEV II FTP certification) using deterioration factors or aged components. ~~NMHC emission values for the US06 and SC03 test cycles shall be converted to NMOG emission values by multiplying by a factor of 1.03.~~ In lieu of deriving a deterioration factor specific to SFTP test cycles, carry-over LEV II test groups may use the applicable deterioration factor from the FTP cycle in order to determine the carry-over composite emission values for the purpose of the NMOG+NOx sales-weighted fleet-average calculation. If an SFTP full-useful life emission value is used to comply with the LEV II SFTP 4k

standards, that value may be used in the sales-weighted fleet-average without applying an additional deterioration factor. For federally-certified test groups certifying in California in accordance with Section H subparagraph 1.4, the full-useful life emission value used to comply with federal full-useful life SFTP requirements may be used in the sales-weighted fleet-average without applying an additional deterioration factor. In all cases, NMHC emission values for the US06 and SC03 test cycles shall be converted to NMOG emission values by multiplying by a factor of 1.03.

[3] MDPVs are excluded from SFTP NMOG+NOx and CO emission standards and the sales-weighted fleet average until they are certified to LEV III FTP 150,000-mile NMOG+NOx and CO requirements.

[4] LEV III ~~T~~test groups shall certify to bins in increments of 0.010 g/mi. Beginning with the 2018 model year, vehicles may not certify to bin values above a maximum of 0.180 g/mi.

[5] *Calculating the sales-weighted average for NMOG+NOx.* For each model year, the manufacturer shall calculate its sales-weighted fleet-average NMOG+NOx composite emission value as follows.

$$\frac{\left[\sum_{i=1}^{n}\left(number\ of\ vehicles\ in\ the\ test\ group\right)_i \times \left(composite\ value\ of\ bin\right)_i\right]}{\sum_{i=1}^{n}\left(number\ of\ vehicles\ in\ the\ test\ group\right)_i} \qquad \text{[Eq. 2]}$$

where "n" = a manufacturer's total number of PC, LDT, and, if applicable, MDPV certification bins, in a given model year including carry-over certification bins, certifying to SFTP composite emission standards in that model year;

"number of vehicles in the test group" = the number of vehicles produced and delivered for sale in California in the certification test group; and

"Composite Value of Bin" = the numerical value selected by the manufacturer for the certification bin that serves as the emission standard for the vehicles in the test group with respect to all testing for test groups certifying to SFTP on a 150,000-mile durability basis, and the SFTP carry-over composite emission value, as described in footnote ~~7~~2 of this table, for carry-over LEV II test groups.

* * * *

1.7 Requirement to Generate Additional NMOG+NOx Fleet Average Credit.

A vehicle that is certified to the LEV III standards in section E.1.1.2, which does not generate a partial ZEV allocation according to the criteria set forth in section C.3 of the "California Exhaust Emission Standards and Test Procedures for 2009 through 2017 Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes" and the "California Exhaust Emission Standards and Test Procedures for 2018 and Subsequent Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes," a manufacturer may subtract 5 mg/mi from the NMOG+NOx emission standard value set forth in section E.3.1.1 when calculating the manufacturer's fleet average, provided that the manufacturer extends the performance and defects warranty period to 15 years or 150,000 miles, whichever occurs first, except that the time period is to be 10 years for a zero emission energy storage device (such as battery, ultracapacitor, or other electric storage device).

* * * *

2. Emission Standards Phase-In Requirements for Manufacturers.

2.1 Fleet Average NMOG + NOx Requirements for Passenger Cars, Light-Duty Trucks, and Medium-Duty Passenger Vehicles.

2.1.1 The fleet average non-methane organic gas plus oxides of nitrogen exhaust mass emission values from the passenger cars, light-duty trucks, and medium-duty passenger vehicles produced and delivered for sale in California each model year by a manufacturer other than a small volume manufacturer shall not exceed:

FLEET AVERAGE NON-METHANE ORGANIC GAS PLUS OXIDES OF NITROGEN EXHAUST MASS EMISSION REQUIREMENTS FOR PASSENGER CARS, LIGHT-DUTY TRUCKS, AND MEDIUM-DUTY PASSENGER VEHICLES
(150,000 mile Durability Vehicle Basis)

Model Year	Fleet Average NMOG + NOx (g/mi)	
	All PCs; LDTs 0-3750 lbs. LVW	LDTs 3751 lbs. LVW - 8500 lbs. GVWR; All MDPVs
2014[1]	0.107	0.128
2015	0.100	0.119
2016	0.093	0.110
2017	0.086	0.101
2018	0.079	0.092
2019	0.072	0.083
2020	0.065	0.074
2021	0.058	0.065
2022	0.051	0.056
2023	0.044	0.047
2024	0.037	0.038
2025+	0.030	0.030

[1] For the 2014 model year, a manufacturer may comply with the fleet average NMOG+NOx values in this table in lieu of complying with the NMOG fleet average values in the "California 2001 through 2014 Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2009 through 2016 Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles." A manufacturer must either comply with the NMOG+NOx fleet average requirements for both its PC/LDT1 fleet and its LDT2/MDPV fleet or comply with the NMOG fleet average requirements for both its PC/LDT1 fleet and its LDT2~~MDPV~~ fleet. A manufacturer must calculate its fleet average NMOG+NOx values using the applicable full useful life standards.

* * * *

2.1.1.2 **PZEVs Anti-Backsliding Requirement.** In the 2018 and subsequent model years, a manufacturer must produce and deliver for sale in California a minimum percentage of its passenger car and light-duty truck fleet that certifies to SULEV30 and SULEV20 standards. This minimum percentage must be equal to the average percentage of PZEVs produced and deliver for sale in California for that manufacturer for the 2015 through 2017 model year. A manufacturer may calculate this average percentage using the projected sales for these model years in lieu of actual sales. The percentage of a manufacturer's passenger car and light-duty truck fleet that certifies to SULEV30 and SULEV20 standards averaged across the applicable model year and the two previous model years shall be used to determine compliance with this requirement.

* * * *

2.1.4 **Treatment of ZEVs.** ZEVs classified as LDTs (>3750 lbs. LVW) that have been counted toward the ZEV requirement for PCs and LDTs (0-3750 lbs. LVW) as specified in section C of the "California Exhaust Emission Standards and Test Procedures for 2009 through 2017 Model Zero-Emission Vehicles Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes" and the "California Exhaust Emission Standards and Test Procedures for 2018 and Subsequent Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes," shall be included ~~in this equation~~ as LDT1s in the calculation of a fleet average NMOG+NOx value.

* * * *

2.4 Implementation Schedules for SFTP Emission Standards.

2.4.1 **Phase-In Requirement for PC, LDT, and MDPV Manufacturers.** A test group certifying to LEV III FTP emission categories on a 150,000-mile durability basis shall also certify to SFTP requirements on a 150,000-mile durability basis.

Manufacturers shall have two options for phase in to the SFTP NMOG+NOx and CO emission standards.

* * * *

(b) Under Option 2, for 2015 and subsequent model years, a manufacturer shall certify its fleet of PCs, LDTs, and MDPVs such that the manufacturer's sales-weighted fleet-average NMOG+NOx composite emission value and each test group's CO composite emission value does not exceed the applicable composite emission standards in effect for that model year in accordance with section E.1.2.2.1.2. ~~During the 150,000-mile durability phase-in, the sales-weighted fleet-average NMOG+NOx composite emission value shall be calculated using a combination of carry-over values and new-certification values. Carry-over test groups shall convert values to NMOG+NOx and may use the applicable deterioration factor from the FTP cycle in lieu of deriving a deterioration factor specific to SFTP test cycles. Any vehicle certified to SFTP~~

~~requirements on a 150,000-mile durability basis shall be subject to the applicable emission standards for the full useful life of that vehicle. Compliance with the CO composite emission standard cannot be demonstrated through fleet averaging.~~

Beginning with the 2017 model year, a manufacturer shall certify its PCs, LDTs, and MDPVs certifying to LEV III FTP PM emission standards on a 150,000-mile durability basis to the SFTP PM emission standards in section E.1.2.2.2.

* * * *

2.5 Greenhouse Gas Requirements for Passenger Cars, Light-Duty Trucks, and Medium-Duty Passenger Vehicles.

* * * *

2.5.1 *Fleet Average Carbon Dioxide Requirements for Passenger Cars, Light-Duty Trucks, and Medium-Duty Passenger Vehicles.* For the purpose of determining compliance with this section E.2.5, the applicable fleet average CO_2 mass emissions standards for each model year is the sales-weighted average of the calculated CO_2 exhaust mass emission target values for each manufacturer. For each model year, the sales-weighted fleet average CO_2 mass emissions value shall not exceed the sales-weighted average of the calculated CO_2 exhaust mass emission target values for that manufacturer.

* * * *

2.5.1.3 *Calculation of Fleet Average Carbon Dioxide Standards.* For each model year, a manufacturer must comply with its fleet average CO_2 standards for passenger cars and for light-duty trucks plus medium-duty passenger vehicles, as applicable, calculated for that model year as follows. A manufacturer shall calculate separate fleet average CO_2 values for its passenger car fleet and for its combined light-duty truck plus medium-duty passenger vehicle fleet.

* * * *

2.5.1.3.4 *Optional Compliance Via the 2017 through 2025 MY National Greenhouse Gas Program.*

For the 2017 through 2025 model years, a manufacturer may elect to demonstrate compliance with section E.2.5 by demonstrating compliance with the 2017 through 2025 MY National greenhouse gas program as follows:

2.5.1.3.4.1 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 must comply with section E.2.5;

2.5.1.3.4.2 The manufacturer must submit to ARB all data that it submits to EPA in accordance with the reporting requirements as required under 40 CFR §86.1865-12, for demonstrating compliance with the 2017 through 2025 MY National greenhouse gas program and the EPA determination of compliance. All such data must be submitted within 30 days of receipt of the EPA determination of compliance for each model year that a manufacturer selects compliance with this option;

2.5.1.3.4.3 The manufacturer must provide to the Executive Officer separate values for the number of vehicles produced and delivered for sale in California, the District of Columbia, and each individual state that has adopted California's greenhouse gas emission standards for that model year pursuant to Section 177 of the federal Clean Air Act (42 U.S.C. § 7507), the applicable fleet average CO_2 standards for each of these model types and footprint values, the calculated fleet average CO_2 value for each of these model types and footprint values, and all values used in calculating the fleet average CO_2 values.

* * * *

2.5.3 *Alternative Fleet Average Standards for Manufacturers with Limited U.S. Sales.* Manufacturers meeting the criteria in this section E.2.5.3 may request that the Executive Officer establish alternative fleet average CO_2 standards that would apply instead of the standards in section E.2.5.1. The provisions of this section E.2.5.3 are applicable only to the 2017 and subsequent model years.

* * * *

2.5.3.3 *How to Request Alternative Fleet Average Standards.* Eligible manufacturers may petition for alternative standards for up to five consecutive model years if sufficient information is available on which to base such standards.

* * * *

2.5.3.3.4. A manufacturer may elect to petition for alternative standards under this section E. 2.5.3.3 by submitting to ARB a copy of the data and information submitted to EPA as required under 40 CFR §86.1818-12 (g) (as adopted by the U.S. Environmental Protection Agency on August 28, 2012, 77 Fed. Reg. [insert page], August [insert date], 2012), as incorporated by reference, herein, and the EPA approval of the manufacturer's request for alternative fleet average standards for the 2017 through 2025 MY National Greenhouse Gas Program.

* * * *

2.5.6 *Credits for Reduction of Air Conditioning Direct Emissions.* Manufacturers may generate A/C Direct Emissions Credits by implementing specific air conditioning system technologies designed to reduce air conditioning direct emissions over the useful life

of their vehicles. A manufacturer may only use an A/C Direct Emissions Credit for vehicles within a model type upon approval of the A/C Direct Emissions Credit for that model type by the Executive Officer. The conditions and requirements for obtaining approval of an A/C Direct Emissions Credit are described below.

* * * *

2.5.6.3 The calculation of A/C Direct Emissions Credit depends on the refrigerant or type of system, and is defined in paragraphs E. 2.5.6.3.1, E. 2.5.6.3.2, and E. 2.5.6.3.3.

2.5.6.3.1 HFC-134a vapor compression systems

For A/C systems that use HFC-134a refrigerant, the A/C Direct Emissions Credit shall be calculated using the following formula:

$$A/C\ Direct\ Credit = Direct\ Credit\ Baseline \times (1 - \frac{LR}{Avg\ LR})$$

Where:

Direct Credit Baseline = 12.6 gCO_2e/mi for passenger cars;

Direct Credit Baseline = 15.6 gCO2e/mi for light-duty trucks and medium-duty passenger vehicles;

Avg LR = 16.6 grams/year for passenger cars;

Avg LR = 20.7 grams/year for light-duty trucks and medium-duty passenger vehicles;

LR = the larger of *SAE LR* or *Min LR*;

Where:

SAE LR = initial leak rate evaluated using SAE International's Surface Vehicle Standard SAE J2727 (Revised February 2012 ~~August 2008~~) incorporated by reference in section 1961.2, title 13, CCR;

Min LR = 8.3 grams/year for passenger car A/C systems with belt-driven compressors;

Min LR = 10.4 grams/year for light-duty truck and medium-duty passenger vehicle A/C systems with belt-driven compressors;

Min LR = 4.1 grams/year for passenger car A/C systems with electric compressors;

Min LR = 5.2 grams/year for light-duty truck and medium-duty passenger vehicle A/C systems with electric compressors.

Note: Initial leak rate is the rate of refrigerant leakage from a newly manufactured A/C system in grams of refrigerant per year. The Executive Officer may allow a manufacturer to use an updated version of ~~the August 2008 version of~~ SAE J2727 or an alternate method if s/he determines that the updated SAE J2727 or the alternate method provides more accurate estimates of the initial leak rate of A/C systems than the ~~Revised~~ February 2012 ~~August~~ 2008 version of SAE J2727 does.

2.5.6.3.2 Low-GWP vapor compression systems

For A/C systems that use a refrigerant having a GWP of 150 or less, the A/C Direct Emissions Credit shall be calculated using the following formula:

$$A/C\ Direct\ Credit = Low\ GWP\ Credit - High\ Leak\ Penalty$$

Where:

$$Low\ GWP\ Credit = Max\ Low\ GWP\ Credit \times (1 - \frac{GWP}{1{,}430}),$$

and

$$High\ Leak\ Penalty = \begin{cases} Max\ High\ Leak\ Penalty, & \text{if } SAE\ LR > Avg\ LR; \\ Max\ High\ Leak\ Penalty \times \frac{SAE\ LR - Min\ LR}{Avg\ LR - Min\ LR}, & \text{if } Min\ LR < SAE\ LR \le Avg\ LR; \\ 0, & \text{if } SAE\ LR \le Min\ LR. \end{cases}$$

Where:

Max Low GWP Credit = 13.8 gCO_2e/mi for passenger cars;

Max Low GWP Credit = 17.2 gCO_2e/mi for light-duty trucks and medium-duty passenger vehicles;

GWP = the global warming potential of the refrigerant over a 100-year horizon, as specified in section E.2.5.6.6;

Max High Leak Penalty = 1.8 gCO_2e/mi for passenger cars;

Max High Leak Penalty = 2.1 gCO_2e/mi for light-duty trucks and medium-duty passenger vehicles;

Avg LR = 13.1 g/yr for passenger cars;

Avg LR = 16.6 g/yr for light-duty trucks and medium-duty passenger vehicles;

and where:

SAE LR = initial leak rate evaluated using SAE International's Surface Vehicle Standard SAE J2727 (Revised February 2012 ~~August 2008~~);

Min LR = 8.3 g/yr for passenger cars;

Min LR = 10.4 g/yr for light-duty trucks and medium-duty passenger vehicles.

Note: Initial leak rate is the rate of refrigerant leakage from a newly manufactured A/C system in grams of refrigerant per year. The Executive Officer may allow a manufacturer to use an updated version of ~~the August 2008 version of~~ SAE J2727 or an alternate method if s/he determines that the updated SAE J2727 or the alternate method provides more accurate estimates of the initial leak rate of A/C systems than the ~~Revised~~ February 2012 ~~August 2008~~version of SAE J2727 does.

* * * *

2.5.7 *Credits for Improving Air Conditioning System Efficiency.* Manufacturers may generate CO_2 credits by implementing specific air conditioning system technologies designed to reduce air conditioning-related CO_2 emissions over the useful life of their passenger cars, light-duty trucks, and/or medium-duty passenger vehicles. Credits shall be calculated according to this section E.2.5.7 for each air conditioning system that the manufacturer is using to generate CO_2 credits. The eligibility requirements specified in section E.2.5.7.5 must be met before an air conditioning system is allowed to generate credits.

* * * *

2.5.7.5 For the purposes of this section E.2.5.7.5, the AC17 Test Procedure shall mean the AC17 Air Conditioning Efficiency Test Procedure set forth in 40 CFR §86.167-17, as amended by ~~Part II, Section A.100.5.6 of~~ these test procedures

* * * *

2.5.10 *Mid-Term Review of the 2022 through 2025 MY Standards.* The Executive Officer shall conduct a mid-term review to re-evaluate the state of vehicle technology to determine whether any adjustments to the stringency of the 2022 through 2025 model year standards are appropriate. California's mid-term review will be coordinated with its planned full participation in EPA's mid-term evaluation as set forth in 40 CFR §86.1818-12 (h).

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3. Calculation of Credits/Debits

3.1 Calculation of NMOG+NOx Credits/Debits

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3.1.1.2 In 2015 and subsequent model years, a manufacturer that achieves fleet average NMOG+NOx values lower than the fleet average NMOG+NOx requirement for the corresponding model year shall receive credits in units of g/mi NMOG+NOx . A manufacturer with 2015 and subsequent model year fleet average NMOG+NOx values greater than the fleet average requirement for the corresponding model year shall receive debits in units of g/mi NMOG+NOx equal to the amount of

negative credits determined by the aforementioned equation. The total g/mi NMOG+NOx credits or debits earned for PCs and LDTs 0-3750 lbs. LVW, ~~for LDTs 3751-5750 lbs. LVW~~ and for LDTs 3751 lbs. LVW - 8500 lbs. GVWR and MDPVs shall be summed together. The resulting amount shall constitute the g/mi NMOG+NOx credits or debits accrued by the manufacturer for the model year.

* * * *

3.2 Calculation of Greenhouse Gas Credits/Debits.

Credits and debits that are earned as part of the 2012 through 2016 MY National greenhouse gas program shall not be applicable to California's greenhouse gas program.

* * * *

3.2.4 **Use of Greenhouse Gas Emission Credits to Offset a Manufacturer's ZEV Obligations.**

3.2.4.1 For a given model year, a manufacturer that has Greenhouse Gas credits remaining after equalizing all of its Greenhouse Gas debits may use those Greenhouse Gas credits to comply with its ZEV obligations for that model year, in accordance with the provisions set forth in the ~~"California Exhaust Emission Standards and Test Procedures for 2009 through 2017 Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes," incorporated by reference in section 1962.1, title 13, CCR, or the~~ "California Exhaust Emission Standards and Test Procedures for 2018 and Subsequent Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes," incorporated by reference in section 1962.2, title 13, CCR.

* * * *

4. LEV III Criteria Pollutant Interim In-Use Compliance Standards.

* * * *

4.2 **LEV III Particulate Interim In-Use Compliance Standards.**

4.2.1 **LEV III Particulate Interim In-Use Compliance Standards for Passenger Cars, Light-Duty Trucks, and Medium-Duty Passenger Vehicles.** For the 2017 through 202~~1~~0 model years, the interim in-use compliance standard for vehicles certifying to the 3 mg/mi particulate standard is 6 mg/mi. For the 2025 through 2028 model years, the interim in-use compliance standard for vehicles certifying to the 1 mg/mi particulate standard is 2 mg/mi.

* * * *

F. Requirements and Procedures for Durability Demonstration

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4. §86.1823 Durability demonstration procedures for exhaust emissions.

* * * *

4.2 §86.1823-08. [as adopted by EPA on August 28, 2012, 77 Fed. Reg. [insert page], August [insert date], 2012~~Insert Federal Register for the 2017 and subsequent MY National Greenhouse Gas Final Rule as proposed at 76 Fed. Reg. 74854, 75371 (December 1, 2011)~~]. [No change, except that subparagraph (m) applies only to vehicles certifying to the 2012 through 2016 MY National greenhouse gas program.]

4.3 **SFTP**. These procedures are not applicable to vehicles certified to the SFTP standards set forth in section E.1.2.~~2~~1.

4.4 **HEVs**. A manufacturer shall consider expected customer usage as well as emissions deterioration when developing its durability demonstration for HEVs.

4.5 Separate deterioration factors must be calculated and reported for NMOG emissions and for NOx emissions for each durability group.

* * * *

G. Procedures for Demonstration of Compliance with Emission Standards

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3. §86.1829 Durability data and emission data testing requirements; waivers.

* * * *

3.1 §86.1829-01. ~~May 7, 2010~~ [as adopted by EPA on August 28, 2012, 77 Fed. Reg. [insert page], August [insert date], 2012~~Insert Federal Register for the 2017 and subsequent MY National Greenhouse Gas Final Rule as proposed at 76 Fed. Reg. 74854, 75371 (December 1, 2011)~~]. Amend as follows:

* * * *

H. Certification, Information and Reporting Requirements.

1. §86.1841 Compliance with emission standards for the purpose of certification

1.1 §86.1841-01. July 6, 2011. [No Change.]

1.1.1 For vehicles operating on natural gas, the methane mass emission value shall be multiplied by 0.0047 (the methane reactivity adjustment factor) and added to the NMOG mass emission value and the NOx mass emission value. This result shall be

compared to the NMOG+NOx exhaust emission standards to determine compliance with the standards.

* * * *

1.4 **Certification of a Federal Vehicle in California.**

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1.4.1 Except as noted in H.1.4.1.1 and H.1.4.1.2, ~~I~~if a federally-certified vehicle model is certified in California in accordance with subparagraph 1.4, the model shall be subject to the federal requirements for FTP exhaust emissions and cold CO emissions. The vehicle model shall be subject to all other California requirements including evaporative emissions, OBD II, SFTP emissions, 50°F exhaust emissions, highway NMOG+NOx emissions, greenhouse gas emissions, and emissions warranty.

1.4.1.1 A vehicle certified to federal Tier II emission Bin 3 or Bin 4 is not required to meet California 50°F exhaust emissions requirements.

1.4.1.2 If a federally-certified vehicle model is certified in California in accordance with subparagraph 1.4 based on a comparison of the sum of the 120,000 mile federal standards to the sum of the 120,000 mile LEV II NMOG and NOx standards, that federally-certified vehicle model shall be subject to the federal requirements for highway NOx and is not required to meet California highway NMOG+NOx emissions requirements.

1.4.2 Prior to certification of a 2015 or subsequent model-year vehicle, a manufacturer must submit information sufficient to enable the Executive Officer to determine whether there is a federally-certified vehicle model for that model year that is equivalent to the California vehicle model based on the criteria listed in subparagraph 1.~~5~~4.

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1.4.6 The tune up label shall meet the federal requirements applicable to such a vehicle with an additional sentence which reads: "This vehicle conforms to federal regulations and is certified for sale in California." The value used in the California Environmental Performance Label shall be the California emission category to which the vehicle was deemed certified for fleet average NMOG~~+~~NOx purposes.

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3. §86.1843 General information requirements

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3.2 **Alternative Fuel Information.**

For passenger cars, light-duty trucks, and medium-duty vehicles ~~not certified exclusively on gasoline or diesel, except for vehicles that use hydrogen fuel, the manufacturer shall submit projected California sales and fuel economy data nineteen months prior to January 1 of the model year for which the vehicles are certified. For vehicles~~ that use hydrogen fuel, the manufacturer shall submit projected California sales and leases, fuel economy data, vehicle fuel pressure rating, name of air basin(s) where vehicles will be delivered for sale or lease, and number of vehicles projected to be delivered to each air basin, thirty-three months prior to January 1 of the model year for which the vehicles are certified.

* * * *

I. In-Use Compliance Requirements and Procedures

1. §86.1845 Manufacturer in-use verification testing requirements.

1.1 §86.1845-04. May 7, 2010. Amend as follows:

* * * *

1.1.3 **High Mileage Testing.** Amend subparagraph (c)(2) of 40 CFR §86.1845-04 to read as follows: All test vehicles certified to the emission standards in Part I, Section E.1.1.1 of these procedures must have a minimum odometer mileage of 50,000 miles. At least one vehicle of each test group certified to the emission standards in Part I, Section E.1.1.1 of these procedures must have a minimum age and odometer mileage of 75,000 for light-duty vehicles and 90,000 miles for medium-duty vehicles. All test vehicles certified to the emission standards in Part I, Section E.1.1.2 of these test procedures must have a minimum age and odometer mileage of ~~112,500~~ 105,000 miles. See §86.1838-01(c)(2) for small volume manufacturer mileage requirements.

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J. Procedural Requirements

* * * *

1. §86.1848-10 Certification. ~~July 6, 2011~~ [as adopted by EPA on August 28, 2012, 77 Fed. Reg. [insert page], August [insert date], 2012~~Insert Federal Register for the 2017 and subsequent MY National Greenhouse Gas Final Rule as proposed at 76 Fed. Reg. 74854, 75371 (December 1, 2011)~~]. [No change.]

* * * *

13. §86.1865-12 How to comply with the fleet average CO_2 standards. [as adopted by EPA on August 28, 2012, 77 Fed. Reg. [insert page], August [insert date], 2012~~Insert Federal~~

~~Register for the 2017 and subsequent MY National Greenhouse Gas Final Rule as proposed at 76 Fed. Reg. 74854, 75371 (December 1, 2011)~~]. [No change, except that this section shall only apply to vehicles certifying under the 2012 through 2016 MY National greenhouse gas program.]

14. §86.1866-12 CO_2 ~~fleet average~~ credits for advanced technology vehicles ~~programs~~. [as adopted by EPA on August 28, 2012, 77 Fed. Reg. [insert page], August [insert date], 2012~~Insert Federal Register for the 2017 and subsequent MY National Greenhouse Gas Final Rule as proposed at 76 Fed. Reg. 74854, 75372 (December 1, 2011)~~]. [No change, except that for the 2012 through 2016 model years this section shall only apply to vehicles certifying under the 2012 through 2016 MY National greenhouse gas program.]
15. §86.1867-12 Optional early CO_2 credit programs. [as adopted by EPA on August 28, 2012, 77 Fed. Reg. [insert page], August [insert date], 2012~~Insert Federal Register for the 2017 and subsequent MY National Greenhouse Gas Final Rule as proposed at 76 Fed. Reg. 74854, 75387 (December 1, 2011)~~]. [No change, except that this section shall only apply to vehicles certifying under the 2012 through 2016 MY National greenhouse gas program.]

PART II: CALIFORNIA EXHAUST AND PARTICULATE EMISSION TEST PROCEDURES FOR PASSENGER CARS, LIGHT-DUTY TRUCKS AND MEDIUM-DUTY VEHICLES

This part describes the equipment required and the procedures necessary to perform gaseous and particulate exhaust emission tests (40 CFR Part 86, Subpart B); cold temperature test procedures (40 CFR Part 86, Subpart C); the California 50°F test procedure; and the supplemental federal test procedure (40 CFR Part 86, Subpart B) on passenger cars, light-duty trucks and medium-duty vehicles.

A. 40 CFR Part 86, Subpart B - Emission Regulations for 1977 and Later Model Year New Light-Duty Vehicles and New Light-Duty Trucks and New Otto-Cycle Complete Heavy-Duty Vehicles; Test Procedures.

* * * *

100.2 Equipment and Facility Requirements.

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86.111-94 Exhaust gas analytical-system. [as adopted by EPA on August 28, 2012, 77 Fed. Reg. [insert page], August [insert date], 2012~~Insert Federal Register for the 2017 and subsequent MY National Greenhouse Gas Final Rule as proposed at 76 Fed. Reg. 74854, 75357 (December 1, 2011)~~]. [No change.]

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100.5 Test Procedures and Data Requirements.

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86.135-12 Dynamometer procedure. [as adopted by EPA on August 28, 2012, 77 Fed. Reg. [insert page], August [insert date], 2012~~Insert Federal Register for the 2017 and subsequent MY National Greenhouse Gas Final Rule as proposed at 76 Fed. Reg. 74854, 75357 (December 1, 2011)~~]. [No change.]

* * * *

86.159-08 Exhaust emission test procedures for US06 emissions. December 27, 2006.

100.5.5 California exhaust emission test procedures for US06 emissions.

* * * *

100.5.5.2 Delete subparagraph (b)(9) of §86.159-08 and replace with:

During dynamometer operation, a fixed speed cooling fan with a maximum discharge velocity of 15,000 cubic feet per minute or a road speed modulated fan as specified in §86.107–96(d)(1) may be used. The fan shall be positioned so as to direct cooling air to the vehicle in an appropriate manner. The engine compartment cover shall remain open if a fixed speed cooling fan is used and closed if a road speed modulated fan is used. In the case of vehicles with front engine compartments, the fan shall be squarely positioned within 24 inches (61 centimeters) of the vehicle. In the case of vehicles with rear engine compartments (or if special designs make the above impractical), the cooling fan shall be placed in a position to provide sufficient air to maintain vehicle cooling. The Executive Officer may approve modified cooling configurations or additional cooling if necessary to satisfactorily perform the test. In approving requests for additional or modified cooling, the Executive Officer will consider such items as actual road cooling data and whether such additional cooling is needed to provide a representative test.

100.5.5.3 **Hot 1435 LA92 (Hot 1435 Unified Cycle) Test Procedure.**

Amend §86.159-08 as follows: Add the following sentences: The exhaust PM emissions shall be measured using equivalent measurement techniques as those used to measure exhaust PM emissions on the FTP cycle except that provisions accounting for the cold start portion of the FTP cycle (including factors used to weight emission values from the different phases) shall be ignored. The NMOG, CO, NOx, and formaldehyde emissions shall be measured according to the US06 Test Procedure as set forth in Subpart B, 40 CFR 86.159-08 with the following modifications:

* * * *

2. Amend 40 CFR 86.159-08 as follows:

* * * *

2.2 Paragraph (b)

2.2.1 Subparagraphs (1) through (8) [No change.]

2.2.2 Delete subparagraph (9); replace with: **Dynamometer activities.**

During dynamometer operation, a fixed speed cooling fan with a maximum discharge velocity of 15,000 cubic feet per minute or a road speed modulated fan as specified in §86.107–96(d)(1) may be used. The fan shall be positioned so as to direct cooling air to the vehicle in an appropriate manner. The engine compartment cover shall remain open if a fixed speed cooling fan is used and closed if a road speed modulated fan is used. In the case of vehicles with front engine compartments, the fan shall be squarely positioned within 24 inches (61 centimeters) of the vehicle. In the case of vehicles with rear engine compartments (or if special designs make the above impractical), the cooling fan shall be placed in a position to provide sufficient air to maintain vehicle cooling. The Executive Officer may approve modified cooling configurations or additional cooling if necessary to satisfactorily perform the test. In approving requests for additional or modified cooling, the Executive Officer will consider such items as actual road cooling data and whether such additional cooling is needed to provide a representative test.

2.3 Paragraph (c) through (f) [No change.]

100.5.5.4 **US06 Bag 2 Test Procedure.**

Amend §86.159-08 as follows: Add the following sentences: The exhaust PM emissions shall be measured using equivalent measurement techniques as those used to measure exhaust PM emissions on the FTP cycle except that provisions accounting for the cold start portion of the FTP cycle (including factors used to weight emission values from the different phases) shall be ignored. The NMOG, CO, NOx, and formaldehyde emissions shall be measured according to the US06 Test Procedure as set forth in Subpart B, 40 CFR §86.159-08 with the following modifications:

* * * *

2. Amend 40 CFR 86.159-08 as follows:

* * * *

2.2 Paragraph (b)

2.2.1 Subparagraphs (1) through (8) [No change.]

2.2.2 Delete subparagraph (9); replace with: **Dynamometer activities.**

During dynamometer operation, a fixed speed cooling fan with a maximum discharge velocity of 15,000 cubic feet per minute or a road speed modulated fan as specified in § 86.107–96(d)(1) may be used. The fan shall be positioned so as to direct cooling air to the vehicle in an appropriate manner. The engine compartment cover shall remain open if a fixed speed cooling fan is used and closed if a road speed modulated fan is used. In the case of vehicles with

front engine compartments, the fan shall be squarely positioned within 24 inches (61 centimeters) of the vehicle. In the case of vehicles with rear engine compartments (or if special designs make the above impractical), the cooling fan shall be placed in a position to provide sufficient air to maintain vehicle cooling. The Executive Officer may approve modified cooling configurations or additional cooling if necessary to satisfactorily perform the test. In approving requests for additional or modified cooling, the Executive Officer will consider such items as actual road cooling data and whether such additional cooling is needed to provide a representative test.

2.3 Paragraph (c) through (f) [No change.]

* * * *

86.165-12 Air Conditioning idle test procedure. [as adopted by EPA on August 28, 2012, 77 Fed. Reg. [insert page], August [insert date], 2012~~Insert Federal Register for the 2017 and subsequent MY National Greenhouse Gas Final Rule as proposed at 76 Fed. Reg. 74854, 75357 (December 1, 2011)~~]. [No change, except that for the 2016 model year~~s~~, this section shall only apply to vehicles certifying under the 2012 through 2016 MY National greenhouse gas program.]

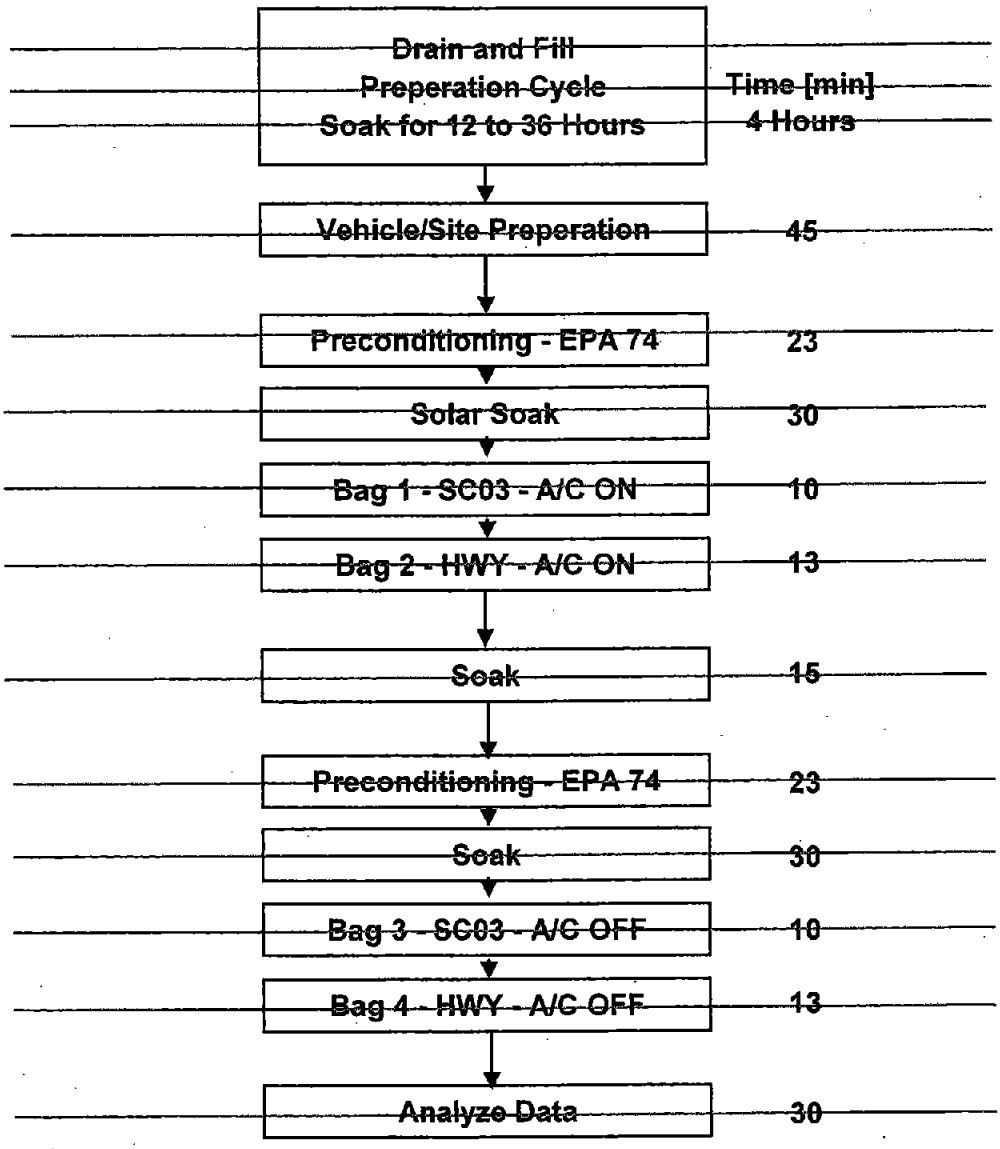
~~86.166-12 Method for calculating emissions due to air conditioning leakage. [Insert Federal Register for the 2017 and subsequent MY National Greenhouse Gas Final Rule as proposed at 76 Fed. Reg. 74854, 75357 (December 1, 2011)]. [No change, except that this section shall only apply to vehicles certifying under the 2012 through 2016 MY National greenhouse gas program.]~~

86.167-17 AC17 Air Conditioning ~~Efficiency~~ Emissions Test Procedure. [as adopted by EPA on August 28, 2012, 77 Fed. Reg. [insert page], August [insert date], 2012~~Insert Federal Register for the 2017 and subsequent MY National Greenhouse Gas Final Rule as proposed at 76 Fed. Reg. 74854, 75358 (December 1, 2011)~~]. [No change, except that for the 2012 through 2016 model years, this section shall only apply to vehicles certifying under the 2012 through 2016 MY National greenhouse gas program.]

~~**100.5.6 AC17 Air Conditioning Efficiency Test Procedure.**~~

~~1. Overview. The dynamometer operation consists of four elements: a pre-conditioning cycle, a 30 minute soak period under simulated solar heat, an SC03 drive cycle, and a Highway Fuel Economy Test (HWFET) drive cycle. The vehicle is preconditioned with the UDDS to bring the vehicle to a warmed-up stabilized condition. This preconditioning is followed by a 30 minute vehicle soak (engine off) that proceeds directly into the SC03 driving schedule, during which continuous proportional samples of gaseous emissions are collected for analysis. The SC03 driving schedule is followed immediately by the HWFET cycle, during which continuous proportional samples of gaseous emissions are collected for analysis. The entire test, including the preconditioning driving, vehicle soak, and SC03 and HWFET official test cycles, is conducted in an environmental test facility. The environmental test facility must be capable of providing the following nominal ambient test conditions of: 77 °F air~~

~~temperature, 50 percent relative humidity, a solar heat load intensity of 850 W/m2, and vehicle cooling air flow proportional to vehicle speed. Section §86.161–00 discusses the minimum facility requirements and corresponding control tolerances for air conditioning ambient test conditions. The entire test sequence is run twice; with and without the vehicle's air conditioner operating during the SC03 and HFET test cycles. For gasoline-fueled Otto-cycle vehicles, the composite samples collected in bags are analyzed for THC, CO, CO_2, and CH_4. For petroleum-fueled diesel-cycle vehicles, THC is sampled and analyzed continuously according to the provisions of §86.110. Parallel bag samples of dilution air are analyzed for THC, CO, CO_2, and CH_4. The following figure shows the basic sequence of the test procedure.~~



~~2. **Dynamometer requirements.**~~

~~2.1 Tests shall be run on a large single roll electric dynamometer or an equivalent dynamometer configuration that satisfies the requirements of §86.108-00.~~

~~2.2 Position (vehicle can be driven) the test vehicle on the dynamometer and restrain.~~

~~2.3 Required dynamometer inertia weight class selections are determined by the test vehicle's test weight basis and corresponding equivalent weight as listed in the tabular information of §86.129-00(a) and discussed in §86.129-00 (e) and (f).~~

~~2.4 Set the dynamometer test inertia weight and roadload horsepower requirements for the test vehicle (see §86.129-00 (e) and (f)). The dynamometer's~~

~~horsepower adjustment settings shall be set such that the force imposed during dynamometer operation matches actual road load force at all speeds.~~

~~2.5 The vehicle speed as measured from the dynamometer rolls shall be used. A speed vs. time recording, as evidence of dynamometer test validity, shall be supplied at request of the Executive Officer.~~

~~2.6 The drive wheel tires may be inflated up to a gauge pressure of 45 psi (310 kPa), or the manufacturer's recommended pressure if higher than 45 psi, in order to prevent tire damage. The drive wheel tire pressure shall be reported with the test results.~~

~~2.7 The driving distance, as measured by counting the number of dynamometer roll or shaft revolutions, shall be determined for the test.~~

~~2.8 Four-wheel drive and all-wheel drive vehicles may be tested either in a four-wheel drive or a two-wheel drive mode of operation. In order to test in the two-wheel drive mode, four-wheel drive and all-wheel drive vehicles may have one set of drive wheels disengaged; four-wheel and all-wheel drive vehicles which can be shifted to a two-wheel mode by the driver may be tested in a two-wheel drive mode of operation.~~

~~3. **Test cell ambient conditions.**~~

~~3.1 **Ambient air temperature.**~~

~~3.1.1 Ambient air temperature is controlled, within the test cell, during all phases of the test sequence to 77 ±2 °F on average and 77 ±5 °F as an instantaneous measurement.~~

~~3.1.2 Air temperature is recorded continuously at a minimum of 30 second intervals. Records of cell air temperatures and values of average test temperatures are maintained by the manufacturer for all certification related programs.~~

~~3.2 **Ambient humidity.**~~

~~3.2.1 Ambient humidity is controlled, within the test cell, during all phases of the test sequence to an average of 69 ±5 grains of water/pound of dry air.~~

~~3.2.2 Humidity is recorded continuously at a minimum of 30 second intervals. Records of cell humidity and values of average test humidity are maintained by the manufacturer for all certification related programs.~~

~~3.3 **Solar heat loading.** The requirements of 86.161-00(d) regarding solar heat loading specifications shall apply. The solar load of 850 W/m^2 is applied only during specified portions of the test sequence.~~

~~4. **Interior temperature measurement.** The interior temperature of the vehicle shall be measured during the emission sampling phases of the test(s).~~

~~4.1 Interior temperatures shall be measured by placement of thermocouples at the following locations:~~

~~4.1.1 The outlet of the center duct on the dash.~~

~~4.1.2 Behind the driver and passenger seat headrests. The location of the temperature measuring devices shall be 30 mm behind each headrest and 330 mm below the roof.~~

~~4.2 The temperature at each location shall be recorded a minimum of every 5 seconds.~~

5. **Air conditioning system settings.** For the portion of the test where the air conditioner is required to be operating the settings shall be as follows:

5.1 Automatic systems shall be set to automatic and the temperature control set to 72 °F.

5.2 Manual systems shall be set at the start of the SC03 drive cycle to full cool with the fan on the highest setting and the airflow setting to "recirculation." Within the first idle period of the SC03 drive cycle (186 to 204 seconds) the fan speed shall be reduced to the setting closest to 6 volts at the motor, the temperature setting shall be adjusted to provide 55 °F at the center dash air outlet, and the airflow setting changed to "outside air."

6. **Vehicle and test activities.** The AC17 air conditioning test in an environmental test cell is composed of the following sequence of activities.

6.1 Drain and fill the vehicle's fuel tank to 40 percent capacity with test fuel. If a vehicle has gone through the drain and fuel sequence less than 72 hours previously and has remained under laboratory ambient temperature conditions, this drain and fill operation can be omitted (see §86.132-00(c)(2)(ii)).

6.2.1 Position the variable speed cooling fan in front of the test vehicle with the vehicle's hood down. This air flow should provide representative cooling at the front of the test vehicle (air conditioning condenser and engine) during the driving cycles. See §86.161-00(e) for a discussion of cooling fan specifications.

6.2.2 In the case of vehicles with rear engine compartments (or if this front location provides inadequate engine cooling), an additional cooling fan shall be placed in a position to provide sufficient air to maintain vehicle cooling. The fan capacity shall normally not exceed 5300 cfm (2.50 m^3/s). If, however, it can be demonstrated that during road operation the vehicle receives additional cooling, and that such additional cooling is needed to provide a representative test, the fan capacity may be increased or additional fans used if approved in advance by the Executive Officer.

6.3 Open all vehicle windows.

6.4 Connect the emission test sampling system to the vehicle's exhaust tail pipe(s).

6.5 Set the environmental test cell ambient test conditions to the conditions defined in paragraph (c) of this section, except that the solar heat shall be off.

6.6 Set the air conditioning system controls to off.

6.7 Start the vehicle (with air conditioning system off) and conduct a preconditioning EPA urban dynamometer driving cycle (§86.115).

6.7.1 If engine stalling should occur during any air conditioning test cycle operation, follow the provisions of §86.136-90 (Engine starting and restarting).

6.7.2 For manual transmission vehicles, the vehicle shall be shifted according the provisions of §86.128-00.

6.8 Following the preconditioning cycle, the test vehicle and cooling fan(s) are turned off, all windows are rolled up, and the vehicle is allowed to soak in the ambient conditions of paragraph (c)(1) of this section for 30 ±1 minutes. The solar heat system must be turned on and generating 850 W/m^2 within 1 minute of turning the engine off.

6.9 **Air conditioning on test.**

~~6.9.1 Start engine (with air conditioning system also running). Fifteen seconds after the engine starts, place vehicle in gear.~~

~~6.9.2 Eighteen seconds after the engine starts, begin the initial vehicle acceleration of the SC03 driving schedule.~~

~~6.9.3 Operate the vehicle according to the SC03 driving schedule, as described in 40 CFR Part 86 Appendix I, paragraph (h), while sampling the exhaust gas.~~

~~6.9.4 At the end of the deceleration which is scheduled to occur at 594 seconds, simultaneously switch the sample flows from the SC03 bags and samples to the "HWFET" bags and samples, switch off gas flow measuring device No. 1, switch off the No. 1 petroleum-fueled diesel hydrocarbon integrator, mark the petroleum-fueled diesel hydrocarbon recorder chart, and start gas flow measuring device No. 2, and start the petroleum-fueled diesel hydrocarbon integrator No. 2.~~

~~6.9.5 Allow the vehicle to idle for 14-16 seconds. Before the end of this idle period, record the measured roll or shaft revolutions and reset the counter or switch to a second counter. As soon as possible transfer the SC03 exhaust and dilution air samples to the analytical system and process the samples according to §86.140 obtaining a stabilized reading of the bag exhaust sample on all analyzers within 20 minutes of the end of the sample collection phase of the test. Obtain methanol and formaldehyde sample analyses, if applicable, within 24 hours of the end of the sample collection phase of the test.~~

~~6.9.6 Operate the vehicle according to the HWFET driving schedule, as described in 40 CFR 600.109-08, while sampling the exhaust gas.~~

~~6.9.7 Turn the engine off 2 seconds after the end of the last deceleration.~~

~~6.9.8 Five seconds after the engine stops running, simultaneously turn off gas flow measuring device No. 2 and if applicable, turn off the petroleum-fueled diesel hydrocarbon integrator No. 2, mark the hydrocarbon recorder chart, and position the sample selector valves to the "standby" position. Record the measured roll or shaft revolutions (both gas meter or flow measurement instrumentation readings), and re-set the counter. As soon as possible, transfer the HWFET exhaust and dilution air samples to the analytical system and process the samples according to §86.140, obtaining a stabilized reading of the exhaust bag sample on all analyzers within 20 minutes of the end of the sample collection phase of the test. Obtain methanol and formaldehyde sample analyses, if applicable, within 24 hours of the end of the sample period.~~

~~6.10 **Air conditioning off test.** The air conditioning off test is identical to the steps identified in paragraphs 6.1 through 6.9 of this section, except that the air conditioning system and fan speeds are set to complete off or the lowest. It is preferred that the air conditioning off test be conducted sequentially after the air conditioning on test, following a 10-15 minute soak.~~

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APPENDIX C

California Environmental Protection Agency
AIR RESOURCES BOARD

PROPOSED

CALIFORNIA 2001 THROUGH 2014 MODEL CRITERIA POLLUTANT EXHAUST EMISSION STANDARDS AND TEST PROCEDURES AND 2009 THROUGH 2016 MODEL GREENHOUSE GAS EXHAUST EMISSION STANDARDS AND TEST PROCEDURES FOR PASSENGER CARS, LIGHT-DUTY TRUCKS, AND MEDIUM-DUTY VEHICLES

Adopted:	August 5, 1999
Amended:	December 27, 2000
Amended:	July 30, 2002
Amended:	September 5, 2003 (corrected February 20, 2004)
Amended:	May 28, 2004
Amended:	August 4, 2005
Amended:	June 22, 2006
Amended:	October 17, 2007
Amended:	May 2, 2008
Amended:	December 2, 2009
Amended:	February 22, 2010
Amended:	March 29, 2010
Amended:	September 27, 2010
Amended:	March 22, 2012
Amended:	[INSERT DATE OF AMENDMENT]

Note: The proposed amendments to this document are shown in underline to indicate additions and ~~strikeout~~ to indicate deletions compared to the test procedures as adopted March 22, 2012. [No change] indicates proposed federal provisions that are also proposed for incorporation herein without change. Existing intervening text that is not amended in this rulemaking is indicated by "* * * *".

Date of Release: September 14, 2012; 45-day Notice Version
Date of Hearing: November 15, 2012

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CALIFORNIA 2001 THROUGH 2014 MODEL CRITERIA POLLUTANT EXHAUST EMISSION STANDARDS AND TEST PROCEDURES AND 2009 THROUGH 2016 MODEL GREENHOUSE GAS EXHAUST EMISSION STANDARDS AND TEST PROCEDURES FOR PASSENGER CARS, LIGHT-DUTY TRUCKS AND MEDIUM-DUTY VEHICLES

The provisions of Subparts B, C, and S, Part 86, Title 40, Code of Federal Regulations, as adopted or amended on May 4, 1999 or as last amended on such other date set forth next to the 40 CFR Part 86 section title listed below, and to the extent they pertain to exhaust emission standards and test procedures, are hereby adopted as the "California 2001 through 2014 Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2009 through 2016 Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles," with the following exceptions and additions.

PART I: GENERAL PROVISIONS FOR CERTIFICATION AND IN-USE VERIFICATION OF EMISSIONS

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B. Definitions, Acronyms and Abbreviations

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2. California Definitions.

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"**Small volume manufacturer**" means any manufacturer that meets the "small volume manufacturer" definition as set forth in section 1900, title 13, CCR. ~~whose projected or combined California sales of passenger cars, light-duty trucks, medium-duty vehicles, heavy-duty vehicles and heavy-duty engines in its product line are fewer than 4,500 units based on the average number of vehicles sold for the three previous consecutive model years for which a manufacturer seeks certification. A manufacturer's California sales shall consist of all vehicles or engines produced by the manufacturer and delivered for sale in California, except that vehicles or engines produced by the manufacturer and marketed in California by another manufacturer under the other manufacturer's nameplate shall be treated as California sales of the marketing manufacturer. For the 2009 through 2016 model years, the annual sales from different firms shall be aggregated in the following situations: (1) vehicles produced by two or more firms, one of which is 10% or greater part owned by another; or (2) vehicles produced by any two or more firms if a third party has equity ownership of 10% or more in each of the firms; or (3) vehicles produced by two or more firms having a common corporate officer(s) who is (are) responsible for the overall direction of the companies; or (4) vehicles imported or distributed by all firms where the vehicles are manufactured by the same entity and the importer or distributor is an authorized agent of the entity.~~

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E. California Exhaust Emission Standards.

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2. Emission Standards Phase-In Requirements for Manufacturers

2.1 Fleet Average NMOG Requirements for Passenger Cars and Light-Duty Trucks.

2.1.1 The fleet average non-methane organic gas exhaust mass emission values from the passenger cars and light-duty trucks produced and delivered for sale in California each model year by a manufacturer other than a small volume manufacturer or an independent low volume manufacturer shall not exceed:

FLEET AVERAGE NON-METHANE ORGANIC GAS EXHAUST MASS EMISSION REQUIREMENTS FOR LIGHT-DUTY VEHICLE WEIGHT CLASSES
(50,000 mile Durability Vehicle Basis)

Model Year	Fleet Average NMOG (g/mi)	
	All PCs; LDTs 0-3750 lbs. LVW	LDTs 3751 lbs. LVW - 8500 lbs. GVW
2001	0.070	0.098
2002	0.068	0.095
2003	0.062	0.093
2004	0.053	0.085
2005	0.049	0.076
2006	0.046	0.062
2007	0.043	0.055
2008	0.040	0.050
2009	0.038	0.047
2010-2014[1]	0.035	0.043

[1] For the 2014 model year only, a manufacturer may comply with the fleet average NMOG+NOx values in the "California 2015 and Subsequent Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Greenhouse Gas Exhaust Emission Standards and Test Procedures Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles," in lieu of complying with the NMOG fleet average values in this table. A manufacturer must either comply with the NMOG+NOx fleet average requirements for both its PC/LDT1 fleet and its LDT2/MDPV fleet or comply with the NMOG fleet average requirements for

both its PC/LDT1 fleet and its LDT2~~/MDPV~~ fleet. A manufacturer must calculate its fleet average NMOG+NOx values using the applicable full useful life standards.

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F. Requirements and Procedures for Durability Demonstration

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4. §86.1823 Durability demonstration procedures for exhaust emissions.

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4.2 §86.1823-08. ~~September 15, 2011~~[as adopted by EPA on August 28, 2012, 77 Fed. Reg. [insert page], August [insert date]]. [No change, except that subparagraph (m) applies only to vehicles certifying to the 2012 through 2016 MY National greenhouse gas program.]

* * * *

G. Procedures for Demonstration of Compliance with Emission Standards

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3. §86.1829 Durability data and emission data testing requirements; waivers.

* * * *

3.1 §86.1829-01. ~~May 7, 2010~~ [as adopted by EPA on August 28, 2012, 77 Fed. Reg. [insert page], August [insert date]]. Amend as follows:

* * * *

H. Certification, Information and Reporting Requirements.

* * * *

3. §86.1843 General information requirements

3.1 §86.1843-01 [No change.]

3.2 **Alternative Fuel Information.**

For passenger cars, light-duty trucks, and medium-duty vehicles ~~not certified exclusively on gasoline or diesel, except for vehicles that use hydrogen fuel, the manufacturer shall submit projected California sales and fuel economy data nineteen months prior to January 1 of the model year for which the vehicles are certified. For vehicles~~ that use hydrogen fuel, the manufacturer shall submit projected California sales and leases, fuel economy data, vehicle fuel

pressure rating, name of air basin(s) where vehicles will be delivered for sale or lease, and number of vehicles projected to be delivered to each air basin, thirty-three months prior to January 1 of the model year for which the vehicles are certified. For calendar year 2012 only, the manufacturer of vehicles that use hydrogen fuel shall submit projected California sales and leases, fuel economy data, vehicle fuel pressure rating, name of air basin(s) where vehicles will be delivered for sale or lease, and number of vehicles projected to be delivered to each air basin, twenty-nine months prior to January 1 of the model year for which the vehicles are certified.

* * * *

I. In-Use Compliance Requirements and Procedures

1. §86.1845 Manufacturer in-use verification testing requirements.

1.1 §86.1845-01. December 8, 2005. Amend as follows:

* * * *

1.1.3 **High Mileage Testing.** Amend subparagraph (c)(2) of 40 CFR §86.1845-01 to read: All test vehicles must have a minimum odometer mileage of 50,000 miles. At least one vehicle of each test group certified to the emission standards in Section E.1.1.1 must have a minimum age and odometer mileage of 75,000 for light-duty vehicles and 90,000 miles for medium-duty vehicles. At least one vehicle of each test group certified to the 120,000-mile and 150,000-mile emission standards in Section E.1.1.2 must have a minimum age and odometer mileage of 90,000 miles and ~~112,500~~ 105,000 miles, respectively. See §86.1838-01(c)(2) for small volume manufacturer mileage requirements.

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J. Procedural Requirements

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3. §86.1848-10 Certification. ~~July 6, 2011~~ [as adopted by EPA on August 28, 2012, 77 Fed. Reg. [insert page], August [insert date], 2012]. [No change, except that this version of §86.1848-10 shall only apply to vehicles certifying under the 2012 through 2016 MY National greenhouse gas program.]

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15. §86.1865-12 How to comply with the fleet average CO_2 standards. ~~September 15, 2011~~ [as adopted by EPA on August 28, 2012, 77 Fed. Reg. [insert page], August [insert date],

2012]. [No change, except that this section shall only apply to vehicles certifying under the 2012 through 2016 MY National greenhouse gas program.]

16. §86.1866-12 CO_2 ~~fleet average~~ credits for advanced technology vehicles ~~programs~~. ~~July 6, 2011~~ [as adopted by EPA on August 28, 2012, 77 Fed. Reg. [insert page], August [insert date], 2012]. [No change, except that for the 2012 through 2016 model years this section shall only apply to vehicles certifying under the 2012 through 2016 MY National greenhouse gas program.]
17. §86.1867-12 Optional early CO_2 credit programs. ~~July 6, 2011~~[as adopted by EPA on August 28, 2012, 77 Fed. Reg. [insert page], August [insert date], 2012]. [No change, except that this section shall only apply to vehicles certifying under the 2012 through 2016 MY National greenhouse gas program.]

PART II: CALIFORNIA EXHAUST AND PARTICULATE EMISSION TEST PROCEDURES FOR PASSENGER CARS, LIGHT-DUTY TRUCKS AND MEDIUM-DUTY VEHICLES

* * * *

A. 40 CFR Part 86, Subpart B - Emission Regulations for 1977 and Later Model Year New Light-Duty Vehicles and New Light-Duty Trucks and New Otto-Cycle Complete Heavy-Duty Vehicles; Test Procedures.

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100.2 Equipment and Facility Requirements.

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86.111-94 Exhaust gas analytical-system. ~~May 7, 2010~~ [as adopted by EPA on August 28, 2012, 77 Fed. Reg. [insert page], August [insert date]]. [No change.]

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100.5 Test Procedures and Data Requirements.

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86.135-12 Dynamometer procedure. ~~May 7, 2010~~ [as adopted by EPA on August 28, 2012, 77 Fed. Reg. [insert page], August [insert date]]. [No change.]

* * * *

86.165-12 Air Conditioning idle test procedure. ~~July 6, 2011~~ [as adopted by EPA on August 28, 2012, 77 Fed. Reg. [insert page], August [insert date], 2012]. [No change,

except that this section shall only apply to vehicles certifying under the 2012 through 2016 MY National greenhouse gas program.]

~~86.166-12 Method for calculating emissions due to air conditioning leakage. [Insert Federal Register for the 2017 and subsequent MY National Greenhouse Gas Final Rule as proposed at 76 Fed. Reg. 74854, 75357 (December 1, 2011)]. [No change, except that this section shall only apply to vehicles certifying under the 2012 through 2016 MY National greenhouse gas program.]~~

86.167-17 AC17 Air Conditioning Emissions Test Procedure. [as adopted by EPA on August 28, 2012, 77 Fed. Reg. [insert page], August [insert date], 2012] [No change, except that this section shall only apply to vehicles certifying under the 2012 through 2016 MY National greenhouse gas program.]

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APPENDIX D

California Environmental Protection Agency
AIR RESOURCES BOARD

PROPOSED

CALIFORNIA NON-METHANE ORGANIC GAS TEST PROCEDURES

Adopted:	July 12, 1991
Amended:	September 22, 1993
Amended:	June 24, 1996
Amended:	August 5, 1999
Amended:	July 30, 2002
Amended:	March 22, 2012
Amended:	_____

Monitoring and Laboratory Division, Southern Laboratory Branch
Mobile Source Division
9528 Telstar Avenue
El Monte, California 91731

NOTE: Mention of any trade name or commercial product does not constitute endorsement or recommendation of this product by the Air Resources Board. Note: The proposed amendments to this document are shown in underline to indicate additions and strikeout to indicate deletions compared to the test procedures as last amended March 22, 2012. [No change] indicates proposed federal provisions that are also proposed for incorporation herein without change. Existing intervening text that is not amended in this rulemaking is indicated by "* * * *".

Date of Release: September 14, 2012; 45-day Notice Version
Date of Hearing: November 15, 2012

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PART B

DETERMINATION OF NON-METHANE HYDROCARBON MASS EMISSIONS BY FLAME IONIZATION DETECTION

* * * *

5. NMHC MASS EMISSION PER TEST PHASE

* * * *

5.2 **All Vehicles**

* * * *

5.2.5 The density of the NMHC is determined using the carbon:hydrogen ratio of the fuel, $C_xH_yO_z$, according to the following equation:

$$NMHC_{dens} = (x * 12.01115 + y * 1.00797)(g/mole) * \left(\frac{28.316847\ liter/ft3}{24.055\ liter/mole}\right)$$

where: 12.01115 = atomic weight of carbon
1.00797 = atomic weight of hydrogen

except when using any gasoline-based fuel, including Phase 2 gasoline and E85 fuel, for which the $NMHC_{dens}$ is defined as 16.33.

* * * *

7. SAMPLE CALCULATIONS

7.1 Given the following data for a gasoline vehicle operated on phase 2 certification fuel, $CH_{1.964}O_{0.0182}$, calculate the weighted NMHC mass emission.

Test Phase	FID THC_e (ppmC)	FID THC_d (ppmC)	CH_{4e} (ppmC)	CH_{4d} (ppmC)	CO_{em} (ppm)	CO_{2e} (%)	VMIX (ft^3)	$D_{phase\ n}$ (mile)
1	21.928	3.557	3.667	2.545	94.758	0.9581	2745	3.610
2	3.826	3.533	2.694	2.490	16.516	0.5925	4700	3.876
3	4.242	3.386	2.769	2.414	11.524	0.8225	2738	3.611

For Phase 1:

$NMHC_e$ $= FID\ THC_e - (r_{CH_4} * CH_{4e})$
$= 21.928\ ppmC - (1.15 * 3.667\ ppmC)$
$= 17.711\ ppmC$

$NMHC_d$ $= FID\ THC_d - (r_{CH_4} * CH_{4d})$
$= 3.557\ ppmC - (1.15 * 2.545\ ppmC)$
$= 0.630\ ppmC$

The numerator of the DF
$= 100 * (x / (x + y/2 + 3.76 * (x + y/4 - z/2))$
$= 100 * (1 / 1 + 1.964 / 2 + 3.76 * (1 + 1.964 / 4 - 0.0182 / 2)$
$= 13.2381$

$DF = 13.2381 \div [CO_{2e} + (NMHC_e + CH_{4e} + CO_e) * 10^{-4}]$

$$DF = = \frac{13.2381}{0.9581 + (17.711\,ppmC + 3.667\,ppmC + 94.758\,ppmC) * 10^{-4}}$$

$= 13.653$

$NMHC_{conc} = NMHC_e - NMHC_d * [1 - (1 \div DF)]$
$= 17.711\ ppmC - 0.630\ ppmC * [1 - (1 \div 13.653)]$
$= 17.127\ ppmC$

~~$NMHC_{dens} = (x * 12.01115 + y * 1.00797)(g / mole) * \left(\frac{28.316847 liter/ft3}{24.0547 liter/mole}\right)$~~

$NMHC_{dens}$ $= \underline{16.33\ g/ft^3}$ ~~$(1 * 12.01115 + 1.964 * 1.00797) * (28.316847/24.055)$~~
~~$= 16.470\ g/ft^3$~~

$NMHC_{mass\ n} = NMHC_{conc} * NMHC_{dens} * VMIX * 10^{-6}$
$= 17.127\ ppmC * 16.\underline{3347}\ g/ft^3 * 2745\ ft^3 * 10^{-6}$

$NMHC_{mass\ 1}$ = 0.77043 g

Similarly, for Phase 2: $NMHC_{mass\ 2}$ = 0.0068 g
and for Phase 3: $NMHC_{mass\ 3}$ = 0.02179 g

Therefore,

$$NMHC_{wm} = 0.43 * \left(\frac{NMHC_{mass1} + NMHC_{mass2}}{D_{phase1} + D_{phase2}} \right) + 0.57 * \left(\frac{NMHC_{mass3} + NMHC_{mass2}}{D_{phase3} + D_{phase2}} \right)$$

~~$$NMHC_{wm} = 0.43 * \left(\frac{0.768\,g + 0.0068\,g}{3.610\ miles + 3.876\ miles} \right) + 0.57 * \left(\frac{0.0217\,g + 0.0068\,g}{3.611\ miles + 3.876\ miles} \right)$$~~

$$NMHC_{wm} = 0.43 * \left(\frac{0.770\,g + 0.0068\,g}{3.610\ miles + 3.876\ miles} \right) + 0.57 * \left(\frac{0.0217\,g + 0.0068\,g}{3.611\ miles + 3.876\ miles} \right)$$

$NMHC_{wm}$ = 0.047 g/mile

7.2 Given the following data for a vehicle operating on 10% ethanol and 90% gasoline (E10) $CH_{1.8784}$~~$_{2.7841}$~~$O_{0.0338}$~~$_{0.3835}$~~, calculate the weighted NMHC mass emission.

Test Phase	FID THC_e (ppmC)	FID THC_d (ppmC)	CH_{4e} (ppmC)	CH_{4d} (ppmC)	CO_{cm} (ppm)	CO_{2e} (%)	VMIX (ft^3)	$D_{phase\ n}$ (mile)
1	14.398	2.971	3.639	2.125	97.83	0.9203	3508	3.590
2	2.882	2.830	2.176	2.010	12.25	0.5935	6010	3.858
3	3.976	2.642	2.621	2.058	19.86	0.7624	3502	3.581

For Phase 1:

$NMHC_e$ = FID THC_e - (r_{CH_4} * CH_{4e})
= 14.398 ppmC - (1.15 * 2.215 ppmC)
= 10.213 ppmC

$NMHC_d$ = FID THC_d - (r_{CH_4} * CH_{4d})
= 2.971 ppmC - (1.15 * 2.125 ppmC)
= 0.527 ppmC

The numerator of the DF
= 100 * (x / (x + y/2 + 3.76 * (x + y/4 – z/2)))
= 100 * (1 / (1 + 1.8784 / 2 + 3.76 * (1 + 1.8784 / 4 – 0.0338 / 2)))
= 13.511

$$DF = 13.511 \div [CO_{2e} + (NMHC_e + CH_{4e} + CO_e) * 10^{-4}]$$

$$= \frac{13.511}{0.9203 + (10.213\,\text{ppmC} + 3.639\,\text{ppmC} + 97.83\,\text{ppmC}) * 10^{-4}}$$

$$= 14.505$$

$$NMHC_{conc} = NMHC_e - NMHC_d * [1 - (1 / DF)]$$
$$= 10.213\ \text{ppmC} - 0.527\ \text{ppmC} * [1 - (1 / 14.505)]$$
$$= 9.722\ \text{ppmC}$$

$$NMHC_{mass\ n} = NMHC_{conc} * NMHC_{dens} * VMIX * 10^{-6}$$

$$NMHC_{mass\ 1} = 0.5578\ \text{g}$$

Similarly, Phase 2: $NMHC_{mass\ 2} = 0.0$ g
and for Phase 3: $NMHC_{mass\ 3} = 0.040$ g

Therefore,

$$NMHC_{wm} = 0.43 * \left(\frac{NMHC_{mass1} + NMHC_{mass2}}{D_{phase1} + D_{phase2}}\right) + 0.57 * \left(\frac{NMHC_{mass3} + NMHC_{mass2}}{D_{phase3} + D_{phase2}}\right)$$

$$NMHC_{wm} = 0.43 * \left(\frac{0.558\,\text{g} + 0.00\,\text{g}}{3.590\ \text{miles} + 3.858\ \text{miles}}\right) + 0.57 * \left(\frac{0.040\,\text{g} + 0.00\,\text{g}}{3.581\ \text{miles} + 3.858\ \text{miles}}\right)$$

$$NMHC_{wm} = 0.43 * \left(\frac{0.557\,\text{g} + 0.00\,\text{g}}{3.590\ \text{miles} + 3.858\ \text{miles}}\right) + 0.57 * \left(\frac{0.040\,\text{g} + 0.00\,\text{g}}{3.581\ \text{miles} + 3.858\ \text{miles}}\right)$$

$NMHC_{wm} = 0.035$ g/mile

* * * *

Part D

DETERMINATION OF C_2 TO C_5 HYDROCARBONS IN AUTOMOTIVE SOURCE SAMPLES BY GAS CHROMATOGRAPHY

METHOD NO. 1002

* * * *

2. METHOD SUMMARY

* * * *

2.2 The samples are received by the laboratory in Tedlar®, Kynar®, or Solef® bags, which are sub-sampled into a GC for separation and analysis.

* * * *

4. INSTRUMENTS AND APPARATUS

4.1 ~~Kynar® (polyvinylidene fluoride)~~ Sample collection bags, ~~4 mil in thickness,~~ nominally 5 to 10 liters in capacity and equipped with quick-connect fittings, are typically used to contain the samples. Sample collection bags may be made of Tedlar® (polyvinylfloride, or PVF), 2 mil in thickness, or of Kynar® or Solef® (polyvinylidenefloride, or PVDF), each 4 mil in thickness. Other sample bag material or sample collection containers, such ~~as bags made of Tedlar® (polyvinyl fluoride) film or~~ nickel-coated stainless steel canisters, may be used, provided they are made of non-reactive material and do not cause sample loss or contamination.

* * * *

Part E

DETERMINATION OF C_6 TO C_{12} HYDROCARBONS IN AUTOMOTIVE SOURCE SAMPLES BY GAS CHROMATOGRAPHY

METHOD NO. 1003

* * * *

2. METHOD SUMMARY

* * * *

2.2 The samples are received by the laboratory in Tedlar®, Kynar®, or Solef® bags, which are sub-sampled into a GC for separation and analysis.

* * * *

4. INSTRUMENTATION AND APPARATUS

4.1 ~~Kynar® (polyvinylidene fluoride)~~ Sample collection bags, ~~4 mil in thickness,~~ nominally 5 to 10 liters in capacity and equipped with quick-connect fittings, are typically used to contain the samples. Sample collection bags may be made of Tedlar® (polyvinylfloride, or PVF), 2 mil in thickness, or of Kynar® or Solef® (polyvinylidenefloride, or PVDF), each 4 mil in thickness. Other sample bag material or sample collection containers, such ~~as bags made of Tedlar® (polyvinyl fluoride) film or~~ nickel-coated stainless steel canisters, may be used, provided they are made of non-reactive material and do not cause sample loss or contamination.

* * * *

Part F

DETERMINATION OF ALDEHYDE AND KETONE COMPOUNDS IN AUTOMOTIVE SOURCE SAMPLES BY HIGH PERFORMANCE LIQUID CHROMATOGRAPHY

METHOD NO. 1004

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7. CALCULATIONS

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7.3 For tolualdehyde, the sum of all isomers present is reported as m-tolualdehyde. —

Under the conditions of the system described in Section 6.6, the isomers coelute. The m-tolualdehyde response factor is applied to the single tolualdehyde peak. This concentration is reported as m-tolualdehyde.

* * * *

Part G
DETERMINATION OF NMOG MASS EMISSIONS

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3. DILUTION FACTOR AND NMHC MASS EMISSION CALCULATION

* * * *

3.2 The density of the NMHC is determined using the carbon:hydrogen ratio of the fuel, $C_xH_yO_z$, according to the following equation:

$$NMHC_{dens} = (x * 12.01115 + y * 1.00797)(g/mole) * \left(\frac{28.316847 liter/ft3}{24.0547 liter/mole}\right)$$

where: 12.01115 = atomic weight of carbon
1.00797 = atomic weight of hydrogen

except when using any gasoline-based fuel, including Phase 2 gasoline and E85 fuel, for which the $NMHC_{dens}$ is defined as 16.33.

* * * *

b) For Phase 2 gasoline, $CH_{1.94}O_{0.017}$, where x = 1, y = 1.94 and z = 0.017,
DF = $13.295 / [CO_{2e} + (NMHC_e + CH_{4e} + CO_e) * 10^{-4}]$
$NMHC_{dens}$ = 16.33 ~~16.44~~

* * * *

e) For E85, $CH_{2.7841}O_{0.3835}$, ~~W~~where x = 1, y = 2.7841, and z = 0.3835:
DF = $12.4253 / [CO_{2e} + (NMHC_e + CH_{4e} + CO_e) * 10^{-4}]$
$NMHC_{dens}$ = 16.33 ~~17.44~~

3.3 Sample Calculation

A flex-fuel vehicle using E85 fuel $CH_{2.7841}O_{0.3835}$, where x = 1, y = 2.7841, and z = 0.3835:

Test Phase	FID THC_e (ppmC)	CH_{4e} (ppmC)	CO_{2e} (%)	CO_e (ppm)	FID THC_d (ppmC)	CH_{4d} (ppmC)	CO_{2d} (%)	CO_d (ppm)	VMIX (ft^3)	$D_{phase\ n}$ (mile)
1	27.230	6.918	0.8564	117.801	3.532	2.261	0.0438	0.5224	3495	3.591
2	3.5459	2.357	0.5595	10.8229	3.476	2.247	0.4446	0.3322	5799	3.846
3	3.8510	2.590	0.7163	5.1538	3.396	2.188	0.4507	0.6752	3484	3.591

FID response factor of methane is experimentally determined for each individual FID. The value of 1.15 used here is for example only.

For phase 1:

$NMHC_e = FID\ THC_e - r_{CH_4} * CH_{4e}$
$= 27.230 - 1.15 * 6.918$
$= 19.274$ ppmC

$DF = 12.4253 / [CO_{2e} + (NMHC_e + CH_{4e} + CO_e) * 10^{-4}]$
$= 12.4253 / [0.8564 + (19.274 + 6.918 + 117.801) * 10^{-4}]$
$= 14.2688$ ppmC

$NMHC_d = FID\ THC_d - r_{CH_4} * CH_{4d}$
$= 3.532 - 1.15 * 2.261$
$= 0.9319$ ppmC

$NMHC_{conc} = NMHC_e - NMHC_{d*}(1 - 1/DF)$
$= 19.274 - 0.9319*(1 - 1 / 14.2688)$
$= 18.407$ ppmC

$NMHC_{mass1} = NMHC_{conc} * NMHC_{dens} * VMIX_1 * 10^{-6}$

$= 18.407 * \underline{16.33}\ \sout{17.44} * 3495 * 10^{-6}$
$= \underline{1.0506}\ \sout{1.1220}$ g

Similarly, for Phase 2, DF = 22.152 and $NMHC_{mass2} = 0$

Similarly, for Phase 3, DF = 17.32$\underline{6}\sout{32}$ and $NMHC_{mass2} = 0.0025\underline{6}\sout{}$ g

4. SPECIATED HYDROCARBON MASS EMISSIONS CALCULATION

* * * *

4.4. SAMPLE CALCULATION

4.4.1 Exhaust emissions from a gasoline vehicle are collected in three dilute exhaust sample bags and one dilution air (background) sample bag during the FTP. Gas chromatography is used to determine the benzene concentration of each bag sample. Calculate the weighted benzene mass emissions based on the following data:

Test Phase	HC_e (ppbC)	HC_d (ppbC)	FID THC_e (ppmC)	CH_{4e} (ppmC)	CO_{2e} (%)	CO_{em} (ppm)	R_a (%)	VMIX (ft^3)	$D_{phase\ n}$ (mile)
1	500	25	98	6	1.20	280	28	2846	3.584
2	100	25	22	4	0.95	87	25	4854	3.842
3	120	25	29	5	1.07	101	24	2840	3.586

For Phase 1:

$DF = 13.47 / [CO_{2e} + (NMHC_e + CH_{4e} + CO_e) * 10^{-4}]$
(see section 3, DF Calc.)

$NMHC_e = FID\ THC_e - (r_{CH_4} * CH_{4e})$
$= 98\ ppmC - (1.04 * 6\ ppmC)$
$= 92\ ppmC$

$CO = (1 - (0.01 + 0.005 * HCR) * CO_{2e} - 0.000323 * R_a) * CO_{em}$
NOTE: If a CO instrument which meets the criteria specified in CFR 40, 86.111 is used and the conditioning column has been deleted, CO_{em} must be substituted directly for CO_e.
$= (1 - (0.01925) * 1.2\% - 0.000323 * 28\%) * 280\ ppm$
$= 271\ ppm$

$DF = 13.47 / [1.2\% + (92\ ppmC + 6\ ppmC + 271\ ppm) * 10^{-4}]$
$= 10.89$

$HC_{conc} = HC_e - (HC_d * (1 - (1 / DF)))$
$= 500\ ppbC - (25\ ppbC * (1 - (1 / 10.89)))$
$= 477\ ppbC$

Mol. Wt. of $C_6H_6 = (6 * 12.01115) + (6 * 1.00797)$
$= 78.11472\ g/mole$

$HC_{dens} = (Mol.\ Wt. * conversion\ of\ liter\ to\ ft^3) / (Mol.\ Vol.)$
$= (78.11472\ g/mole * 28.316\ liter/ft^3) / 24.055\ liter/mole$
$= 91.952\ g/ft^3$

$HC_{mass\ n} = (HC_{conc} * HC_{dens} * VMIX * 10^{-6}) / (Carbon\ No.)$

$HC_{mass\ 1} = (477\ ppbC * 91.952\ g/ft^3 * 2846\ ft^3 * 10^{-6}) / 6$
$= 20.8\ mg$

Similarly, for Phase 2: $HC_{mass\ 2} = 5.7\ mg$

and for Phase 3: $HCe_{mass\ 3}$ = 4.2 mg

Therefore,

$$HC_{wm} = 0.43 * \left(\frac{HC_{mass1} + HC_{mass2}}{D_{phase1} + D_{phase2}} \right) + 0.57 * \left(\frac{HC_{mass3} + HC_{mass2}}{D_{phase3} + D_{phase2}} \right)$$

$$HC_{wm} = 0.43 * \left(\frac{20.8\,mg + 5.7\,mg}{3.584\ miles + 3.842\ miles} \right) + 0.57 * \left(\frac{4.2\,mg + 5.7\,mg}{3.586\ miles + 3.842\ miles} \right)$$

HC_{wm} = 2.3 mg/mile (benzene weighted mass emissions)

5. ALCOHOL MASS EMISSIONS CALCULATION

* * * *

5.4 SAMPLE CALCULATION

5.4.1 Alcohol emissions from an E85 fueled vehicle are collected in three sets of dilute exhaust impingers and one set of dilution air impingers during the FTP. Gas chromatography is used to determine the alcohol concentration in each impinger. This is the same vehicle test as the example in section 3.3. Calculate the weighted ethanol mass emissions based on the following data, along with the data presented in section 3.3:

Test Phase	$Ivol_r$ (mL)	$Iconc_{e1}$ (µg/mL)	$Iconc_{e2}$ (µg/mL)	$Ivol_{em}$ (liter)	$Iconc_{d1}$ (µg/mL)	$Iconc_{d2}$ (µg/mL)	$Ivol_{dm}$ (liter)	$Itemp_e$ (°K)	$Itemp_d$ (°K)
1	15	4.984	0.106	8.18	0	0	31.16	294.26	294.26
2	15	0	0	14.65	0	0	31.16	294.26	294.26
3	15	0	0	8.67	0	0	31.16	294.26	294.26

Test Phase	$D_{phase\ n}$ (mile)	DF	P_B (mm HG)	VMIX (ft^3)
1	3.591	14.27	760	3495
2	3.846	22.15	760	5799
3	3.591	17.33	760	3484

* * * *

6. CARBONYL MASS EMISSIONS CALCULATIONS

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6.4. SAMPLE CALCULATION

6.4.1 Carbonyl emissions from an E85 vehicle are collected in three sets of dilute exhaust impingers and one set of dilution air impingers during the FTP. HPLC is used to determine the carbonyl mass in each impinger. This is the same vehicle test as the example in section 3.3. Calculate the weighted formaldehyde and acetaldehyde mass emissions based on the following data, along with the data presented in section 3.3:

Test Phase	$Ivol_c$ (mL~~l~~)	Formaldehyde		$Ivol_{em}$ (liter)	Acetaldehyde		$Ivol_{dm}$ (liter)	$Itemp_e$ (°K)	$Itemp_d$ (°K)
		$Iconc_{ce}$ (µg/mL)	$Iconc_{cd}$ (µg/mL)		$Iconc_{ce}$ (µg/mL)	$Iconc_{cd}$ (µg/mL)			
1	4.4	0.387	0.006	8.47	4.114	0.006	8.23	294.26	294.26
2	4.4	0.048	0.016	15.35	0.013	0.009	13.88	294.26	294.26
3	4.4	0.016	0.006	9.01	0.012	0.005	8.16	294.26	294.26

Test Phase	$D_{phase\ n}$ (mile)	DF	P_B (mm HG)	VMIX (ft^3~~3~~)
1	3.591	14.27	760	3495
2	3.846	22.15	760	5799
3	3.591	17.33	760	3484

* * * *

7 NONMHC MASS EMISIONS CALCULATION

* * * *

7.3 Sample Calculation

Continuing from the same E85 test used in the alcohol and carbonyl calculations:

Test Phase	$NMHC_{mass\ n}$ (g)	$Ethanol_{mass\ n}$ (g)	$Formaldehyde_{massn}$ (g)	$Acetaldehyde_{mass\ n}$ (g)
1	1.0506 ~~1.1220~~	0.09271	0.0197	0.212
2	0	0	0.001457	0.000165
3	0.00256	0	0.000472	0.000329

and

$NMHC_{dens}$ = 16.33 ~~17.44~~ g/ft^3

$$NONMHC_{mass1} = NMHC_{mass1} - NMHC_{dens} * \sum\left(\frac{ROH_{mass1}}{ROH_{dens}}\right) * r_{ROH} - NMHC_{dens} * \sum\left(\frac{RHO_{mass1}}{RHO_{dens}}\right) * r_{RHO}$$

$NONMHC_{mass1}$ = 1.0506 ~~1.1220~~ – 16.33 ~~17.44~~ g/ft^3 * (0.9271 g / 27.116 (g/ft^3)) * 0.756
– 16.33 ~~17.44~~ g/ft^3 * (0.0197 g / 35.350 (g/ft^3)) * 0
– 16.33 ~~17.44~~ g/ft^3 * (0.212 g / 25.929 (g/ft^3)) * 0.5
= 1.0506 ~~1.1220~~ – 0.4221 ~~0.4508~~ – 0 – 0.0668 ~~0.0713~~
= 0.5617 ~~0.5999~~ g

$NONMHC_{mass2}$ = 0 – 16.33 ~~17.44~~ g/ft^3 * (0 g / 27.116 (g/ft^3)) * 0.756
– 16.33 ~~17.44~~ g/ft^3 * (0.001457 g / 35.350 (g/ft^3)) * 0
– 16.33 ~~17.44~~ g/ft^3 * (0.000165 g / 25.929 (g/ft^3)) * 0.5
= 0 – 0 – 0 – 0.000052~~5~~
= 0 g

Note: Results that are less than zero are reported as zero.

$NONMHC_{mass3}$ = 0.0025~~6~~ – 16.33 ~~17.44~~ g/ft^3 * (0 g / 27.116 (g/ft^3)) * 0.756
– 16.33 ~~17.44~~ g/ft^3 * (0.000472 g / 35.350 (g/ft^3)) * 0
– 16.33 ~~17.44~~ g/ft^3 * (0.000329 g / 25.929 (g/ft^3)) * 0.5
= 0.0025~~6~~ – 0 – 0 – 0.0001~~1~~
= 0.0024~~9~~ g

8 WEIGHTED HYDROCARBON MASS EMISSIONS CALCULATION

* * * *

8.2 Sample calculation

Continuing from the previous example:

Test Phase	$NONMHC_{mass\ n}$ (g)	$Ethanol_{mass\ n}$ (g)	$Formaldehyde_{mass\ n}$ (g)	$Acetaldehyde_{mass\ n}$ (g)	Distance (mile)
1	~~0.5999~~ 0.5617	0.9271	0.019718	0.212	3.591
2	0	0	0.001457	0.000165	3.846
3	0.0024~~9~~	0	0.000472	0.000329	3.591

~~$NONMHC_{wm} = 0.43 * \left(\frac{0.5999\,g + 0\,g}{3.591\,miles + 3.846\,miles}\right) + 0.57 * \left(\frac{0.00249\,g + 0\,g}{3.591\,miles + 3.846\,miles}\right)$~~

$$NONMHC_{wm} = 0.43 * \left(\frac{0.5617\,g + 0\,g}{3.591\,miles + 3.846\,miles}\right) + 0.57 * \left(\frac{0.0024\,g + 0\,g}{3.591\,miles + 3.846\,miles}\right)$$

$NONMHC_{wm}$ = 0.03266 ~~0.03488~~ g/mile
Similarly, $Ethanol_{wm}$ = 0.05360 g/mile
Similarly, $Formaldehyde_{wm}$ = 0.00137 g/mile
Similarly, $Acetaldehyde_{wm}$ = 0.01231 g/mile

With all the above information, the weighted mass emissions of non-methane organic gas can be calculated:

$$NMOG_{wm} = \sum NONMHC_{wm} + \sum ROH_{wm} + \sum RHO_{wm}$$

$NMOG_{wm}$ = 0.03266 ~~0.03488~~ g/mile + 0.05360 g/mile + 0.00137 g/mile + 0.01231 g/mile
= 0.09994 ~~0.102~~ g/mile

APPENDIX 1

LIST OF COMPOUNDS

CAS #	COMPOUND	MIR
	* * * *	
	Light End and Mid-Range Hydrocarbons (Listed in approximate elution order)	
	* * * *	
03404-61-3	3-methyl-1-hexene	~~4.56~~4.41
	* * * *	

APPENDIX E

State of California
AIR RESOURCES BOARD

PROPOSED

CALIFORNIA EVAPORATIVE EMISSION STANDARDS AND TEST PROCEDURES FOR 2001 AND SUBSEQUENT MODEL MOTOR VEHICLES

Adopted: August 5, 1999
Amended: June 22, 2006
Amended: October 17, 2007
Amended: December 2, 2009
Amended: September 27, 2010
Amended: March 22, 2012
Amended: [INSERT DATE OF AMENDMENT]

Note: Proposed amendments to this document are shown in underline to indicate additions and in ~~strikeout~~ to indicate deletions compared to the test procedures as last amended March 22, 2012. Existing intervening text that is not amended is indicated by a row of asterisks (* * * *).

* * * *

CALIFORNIA EVAPORATIVE EMISSION STANDARDS AND TEST PROCEDURES FOR 2001 AND SUBSEQUENT MODEL MOTOR VEHICLES

The provisions of Title 40, Code of Federal Regulations (CFR), Part 86, Subparts A and B (as adopted or amended as of July 1, 1989); Subpart S (as adopted or amended on May 4, 1999); and, such sections of these Subparts as last amended on such other date set forth next to the 40 CFR Part 86 section title listed below, insofar as those subparts pertain to evaporative emission standards and test procedures, are hereby adopted as the "California Evaporative Emission Standards and Test Procedures for 2001 and Subsequent Model Years," with the following exceptions and additions:

PART I. GENERAL CERTIFICATION REQUIREMENTS FOR EVAPORATIVE EMISSIONS

* * * *

E. Emission Standards

1. Evaporative Emission Standards for 2001 and Subsequent Model Year Vehicles Other Than Motorcycles.

* * * *

(e) For 2015 and subsequent model motor vehicles, the following evaporative emission requirements apply:

* * * *

(iii) Carry-Over of 2014 Model-Year Evaporative Families Certified to the Zero-Fuel Evaporative Emission Standards. A manufacturer may carry over 2014 model motor vehicles certified to the zero-fuel (0.0 grams per test) evaporative emission standards set forth in section I.E.1.(c) through the 2018 model year and be considered compliant with the requirements of section I.E.1.(e). <u>For all motor vehicles that are certified via this carry-over provision, the emission standards set forth in section I.E.1.(c) shall apply when determining in-use compliance throughout the vehicle's useful life.</u> If the manufacturer chooses to participate in the fleet-average option for the highest whole vehicle diurnal plus hot soak emission standard, the following family emission limits are assigned to these evaporative families for the calculation of the manufacturer's fleet-average hydrocarbon emission value.

Vehicle Type	Highest Whole Vehicle Diurnal + Hot Soak (grams per test)
Passenger Cars	0.300
Light-Duty Trucks 6,000 lbs. GVWR and under, and 0 - 3,750 lbs. LVW	0.300
Light-Duty Trucks 6,000 lbs. GVWR and under, and 3,751 – 5,750 lbs. LVW	0.400
Light-Duty Trucks 6,001 - 8,500 lbs. GVWR	0.500

* * * *

APPENDIX F

State of California
AIR RESOURCES BOARD

PROPOSED

CALIFORNIA EXHAUST EMISSION STANDARDS AND TEST PROCEDURES FOR 2004 AND SUBSEQUENT MODEL HEAVY-DUTY OTTO-CYCLE ENGINES

Adopted:	December 27, 2000
Amended:	December 12, 2002
Amended:	July 26, 2007
Amended:	October 17, 2007
Amended:	September 27, 2010
Amended:	March 22, 2012
Amended:	[INSERT DATE OF AMENDMENT]

Note: The proposed amendments to this document are shown in underline to indicate additions and strikeout to indicate deletions compared to the test procedures as adopted March 22, 2012. [No change] indicates proposed federal provisions that are also proposed for incorporation herein without change. Existing intervening text that is not amended in this rulemaking is indicated by "* * * *".

* * * *

CALIFORNIA EXHAUST EMISSION STANDARDS AND TEST PROCEDURES FOR 2004 AND SUBSEQUENT MODEL HEAVY-DUTY OTTO-CYCLE ENGINES

* * * *

Part I. GENERAL PROVISIONS FOR CERTIFICATION AND IN-USE VERIFICATION OF EMISSIONS

Subpart A - General Provisions for Emission Regulations for 1977 and Later Model Year New Light-Duty Vehicles, Light-Duty Trucks and Heavy-Duty Engines, and for 1985 and Later Model Year New Gasoline-Fueled, Natural Gas-Fueled, Liquefied Petroleum Gas-Fueled and Methanol-Fueled Heavy Duty Vehicles

* * * *

10. **Emission standards for Otto-cycle heavy-duty engines and vehicles.** [§86.xxx-10]

* * * *

B. California provisions.

1. Exhaust emissions from new 2004 and later model year Otto-cycle medium- and heavy-duty engines, except for Otto-cycle medium- and heavy-duty engines subject to the alternative standards in 40 CFR §86.005-10(f), shall not exceed:

California Emission Standards for 2004 and Subsequent Model Heavy-Duty Otto-Cycle Engines[A]
(in g/bhp-hr)

Model Year	Emission Category	NMHC + NOx	NMHC	NOx	CO[H]	HCHO	PM
Standards for Heavy-Duty Otto-Cycle Engines Used In 2004 through ~~2019~~ 2021 Model Medium-Duty Vehicles 8,501 to 10,000 pounds GVW[B] and 2004 and Subsequent Model Medium-Duty Vehicles 10,001 to 14,000 pounds GVW[C]							
2004	ULEV	2.4 **or** 2.5 with 0.5 NMHC cap[D]	n/a	n/a	14.4	0.05	n/a
	SULEV	2.0	n/a	n/a	7.2	0.025	n/a
2005 through 2007[F]	ULEV	1.0[D,F]	n/a	n/a	14.4	0.05	n/a
	SULEV	0.5[D,F]	n/a	n/a	7.2	0.025	n/a
2008 and subsequent[G]	ULEV	n/a	0.14[F]	0.20[F]	14.4	0.01	0.01
	SULEV	n/a	0.07[F]	0.10[F]	7.2	0.005	0.005
Standards for Heavy-Duty Otto-Cycle Engines Used In Heavy-Duty Vehicles Over 14,000 pounds GVW							
2004	n/a	2.4 **or** 2.5 with 0.5 NMHC cap[D]	n/a	n/a	37.1	0.05[E]	n/a
2005 through 2007[F]	n/a	1.0[C,E]	n/a	n/a	37.1	0.05[E]	n/a
2008 and subsequent[G]	n/a	n/a	0.14[F]	0.20[E]	14.4	0.01	0.01

* * * *

[B] For the 202~~0~~2 and subsequent model years, medium-duty vehicles 8,501 to 10,000 pounds GVW must certify to the LEV III primary emission standards and test procedures for complete vehicles specified in section 1961.2, title 13, CCR.

* * * *

2. **Optional Standards for Complete and Incomplete Heavy-Duty Vehicles.**

Manufacturers may request to group complete and incomplete heavy-duty vehicles into the same test group as vehicles certifying to the LEV III exhaust emission standards and test procedures specified in title 13, CCR, §1961.2, so long as those complete and incomplete heavy-duty Otto-cycle vehicles meet the most stringent LEV III standards to which any vehicle within that test group certifies.

* * * *

APPENDIX G

State of California
AIR RESOURCES BOARD

PROPOSED

CALIFORNIA EXHAUST EMISSION STANDARDS AND TEST PROCEDURES FOR 2004 AND SUBSEQUENT MODEL HEAVY-DUTY DIESEL-ENGINES AND VEHICLES

Adopted:	December 12, 2002
Amended:	July 24, 2003
Amended:	September 1, 2006
Amended:	July 26, 2007
Amended:	October 17, 2007
Amended:	October 14, 2008
Amended:	September 27, 2010
Amended:	October 12, 2011
Amended:	March 22, 2012
Amended:	[INSERT DATE OF AMENDMENT]

Note: The proposed amendments to this document are shown in underline to indicate additions and strikeout to indicate deletions compared to the test procedures as adopted March 22, 2012. [No change] indicates proposed federal provisions that are also proposed for incorporation herein without change. Existing intervening text that is not amended in this rulemaking is indicated by "* * * *".

Date of Release: September 14, 2012; 45-day Notice Version
Date of Hearing: November 15, 2012

* * * *

CALIFORNIA EXHAUST EMISSION STANDARDS AND TEST PROCEDURES FOR 2004 AND SUBSEQUENT MODEL HEAVY-DUTY DIESEL ENGINES AND VEHICLES

* * * *

PART 86 – CONTROL OF EMISSIONS FROM NEW AND IN-USE HIGHWAY VEHICLES AND ENGINES

I. GENERAL PROVISIONS FOR CERTIFICATION AND IN-USE VERIFICATION OF EMISSIONS.

* * * *

Subpart A - General Provisions for Emission Regulations for 1977 and Later Model Year New Light-Duty Vehicles, Light-Duty Trucks, and Heavy-Duty Engines, and for 1985 and Later Model Year New Gasoline-Fueled, Natural Gas-Fueled, Liquefied Petroleum Gas-Fueled and Methanol-Fueled Heavy-Duty Vehicles.

* * * *

11. Emission standards for diesel heavy-duty engines and vehicles. [§86.xxx-11]

* * * *

A. California provisions.

* * * *

5. **Standards for Medium-Duty Engines.**

5.1 **Requirements Specific to Heavy-Duty Engines Used in Medium-Duty Vehicles 8,501 to 10,000 pounds GVW.** For the 2004 through ~~2019~~ 2021 model years, a manufacturer of heavy-duty engines used in medium-duty vehicles 8,501 to 10,000 pounds GVW may choose to comply with the following standards as an alternative to the primary emission standards and test procedures specified in title 13, CCR, §1961 or §1961.2, as applicable. A manufacturer that chooses to comply with these optional heavy-duty standards and test procedures shall specify, in the application for certification, an in-use compliance test procedure, as provided in title 13,

CCR, §2139(c). For the 2020~~2~~2 and subsequent model years, a manufacturer of heavy-duty engines used in medium-duty vehicles 8,501 to 10,000 pounds GVW must comply with the primary emission standards and test procedures specified in title 13, CCR, §1961.2.

* * * *

5.3 **Exhaust Emission Standards for Medium-Duty Engines.** The exhaust emissions from new 2004 through ~~2019~~ 2021 model heavy-duty diesel engines used in ultra-low emission and super-ultra-low emission medium-duty diesel vehicles 8,501 to 10,000 pounds GVW and 2004 and subsequent model heavy-duty diesel engines used in ultra-low emission and super-ultra-low emission medium-duty diesel vehicles 10,001 to 14,000 pounds GVW shall not exceed:

Exhaust Emission Standards for 2004 through 2006 Model Medium-Duty ULEVs and SULEVs				
Vehicle Emission Category	NOx + NMHC	CO	PM	HCHO
ULEV[1] Option A	2.5 (with a 0.5 cap on NMHC)	14.4	0.10	0.050
ULEV[1]; Option B	2.4	14.4	0.10	0.050

Exhaust Emission Standards for 2007 through ~~2019~~ 2021 Model Medium-Duty ULEVs and SULEVs 8,501-10,000 lbs. GVW and 2007 and Subsequent Model Medium-Duty ULEVs and SULEVs 10,001-14,000 lbs. GVW					
Vehicle Emission Category	NOx	NMHC or NMHCE	CO	PM	HCHO
ULEV[1]	0.20	0.14	15.5	0.01	0.050
SULEV[1]	0.10	0.07	7.7	0.005	0.025

[1] Emissions averaging may be used to meet these standards using the requirements for participation averaging, banking and trading programs, as set forth in Section I.15 of these test procedures.

5.4 **Optional Standards for Complete and Incomplete Heavy-Duty Vehicles.** Manufacturers may request to group complete and incomplete heavy-duty vehicles into the same test group as vehicles certifying to the LEV III exhaust emission standards and test procedures specified in title 13, CCR, §1961.2, so long as those complete and incomplete heavy-duty diesel

vehicles meet the most stringent LEV III standards to which any vehicle within that test group certifies.

* * * *

II. TEST PROCEDURES

* * * *

Subpart H – Engine Fluids, Test Fuels, Analytical Gases and Other Calibration Standards

1065.701 General requirements for test fuels. April 30, 2010.

* * * *

B. California provisions.

* * * *

3. **Identification of New Clean Fuels to be Used in Certification Testing.** Any person may petition the state board to establish by regulation certification testing specifications for a new clean fuel for which specifications for the new clean fuel are not specifically set forth in paragraph §86.1313-98 as amended herein. Prior to adopting such specifications, the state board shall consider the relative cost-effectiveness of use of the fuel in reducing emissions compared to the use of other fuels. Whenever the state board adopts specifications for a new clean fuel for certification testing, it shall also establish by regulation specifications for the fuel as it is sold commercially to the public.

(a) If the proposed new clean fuel may be used to fuel existing motor vehicles, the state board shall not establish certification specifications for the fuel unless the petitioner has demonstrated that:

(1) Use of the new clean fuel in such existing motor vehicles would not increase emissions of NMHC, NOx, and CO, and the potential risk associated with toxic air contaminants, as determined pursuant to the procedures set forth in the "California Test Procedures for Evaluating Substitute Fuels and New Clean Fuels through 2014~~,~~" ~~as amended March 22, 2012~~ or the "California Test Procedures for Evaluating Substitute Fuels and New Clean Fuels in 2015 and Subsequent Years," ~~as adopted March 22, 2012~~ which are incorporated by reference in title 13, CCR, §2317, as applicable. In the case of fuel-flexible vehicles or dual-fuel vehicles that were not

certified on the new clean fuel but are capable of being operated on it, exhaust and evaporative emissions from the use of the new clean fuel shall not increase compared to exhaust and evaporative emissions from the use of gasoline that complies with Title 13, Division 3, Chapter 5, Article 1, California Code of Regulations.

* * * *

APPENDIX H

California Environmental Protection Agency
AIR RESOURCES BOARD

PROPOSED

CALIFORNIA EXHAUST EMISSION STANDARDS AND TEST PROCEDURES FOR 2009 THROUGH 2017 MODEL ZERO-EMISSION VEHICLES AND HYBRID ELECTRIC VEHICLES, IN THE PASSENGER CAR, LIGHT-DUTY TRUCK AND MEDIUM-DUTY VEHICLE CLASSES

Adopted: December 17, 2008
Amended: December 2, 2009
Amended: March 22, 2012
Amended: [insert date of amendment]

Note: The proposed amendments to this document are shown in underline to indicate additions and strikeout to indicate deletions compared to the test procedures as amended March 22, 2012. [No change] indicates proposed federal provisions that are also proposed for incorporation herein without change. Existing intervening text that is not amended in this rulemaking is indicated by "* * * *".

NOTE: This document is incorporated by reference in section 1962.1, title 13, California Code of Regulations (CCR). Additional requirements necessary to complete an application for certification of zero-emission vehicles and hybrid electric vehicles are contained in other documents that are designed to be used in conjunction with this document. These other documents include:

CALIFORNIA EXHAUST EMISSION STANDARDS AND TEST PROCEDURES FOR 2009 THROUGH 2017 MODEL ZERO-EMISSION VEHICLES AND HYBRID ELECTRIC VEHICLES, IN THE PASSENGER CAR, LIGHT-DUTY TRUCK AND MEDIUM-DUTY VEHICLE CLASSES

* * * * *

C. Zero-Emission Vehicle Standards.

* * * * *

2. Percentage ZEV Requirements

* * * * *

2.2 Requirements for Large Volume Manufacturers.

(d) *Requirements for Large Volume Manufacturers in Model Years 2012 through 2017.*

(1) *2012 through 2014 Requirements.* On an annual basis, a manufacturer must meet the total ZEV obligation with ZEVs or ZEV credits generated by such vehicles, excluding credits generated by NEVs and Type 0 ZEVs, equal to at least 0.79% of its annual sales, using either production volume determination method described in subdivision C.2.1(b) No more than 50% of the total obligation may be met with credits generated from PZEVs, No more than 75% of the total obligation may be met with credits generated from AT PZEVs. No more than 93.4% may be met with Enhanced AT PZEVs, Type 0 ZEVs, and NEVs, other than limits described in subdivision C.7.6. The entire obligation may be met solely with credits generated from ZEVs.

(2) *2015 through 2017 Requirements.* On an annual basis, a manufacturer must meet its ZEV obligation with ZEVs or ZEV credits generated by such vehicles, excluding credits generated by NEVs and Type 0 ZEVs, equal to at least 3% of its annual sales, using either production volume determination method described in subdivision C.2.1(b). No more than 42.8% of the total obligation may be met with credits generated from PZEVs. No more than 57.1% of the total obligation may be met with credits generated from AT PZEVs. No more than 78.5% may be met with credits generated from TZEVs, Type 0 ZEVs, and NEVs, other than limits described in

subdivision C.7.6. The entire obligation may be met solely with credits generated from ZEVs.

* * * * *

3.3 Zero-Emission VMT PZEV Allowance.

(a) *Calculation of Zero Emission VMT Allowance.* A vehicle that meets the requirements of subdivision C.3.2 and has zero-emission vehicle miles traveled ("VMT") capability will generate an additional zero emission VMT PZEV allowance, calculated as follows:

Range	*Zero-emission VMT Allowance*
$EAER_u$ < 10 miles	0.0
$EAER_u$ ≥10 to 40 miles	$EAER_u \times (1 - UF_{Rcda})/11.028$
$EAER_u$ > 40 miles	~~$(EAER_{u40}) \times [1 - (UF_{40} * R_{cda}/EAER_u)]/11.028$~~ $3.627 \times (1 - UF_n)$ Where, ~~UF_{40}= utility factor at 40 miles~~ ~~$EAER_{u40}$= 40 miles~~ $n = 40 \times (R_{cda}/EAER_u)$

A vehicle cannot generate more than 1.39 zero-emission VMT PZEV allowance.

The urban equivalent all-electric range ($EAER_u$) and urban charge depletion range actual (R_{cda}) shall be determined in accordance with section G.5.4 and G.11.9, respectively, of these test procedures. The utility Factor (UF) shall be determined according to SAE J2841 SEP2010 from the Fleet Utility Factors (FUF) Table in Appendix B or using a polynomial curve fit with "FUF Fit" coefficients from Table 2 Utility Factor Equation Coefficients ~~based on the charge depleting actual range (urban cycle) (R_{cda}) shall be determined according to Section 4.5.2 Equation 6 and the "Fleet UF" Utility Factor Equation Coefficients in Section 4.5.2, Table 3 of SAE J2841 March 2009~~.

* * * * *

F. Test Procedures for 2012 through 2017 Model Zero-Emission Vehicles (including Fuel Cell Vehicles and Hybrid Fuel Cell Vehicles) and All 2012 through 2017 Model Hybrid-Electric Vehicles, Except Off-Vehicle Charge Capable Hybrid Electric Vehicles.

* * * * *

8. SFTP Emission Test Provisions for All Hybrid Electric Vehicles, Except Hybrid Fuel Cell Vehicles and Off-Vehicle Charge Capable Hybrid Electric Vehicles.

* * * * *

8.2 US06 Emission Test.

* * * * *

8.2.6 Amend subparagraph (f) as follows.

* * * * *

8.2.6.2 Amend subparagraph (f)(2)(ix): At the conclusion of the US06 emission test, one of the following conditions shall apply:

(i) For hybrid electric vehicles that do not allow manual activation of the auxiliary power unit and are charge-sustaining over the US06, record the battery state-of-charge to determine if the SOC criterion in section ~~F~~G.10 is satisfied. If the SOC criterion is not satisfied, then repeat dynamometer test run from subparagraph (f)(2)(i) without the preconditioning cycle. A total of three US06 emission tests shall be allowed to satisfy the SOC criterion.

* * * * *

APPENDIX I

California Environmental Protection Agency
AIR RESOURCES BOARD

PROPOSED

CALIFORNIA EXHAUST EMISSION STANDARDS AND TEST PROCEDURES FOR 2018 AND SUBSEQUENT MODEL ZERO-EMISSION VEHICLES AND HYBRID ELECTRIC VEHICLES, IN THE PASSENGER CAR, LIGHT-DUTY TRUCK AND MEDIUM-DUTY VEHICLE CLASSES

Adopted: March 22, 2012
Amended: [INSERT DATE OF AMENDMENT]

Note: The proposed amendments to this document are shown in underline to indicate additions and strikeout to indicate deletions compared to the test procedures as adopted March 22, 2012. [No change] indicates proposed federal provisions that are also proposed for incorporation herein without change. Existing intervening text that is not amended in this rulemaking is indicated by "* * * *".

Date of Release: September 14, 2012; 45-day Notice Version
Date of Hearing: November 15, 2012

NOTE: This document is incorporated by reference in section 1962.2, title 13, California Code of Regulations (CCR). Additional requirements necessary to complete an application for certification of zero-emission vehicles and hybrid electric vehicles are contained in other documents that are designed to be used in conjunction with this document.

CALIFORNIA EXHAUST EMISSION STANDARDS AND TEST PROCEDURES FOR 2018 AND SUBSEQUENT MODEL ZERO-EMISSION VEHICLES AND HYBRID ELECTRIC VEHICLES, IN THE PASSENGER CAR, LIGHT-DUTY TRUCK AND MEDIUM-DUTY VEHICLE CLASSES

* * * * *

C. Zero-Emission Vehicle Standards.

* * * * *

3. Transitional Zero Emission Vehicles (TZEV).

* * * * *

3.2 TZEV Requirements. In order for a vehicle to be eligible to receive a ZEV allowance, the manufacturer must demonstrate compliance with all of the following requirements:

* * * * *

(b) *Evaporative Emissions.* Certify the vehicle to the evaporative emission standards in subdivision 1976(b)(1)(G) Certify the vehicle to the evaporative emission standards in subdivision 1976(b)(1)(G). or 1976(b)(1)(E) ~~Manufacturers may certify 2018 and 2019 TZEVs to the evaporative standards for PCs and LDTs in subdivision 1976(b)(1)(E)~~;

* * * * *

7. Generation and Use of ZEV Credits; Calculation of Penalties

* * * * *

7.6 Use of ZEV Credits.

* * * * *

(c) *GHG-ZEV Over Compliance Credits.*

(1) *Application.* Manufacturers may apply to the Executive Officer, no later than December 31, 2016, to be eligible for this subdivision C.7.6(c), based on the following qualifications:

(A) A manufacturer must have no model year 2017 compliance debits and no outstanding debits from all previous model year compliance with sections 1961.1 and 1961.3, or compliance with the National greenhouse gas program as allowed by subdivisions 1961.1(a)(1)(A)(ii) and 1961.3(c), and

(B) A manufacturer must have no model year 2017 compliance debits and no outstanding debits from all previous model year compliance with section 1962.1, and

(C) A manufacturer must submit documentation of its projected product plans to show over compliance with the manufacturer's section 1961.3 requirements, or over compliance with the National greenhouse gas program requirements as allowed by subdivision 1961.3(c) by at least 2.0 gCO_2/mile in each model year through the entire 2018 through 2021 model year period.

(2) *Credit Generation and Calculation.* Manufacturers must calculate their over compliance with section 1961.3 requirements, or over compliance with the National greenhouse gas program requirements as allowed by subdivision 1961.3(c) for model years 2018 through 2021 based on compliance with the previous model year standard. For example, to generate credits for this subdivision C.7.6(c) for model year 2018, manufacturers would calculate credits based on model year 2017 compliance with section 1961.3, or compliance with the National greenhouse gas program requirements as allowed by subdivision 1961.3(c).

(A) At least 2.0 gCO_2/mile over compliance with section 1961.3, or over compliance with the National greenhouse gas program as allowed by subdivision 1961.3(c) is required in each year and the following equation must be used to calculate the amount of ZEV credits earned for purposes of this subdivision C.7.6(c):

[(Manufacturer US PC and LDT Sales) x (gCO_2/mile below manufacturer GHG standard for a given model year)] / (Manufacturer GHG standard for a given model year)

(B) Credits earned under ~~section~~subdivision 1961.3(a)(9), or credits earned under 40 CFR, part 86, Subpart S, 86.1866-12(a), 86.1866-12(b), or 86.1870-12 may not be included in the calculation of gCO_2/mile credits for use in the above equation in subdivision (A). All ZEVs included in the calculation above must include associated upstream emission values found in section 1961.3.

(C) Banked gCO_2/mile credits earned under 1961.1 and 1961.3, or under the National greenhouse gas program requirements as allowed by subdivision 1961.3(c) from previous model years or from other manufacturers may not be included in the calculation of gCO_2/mile credits for use in the above equation in subdivision (A).

(3) *Use of GHG-ZEV Over Compliance Credits.* A manufacturer may use no more than the percentage enumerated in the table below to meet either the total ZEV requirement nor the portion of their ZEV requirement that must be met with ZEV credits, with credits earned under this subdivision C.7.6(c).

2018	2019	2020	2021
50%	50%	40%	30%

Credits earned in any given model year under this subdivision C.7.6(c) may only be used in the applicable model year and may not be used in any other model year.

Credits calculated under this provision must also be removed from the GHG compliance bank, and cannot be banked for future compliance toward section 1961.3, towards compliance with the National greenhouse gas program requirements as allowed by subdivision 1961.3(c).

(4) *Reporting Requirements.* Annually, manufacturers are required to submit calculations of credits for this subdivision C.7.6(c) for the model year, any remaining credits/debits from previous model years under section 1961.3, or under the National greenhouse gas program requirements as allowed by subdivision 1961.3(c), and projected credits/debits for future years through 2021 under section 1961.3, or under the National greenhouse gas program requirements as allowed by subdivision 1961.3(c) and this subdivision C.7.6(c).

If a manufacturer, who has been granted the ability to generate credits under this subdivision C.7.6(c), fails to over comply by at least 2.0 gCO_2/mile in any one year, the manufacturer will be subject to the full ZEV requirements for the model year and future model years, and will not be able to earn credits for any other model year under this subdivision C.7.6(c).

~~(5) If the Executive Officer does not make a determination that a Federal greenhouse gas fleet standard is functionally equivalent to subdivision 1961.3, than this subdivision C.7.6(c)(1) through (4) is unavailable for use by any manufacturer.~~

* * * * *

APPENDIX J

List of Proposed Changes to Title 13, CCR and Incorporated Test Procedures

List of Changes to Appendix A – Proposed Regulation Order

Amendments to Title 13, CCR, Section 1900

Subsection (b)(22): The definition of a "small volume manufacturer" contains qualifying language that allows manufacturers that meet the 4,500 vehicle sales threshold for a small volume manufacturer, but are partially or fully owned by another manufacturer, to still qualify as "small volume manufacturers," if they remain operationally independent from the company that owns them. This definition has been modified to remove language that restricts the model years to which this qualifying language applies.

This change is needed because the restrictive language was the result of an error in how the qualifying language was added to the previous version of the "small volume manufacturer" definition. This provision recognizes that truly operationally independent small volume manufacturers operate under the same resource constraints as other small volume manufacturers. Staff intent, as reflected in the "Initial Statement of Reasons for Proposed Rulemaking, Public Hearing to Consider the "LEV III" Amendments to the California Greenhouse Gas and Criteria Pollutant Exhaust and Evaporative Emission Standards and Test Procedures and to the On-Board Diagnostic System Requirements for Passenger Cars, Light-Duty Trucks, and Medium-duty vehicles, and to the Evaporative Emission Requirements for Heavy-Duty Vehicles," (LEV III ISOR), has been and remains to provide these manufacturers with relaxed standards that reflect their ability to meet low emission requirements.

Amendments to Title 13, CCR, Section 1956.8

Subsection (b): The date that the "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles" was last amended has been changed. This change is needed to incorporate by reference the version of this document that includes the modifications from this rulemaking.

Subsection (c)(3): This subsection currently allows manufacturers to certify complete heavy-duty gasoline vehicles to medium-duty chassis standards if they share the same engine, on the condition that the heavy-duty vehicle meets the

most stringent LEV III standards to which any vehicle within that medium-duty vehicle test group certifies. Since certain incomplete heavy-duty gasoline vehicles also share engines with complete heavy-duty gasoline vehicles and medium-duty gasoline vehicles, it is necessary to amend this subsection to also allow manufacturers to also certify incomplete heavy-duty gasoline vehicles to medium-duty chassis standards if they share the same engine under the same conditions.

Subsection (d): The date that the "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Otto-Cycle Engines" and the "California Non-Methane Organic Gas Test Procedures," were last amended have been changed. This change is needed to incorporate by reference the versions of these documents that include the modifications from this rulemaking.

Subsection (h)

Subsection (5): This subsection currently allows manufacturers to certify complete heavy-duty diesel vehicles to medium-duty chassis standards if they share the same engine, on the condition that the heavy-duty vehicle meets the most stringent LEV III standards to which any vehicle within that medium-duty vehicle test group certifies. Since certain incomplete heavy-duty diesel vehicles also share engines with complete heavy-duty diesel vehicles and medium-duty diesel vehicles, it is necessary to amend this subsection to also allow manufacturers to also certify incomplete heavy-duty diesel vehicles to medium-duty chassis standards if they share the same engine under the same conditions.

Amendments to Title 13, CCR, Section 1960.1

Subsection (r): The proposal is needed to extend the applicability of the 4,000-mile SFTP standards through the 2021 model year to accommodate the delayed LEV III phase-in for small volume manufacturers. Because small volume manufacturers may still be certifying LEV II test groups in the 2021 model year, this proposed change is necessary to clarify that such test groups will be subject to the 4,000-mile SFTP standards instead of the 150,000-mile SFTP standards applicable to LEV III vehicles.

Amendments to Title 13, CCR, Section 1961

Subsection (a)

Subsection (a)(1): The LEV III phase-in requirement in section 1961.2 subsection (b)(2) says that for the 2015 through 2019 model years, vehicles may only be certified to LEV II SULEV standards if they have previously been certified to these standards. Vehicles that are certifying to these emission levels for the first time must be certified to LEV III standards. It is necessary to amend this subsection to remove text that erroneously suggests that vehicles that have not previously been certified to LEV II SULEV standards may be certified to them in the 2015 through 2019 model years.

Subsection (b)

Subsection (b)(1)

Subsection (b)(1)(A): The footnote for this table erroneously says that MDPVs are included in the LEV II fleet average NMOG value for LDTs 3751 lbs. LVW – 8500 lbs. GVW. It is necessary to change the text to correct this error.

Subsection (d)

It is necessary to change the "as amended" date for both the "California 2001 through 2014 Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2009 through 2016 Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles" and the "California Non-Methane Organic Gas Test Procedures," to incorporate by reference the versions of these documents that include the modifications from this rulemaking.

Amendments to Title 13, CCR, Section 1961.2

Introduction: It is necessary to add text to the introduction to clarify that all medium-duty vehicles with a gross vehicle weight rating of less than or equal to 10,000 pounds GVW must meet LEV III chassis standards beginning with the 2020 model year, as apparent from title 13, CCR section 1956.8 subsection (c)(1)(B), footnote B to the table and subsection (h)(2), footnote A to the table

Subsection (a)

Subsection (a)(1)

The LEV III phase-in requirement in subsection (b)(2) says that for the 2015 through 2019 model years, vehicles may only be certified to LEV II

SULEV standards if they have previously been certified to these standards. Vehicles that are certifying to these emission levels for the first time must be certified to LEV III standards. It is necessary to amend this subsection to remove text that erroneously suggests that vehicles that have not previously been certified to LEV II SULEV standards may be certified to them in the 2015 through 2019 model years.

Table: Staff inadvertently included the incorrect CO standards for LEV III medium-duty vehicles (MDVs) in the regulations. The correct standards are listed table II-A-2-6 in the "Initial Statement of Reasons for Proposed Rulemaking, Public Hearing to Consider the "LEV III" Amendments to the California Greenhouse Gas and Criteria Pollutant Exhaust and Evaporative Emission Standards and Test Procedures and to the On-Board Diagnostic System Requirements for Passenger Cars, Light-Duty Trucks, and Medium-duty vehicles, and to the Evaporative Emission Requirements for Heavy-Duty Vehicles," (LEV III ISOR). The CO standards in the LEV III ISOR are the standards ARB presented at the LEV III public workshops, but for some reason were not included in the regulations. The LEV III emission benefits will not change as a result of this correction, since the published emission benefits for LEV III included the correct CO standards as listed in the ISOR.

Subsection (a)(2)

Subsection (a)(2)(A): This subsection contains the LEV III particulate standards for passenger cars, light-duty trucks, and medium-duty passenger vehicles, as the title states. However, the first sentence erroneously leaves out the word "passenger," when describing the medium-duty vehicles to which it applies. It is necessary to amend this subsection to add the word "passenger" to the text, because the LEV III particulate standards for medium-duty vehicles, other than medium-duty passenger vehicles, are contained in the following subsection (a)(2)(B).

Subsection (a)(2)(D)

Subsection (a)(2)(D)1: It is necessary to add language to clarify that a manufacturer that certifies its vehicles to this alternative phase-in schedule must still meet the requirement that 100% of those vehicles meet the applicable standard in the 2021 model year.

Subsection (a)(2)(D)2: It is necessary to add language to clarify that a manufacturer that certifies its vehicles to this alternative phase-in

schedule must still meet the requirement that 100% of those vehicles meet the applicable standard in the 2028 model year.

Subsection (a)(2)(D)3: It is necessary to add language to clarify that a manufacturer that certifies its vehicles to this alternative phase-in schedule must still meet the requirement that 100% of those vehicles meet the applicable standards in the 2021 model year.

Subsection (a)(7)

Subsection (a)(7)(A)

Subsection (a)(7)(A)2: The proposal would modify the *SFTP NMOG+NOx and CO Composite Emission Standards for 2015 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Passenger Vehicles* Table to clarify the test weight requirements for LEV II vehicles used in the LEV III SFTP Option 2 fleet average.

Footnote 2: The proposal would clarify that for federally-certified test groups certifying in California in accordance with Section H subparagraph1.4 of the "California 2015 and Subsequent Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles," the full-useful life emission value used to comply with federal full-useful life SFTP requirements may be used in the sales-weighted fleet-average without applying an additional deterioration factor.

Footnote 4: The proposal would clarify that, for the purposes of the LEV III SFTP Option 2 fleet average, the required bin increments of 0.010 g/mi and the bin emission value cap of 0.180 g/mi only apply to LEV III test groups.

Footnote 5: A reference in this footnote to footnote 7 would be corrected to refer to footnote 2 as intended.

Subsection (a)(9): This subsection has been modified to revise the time period under which a vehicle that uses a zero emission energy storage device must warranty that storage device in order to generate additional NMOG+NOx Fleet Average Credit. This revision is needed to maintain consistency with the ZEV regulations set forth in title 13, CCR, §1962.1(c).

Subsection (b)

Subsection (b)(1)

Subsection (b)(1)(A): The footnote for this table erroneously says that MDPVs are included in the LEV II fleet average NMOG value for LDTs 3751 lbs. LVW – 8500 lbs. GVW. It is necessary to change the text to correct this error.

Subsection (b)(1)(A)1: It is necessary to add text to this subsection to indicate how compliance with this requirement will be determined. An average of three model years is appropriate to account for fluctuations in yearly vehicle sales due to economic conditions.

Subsection (b)(1)(D): LEV III compliance is based on NMOG+NOx fleet average requirements. However, the current regulatory language refers to a NMOG fleet average, rather than a NMOG+NOx fleet average. It is necessary to correct this error, since no LEV III NMOG fleet average exists.

Subsection (b)(4)

Subsection (b)(4)(A)

Subsection (b)(4)(A)2: To improve clarity, the proposal would remove some redundant regulatory language and instead, reference subsection (a)(7)(A)2, where the requirements are currently duplicated.

Subsection (c)

Subsection (c)(1)

Subsection (c)(1)(B): This subsection currently incorrectly describes the types of vehicles to which this subsection applies. It is necessary to amend this subsection to correct that description.

Section (d): Amendments to this section are needed to update the "last amended" dates for the test procedures that are incorporated by reference in section 1961.2.

Amendments to Title 13, CCR, Section 1961.3

Subsection (a)

Subsection (a)(3)

Subsection (a)(3)(C)

Subsection (a)(3)(C)4: It is necessary to add text to this subsection to allow a manufacturer to demonstrate that it meets the eligibility requirements to request alternative fleet average greenhouse standards by demonstrating that it has successfully demonstrated compliance with the identical requirements in the 2017 through 2025 MY National Greenhouse Gas Program.

Subsection (a)(6)

Subsection (a)(6)(C)

Subsection (a)(6)(C)1.

The definition of SAE LR has been changed to require the February 2012 version of SAE J2727 rather than the August 2008 version. This change is needed to require the most up to date procedures.

The Note describing allowed versions SAE J2727 has been changed to identify the February 2012 version instead of the August 2008 version. This change is needed for consistency with the change in the definition of SAE LR. i.e., it is needed to require the most up to date procedures.

Subsection (a)(6)(C)2.

The definition of SAE LR has been changed to require the February 2012 version of SAE J2727 rather than the August 2008 version. This change is needed to require the most up to date procedures.

The Note describing allowed versions SAE J2727 the version of SAE J2727 has been changed to discuss the February 2012 version instead of the August 2008 version. This change is needed for consistency with the change in the definition of SAE LR. i.e., it is needed to require the most up to date procedures.

Subsection (a)(7)

Subsection (a)(7)(E): It is necessary to amend this subsection to reference the currently applicable AC17 test procedure.

Subsection (a)(11): It is also necessary to add text to this subsection to reaffirm and clarify the commitment that California made towards participating in USEPA and NHTSA's "mid-term review" of the 2022 through 2025 model year national greenhouse gas standards.

Subsection (b)

Subsection (b)(4)

Subsection (b)(4)(A): This subsection currently says, "For a given model year, a manufacturer that has Greenhouse Gas credits remaining after equalizing all of its Greenhouse Gas debits may use those Greenhouse Gas credits to comply with its ZEV obligations for that model year, in accordance with the provisions set forth in the "California Exhaust Emission Standards and Test Procedures for 2009 through 2017 Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes."" However, this referenced document does not contain any such provisions. It is, therefore, necessary to delete the reference to this document from this subsection.

Subsection (c): It is necessary to add text to this subsection to accept compliance with the 2017 through 2025 National greenhouse gas program as compliance with California's greenhouse gas regulations for these model years.

Original Subsections (c) through (f): It is necessary to re-letter these subsections as (d) through (g), since a new subsection (c) has been added.

Subsection (f)

Subsection (f)(13): The final rule for the 2017 through 2025 MY National Greenhouse Gas Program does not contain a definition for the "EPA Vehicle Simulation Tool." Since the California LEV III greenhouse gas regulations require the use of this model, it is necessary to modify this subsection to reference the proposed rule in this definition.

Subsection (f)(17): It is necessary to modify this subsection to correct errors in the definition of "full-size pickup truck."

Subsection (f)(25): It is necessary to add a definition for "2017 through 2025 MY National Greenhouse Gas Program," since this program is referred to in this section of the regulations.

Subsections (f)(25) through (f)(36): It is necessary to re-number these definitions, dues to the addition of a new definition (e)(25).

Amendments to Title 13, CCR, Section 1962.1

Section (b)

Subsection (b)(2)

Subsection (b)(2)(D)

Subsection (b)(2)(D)1: Language in this subsection has been updated to improve readability.

Subsection (b)(2)(D)2: Language in this subsection has been updated to improve readability.

Section (c)

Subsection (c)(3)

Subsection (c)(3)(A): The revision date and revision number for Society of Automotive Engineers (SAE) J2841 has been updated. This change is needed to incorporate by reference the correct version and date of this document. Additionally, the amended date of the incorporated test procedure has been updated.

Section (h)

Subsection (h)(1): The amended date of the incorporated test procedure has been updated.

Amendments to Title 13, CCR, Section 1962.2

Section (c)

Subsection (c)(2)

Subsection (c)(2)(B): This subsection establishes which evaporative emission standards a TZEV is to certify to in section 1976, which is the zero evaporative standard. This language is been clarified to ensure TZEVs meet the most stringent evaporative emission standards available.

Subsection (c)(3)

Subsection (c)(3)(A): The amended date of the incorporated test procedure has been updated.

Section (g)

Subsection (g)(6)

Subsection (g)(6)(C)

Subsection (g)(6)(C)1

Subsection (g)(6)(C)1.a: This subsection is being modified to include references to the National greenhouse gas fleet standards.

Subsection (g)(6)(C)1.c: This subsection is being modified to include references to the National greenhouse gas fleet standards.

Subsection (g)(6)(C)2: This subsection is being modified to include references to the National greenhouse gas fleet standards.

Subsection (g)(6)(C)2.a: This subsection is being modified to include references to the National greenhouse gas fleet standards.

Subsection (g)(6)(C)2.b: This subsection is being modified to include references to the National greenhouse gas fleet subsections that may not be included in a manufacturer's greenhouse gas over compliance calculation.

Subsection (g)(6)(C)2.c: This subsection is being modified to include references to the National greenhouse gas fleet standards.

Subsection (g)(6)(C)3: This subsection is being modified to include references to the National greenhouse gas fleet standards.

Subsection (g)(6)(C)4: This subsection is being modified to include references to the National greenhouse gas fleet standards.

Subsection (g)(6)(C)5: This subsection is being deleted, because with this rulemaking, the federal greenhouse gas program is being made available for demonstration of compliance with section 1961.3.

Section (h)

Subsection (h)(1): It is necessary to amend this subsection to update the amended date of the incorporated test procedure.

Amendments to Title 13, CCR, Section 1976

Subsection (b)

Subsection (b)(1)(G)3: *Carry-Over of 2014 Model-Year Evaporative Families Certified to the Zero-Fuel Evaporative Emission Standards.* The purpose of this subsection is to allow 2014 model year vehicles certified to the optional zero-evaporative emission standards set forth in 13 CCR 1976(b)(1)(E) to carry-over to meet the new LEV III phase-in requirements from the 2015 through 2018 model years. The proposed amendment would clarify that for a vehicle certified using this carry-over provision, in-use compliance shall be determined using the zero-evaporative standards the 2014 model year vehicle originally certified to, rather than the family emission limit assigned for the purpose of calculating the fleet-average hydrocarbon emission values.

Subsection (c): It is necessary to amend this subsection to update the amended date of the incorporated test procedure.

Appendix B – "California 2015 and Subsequent Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles"

Part I. Subpart A

Section 1.

Subsection 1.1: It is necessary to amend this subsection to incorporate the most current version of CFR §86.1801-12. This change is needed to allow harmonization with federal regulations.

Part I. Subpart B.

Section 1.

Subsection 1.1: It is necessary to amend this subsection to incorporate the most recent definitions set forth in §86.1803-01 into these test procedures. This change is needed to allow harmonization with federal regulations.

Section 2.

"EPA Vehicle Simulation Tool" – The final rule for the 2017 through 2025 MY National Greenhouse Gas Program does not contain a definition for the "EPA Vehicle Simulation Tool." Since the California LEV III greenhouse gas regulations require the use of this model, it is necessary to modify this subsection to reference the proposed rule in this definition.

"Federal Tier II emission Bin 3 or Bin 4" – It is necessary to add this definition because the term is used later in these test procedures.

"Full-size pickup truck" - It is necessary to modify this subsection to correct errors in the definition of "full-size pickup truck."

"Methane reactivity adjustment factor" – It is necessary to add this definition because the term is used later in these test procedures.

"2017 through 2025 MY National Greenhouse Gas Program" – It is necessary to add this definition because the term is used later in these test procedures.

"Small volume manufacturer" – The current definition has been deleted and replaced by a reference to the definition of a small volume in title 13, §1900. This has been done, for simplification purposes.

"Subconfiguration" – This definition is currently missing from the test procedures. (The current text just says, ""Subconfiguration" means".) It is necessary to add this definition.

Part I. Subpart D.

Section 1. The CFR section incorporated by this subsection has been updated to the most current version. This change is needed to allow harmonization with federal regulations.

Paragraph (p): Currently for gasoline and diesel-fueled LEV II vehicles, manufacturers may measure non-methane hydrocarbons (NMHC) in lieu of NMOG and multiply NMHC measurements by an adjustment factor of 1.04 before comparing with the NMOG standard to determine compliance with that standard. This adjustment factor was developed based on current certification gasoline that includes MTBE. The LEV III certification gasoline eliminates MTBE and replaces it with ethanol, which changes the appropriate adjustment factor to 1.10. However, the current text shows the adjustment factor as 1.1, omitted the hundredths value. It is necessary to change the 1.1 to 1.10 to retain accuracy and to remain consistent with the format of the adjustment factor for LEV II. A formula to calculate the adjustment factor for other gasoline/ethanol blend certification fuels with an ethanol content up to 25 percent has been added. This formula is consistent with ARB's understanding of the current draft of 40 CFR Part 1066, which ARB will incorporate in its test procedures once finalized by the USEPA.

Part I. Subpart E California Exhaust Emission Standards

Section 1

Subsection 1.1: The proposal is needed to correct an incomplete reference to the Code of Federal Regulations. Specifically, the reference has been modified to read, "title 40, CFR Part 86, Subparts B and C."

Subsection 1.1.1: The LEV III phase-in requirement in subsection E.2.2 says that for the 2015 through 2019 model years, vehicles may only be certified to LEV II SULEV standards if they have previously been certified to these standards. Vehicles that are certifying to these emission levels for the first time must be certified to LEV III standards. It is necessary to amend this subsection to remove text that erroneously suggests that vehicles that have not previously been certified to LEV II SULEV standards may be certified to them in the 2015 through 2019 model years.

Subsection 1.1.2:

Introductory paragraph: It is necessary to add language to this introductory paragraph to clarify that these standards apply to all medium-duty vehicles 8,501 to 10,000 pounds GVW beginning with the 2020 model year, as apparent from title 13, CCR section 1956.8 subsection (c)(1)(B), footnote B to the table and subsection (h)(2), footnote A to the table.

Table: Table: Staff inadvertently included the incorrect CO standards for LEV III medium-duty vehicles (MDVs) in the regulations. The correct standards are listed table II-A-2-6 in the "Initial Statement of Reasons for Proposed Rulemaking, Public Hearing to Consider the "LEV III" Amendments to the California Greenhouse Gas and Criteria Pollutant Exhaust and Evaporative Emission Standards and Test Procedures and to the On-Board Diagnostic System Requirements for Passenger Cars, Light-Duty Trucks, and Medium-duty vehicles, and to the Evaporative Emission Requirements for Heavy-Duty Vehicles," (LEV III ISOR). The CO standards in the LEV III ISOR are the standards ARB presented at the LEV III public workshops, but for some reason were not included in the regulations. The LEV III emission benefits will not change as a result of this correction, since the published emission benefits for LEV III included the correct CO standards as listed in the ISOR.

Subsection 1.1.2.1

Subsection 1.1.2.1.1: This subsection contains the LEV III particulate standards for passenger cars, light-duty trucks, and medium-duty passenger vehicles, as the title states. However, the first sentence erroneously leaves out the word "passenger," when describing the medium-duty vehicles to which it applies. It is necessary to amend this subsection to add the word "passenger" to the text, because the LEV III particulate standards for medium-duty vehicles, other than medium-duty passenger vehicles, are contained in the following subsection E.1.1.2.1.2.

Subsection 1.1.2.1.4

Subsection 1.1.2.1.4.1: It is necessary to add language to clarify that a manufacturer that certifies its vehicles to this alternative phase-in schedule must still meet the requirement

that 100% of those vehicles meet the applicable standard in the 2021 model year.

Subsection 1.1.2.1.4.2: It is necessary to add language to clarify that a manufacturer that certifies its vehicles to this alternative phase-in schedule must still meet the requirement that 100% of those vehicles meet the applicable standard in the 2028 model year.

Subsection 1.1.2.1.4.3: It is necessary to add language to clarify that a manufacturer that certifies its vehicles to this alternative phase-in schedule must still meet the requirement that 100% of those vehicles meet the applicable standards in the 2021 model year.

Subsection 1.2

Subsection 1.2.1: The proposal is needed to extend the applicability of the 4000-mile SFTP standards through the 2021 model year to accommodate the delayed LEV III phase-in for small volume manufacturers.

Subsection 1.2.2

Subsection 1.2.2.1

Subsection 1.2.2.1.2: The proposal would modify the *SFTP NMOG+NOx and CO Composite Emission Standards for 2015 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Passenger Vehicles* Table to clarify the test weight requirements for LEV II vehicles used in the LEV III SFTP Option 2 fleet average.

Table footnote 2: The proposal would clarify that for federally-certified test groups certifying in California in accordance with Section H subparagraph 1.4, the full-useful life emission value used to comply with federal full-useful life SFTP requirements may be used in the sales-weighted fleet-average without applying an additional deterioration factor.

Table footnote 4: It is necessary to amendment this subsection to clarify that, for the purposes of the LEV III SFTP Option 2 fleet

average, the required bin increments of 0.010 g/mi and the bin emission value cap of 0.180 g/mi only apply to LEV III test groups.

Table footnote 5: It is necessary to correct a reference to footnote 7 to refer to footnote 2 as intended.

Subsection 1.7: This subsection has been modified to revise the time period under which a vehicle that uses a zero emission energy storage device must warranty that storage device in order to generate additional NMOG+NOx Fleet Average Credit. This revision is needed to maintain consistency with the ZEV regulations set forth in title 13, CCR, §1962.1(c).

Section 2.

Subsection 2.1

Subsection 2.1.1: The footnote for this table erroneously says that MDPVs are included in the LEV II fleet average NMOG value for LDTs 3751 lbs. LVW – 8500 lbs. GVW. It is necessary to change the text to correct this error.

Subsection 2.1.1.2: It is necessary to add text to this subsection to indicate how compliance with this requirement will be determined. An average of three model years is appropriate to account for fluctuations in yearly vehicle sales due to economic conditions.

Subsection 2.1.4: The current text states that vehicles meeting the requirements of this subparagraph "shall be included in this equation." However, it is unclear which equation this sentence is referring to. It is necessary to amend this subparagraph to clarify the intent of this sentence.

Subsection 2.4

Subsection 2.4.1

Subsection 2.4.1(b): To improve clarity, it is necessary to amend the proposal to remove some redundant regulatory language and instead, reference subsection E.1.2.2.1.2, where the requirements are currently duplicated.

Subsection 2.5

Subsection 2.5.1

Subsection 2.5.1.3

Subsection 2.5.1.3.4: It is necessary to add this subsection to accept compliance with the 2017 through 2025 National greenhouse gas program as compliance with California's greenhouse gas regulations for these model years.

Subsection 2.5.3

Subsection 2.5.3.3

Subsection 2.5.3.3.4: It is necessary to add text to this subsection to allow a manufacturer to demonstrate that it meets the eligibility requirements to request alternative fleet average greenhouse standards by demonstrating that it has successfully demonstrated compliance with the identical requirements in the 2017 through 2025 MY National Greenhouse Gas Program.

Subsection 2.5.6

Subsection 2.5.6.3

Subsection 2.5.6.3.1: The definition of SAE LR has been changed to require the February 2012 version of SAE J2727 rather than the August 2008 version. This change is needed to require the most up to date procedures.

The Note describing allowed versions SAE J2727 has been changed to identify the February 2012 version instead of the August 2008 version. This change is needed for consistency with the change in the definition of SAE LR. i.e., it is needed to require the most up to date procedures.

Subsection 2.5.6.3.2: The definition of SAE LR has been changed to require the February 2012 version of SAE J2727 rather than the August 2008 version. This change is needed to require the most up to date procedures.

The Note describing allowed versions SAE J2727 has been changed to identify the February 2012 version instead of the

August 2008 version. This change is needed for consistency with the change in the definition of SAE LR. i.e., it is needed to require the most up to date procedures.

Subsection 2.5.7

Subsection 2.5.7.5: It is necessary to amend this subsection to reference the currently applicable AC17 test procedure.

Subsection 2.5.10: It is necessary to add this subsection to reaffirm and clarify the commitment that California made towards participating in USEPA and NHTSA's "mid-term review" of the 2022 through 2025 model year national greenhouse gas standards.

Section 3.

Subsection 3.1

Subsection 3.1.1

Subsection 3.1.1.2: The current language in this subsection incorrectly describes the types vehicles to which this subsection applies. The proposed changes to this subsection are needed to correct the errors in the text.

Subsection 3.2

Subsection 3.2.4

Subsection 3.2.4.1: This subsection currently says, "For a given model year, a manufacturer that has Greenhouse Gas credits remaining after equalizing all of its Greenhouse Gas debits may use those Greenhouse Gas credits to comply with its ZEV obligations for that model year, in accordance with the provisions set forth in the "California Exhaust Emission Standards and Test Procedures for 2009 through 2017 Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes."" However, this referenced document does not contain any such provisions. It is, therefore, necessary to delete the reference to this document from this subsection.

Section 4

Subsection 4.2

Subsection 4.2.1: This subsection incorrectly states that the LEV III Particulate Interim In-Use Compliance Standards for Passenger Cars, Light-Duty Trucks, and Medium-Duty Passenger Vehicles applies through the 2021 model. Instead, it should say that these standards apply through the 2020 model years, which is consistent with title 13, CCR, section 1961.2(a)(8)(B)1. It is necessary to modify this subsection to correct this error.

Part I. Subpart F

Section 4

Subsection 4.2: It is necessary to amend this subsection to incorporate the most current version of CFR §86.1823-08. This change is needed to allow harmonization with federal regulations.

Subsection 4.3: Staff is proposing to modify section F.4.3 to correctly state that the durability demonstration procedures do not apply to the 4,000-mile SFTP standards in section E.1.2.1. Currently, the provision incorrectly references the 150,000-mile standards in section E.1.2.2.

Subsection 4.5: It is necessary to add this subsection to the test procedures to clarify how emissions deterioration factors are to be calculated.

Part I. Subpart G

Section 3

Subsection 3.1: It is necessary to amend this subsection to incorporate the most current version of CFR §86.1829-01. This change is needed to allow harmonization with federal regulations.

Part I. Subpart H

Section 1

Subsection 1.1

Subsections 1.1.1: The requirement that for natural gas vehicles the measured methane emissions value be multiplied by a methane reactivity adjustment factor and added to the NMOG and NOx emission values to determine compliance with the NMOG+NOx emission standards was inadvertently deleted from the current version of the regulations. It is necessary to add the missing regulatory language back into these test

procedures in order to retain this requirement from the current LEV II program.

Subsection 1.4

Subsection 1.4.1

Subsection 1.4.1.1: Subsection 1.4.1 requires that all federally-certified vehicle models certified for sale in California in accordance with subparagraph 1.4 be subject to California 50°F exhaust emission standards. However, no such standards exist for federal Tier II emission bins 3 and 4. It is, therefore, necessary to amend this subsection to exempt vehicles that are certified to federal Tier II emission bins 3 and 4 from California 50°F exhaust emission standards.

Subsection 1.4.1.2: Subsection 1.4.1 requires that all federally-certified vehicle models certified for sale in California in accordance with subparagraph 1.4 be subject to California highway NMOG+NOx exhaust emission standards. However, these standards only apply to LEV III vehicles. Instead, LEV II and federal Tier II vehicles are required to meet identical highway NOx exhaust emission standards. It is necessary to amend this subparagraph to require federal Tier II vehicles to meet highway NOx exhaust emission standards.

Subsection 1.4.2: It is necessary to amend this subparagraph to correct a reference.

Subsections 1.4.6: This subsection incorrectly refers to a fleet average NMOG requirement. However, the fleet average requirement for LEV III is a NMOG+NOx requirement. It is necessary to amend this subsection to correct this error.

Section 3

Subsection 3.2: This subsection currently requires manufacturers of vehicles not certified exclusively on gasoline or diesel to submit projected California sales and fuel economy data prior to vehicle certification. This provision was originally adopted to support a requirement that once a certain number of vehicles that used the fuel were sold in California, fuel distributers would have to sell that fuel in California. However, that fuels requirement has never been implemented, and, except for hydrogen fuel, no new fuels requirement has

been adopted. Therefore, ARB has no need for this reporting requirement for any alternative fuels other than hydrogen.

Part I. Subpart I.

Section 1

Subsection 1.1

Subsection 1.1.3: The regulations require in-use verification high mileage testing of LEV III vehicles to be conducted at a minimum odometer mileage of 112,500 miles. However, for certain test groups, it is extremely difficult to find test vehicles that meet this minimum odometer requirement. It is, therefore, necessary to amend this requirement to lower the minimum allowable odometer mileage to 105,000 miles.

Part I. Subpart J

Section 1: The CFR section incorporated by this section has been updated to the most current version. This change is needed to allow harmonization with federal regulations.

Sections 13 through 15: The CFR sections incorporated by these sections have been updated to the most current versions. These changes are needed to allow harmonization with federal regulations.

Part II. Subpart A

Section 100.2

86.111-94: The CFR section incorporated by this subsection has been updated to the most current version. This change is needed to allow harmonization with federal regulations.

Section 100.5

86.135-12: The CFR section incorporated by this subsection has been updated to the most current version. This change is needed to allow harmonization with federal regulations.

86.159-08

Subsection 100.5.5

Subsections 100.5.5.2, 100.5.5.3, and 100.5.5.4: This proposal is needed to specify a maximum discharge velocity of 15,000 cubic feet per minute for fixed speed cooling fans used during SFTP testing.

86.165-12: The CFR section incorporated by this subsection has been updated to the most current version. This change is needed to allow harmonization with federal regulations.

86.166-12: It is necessary to remove the reference to this CFR section, because it has been deleted from the CFR.

86.167-17: The CFR section incorporated by this subsection has been updated to the most current version. This change is needed to allow harmonization with federal regulations.

Subsection 100.5.6: This subsection has been deleted, because it is no longer is needed, since it is identical to 40 CFR §86.167-17, incorporated by reference in these test procedures.

List of Changes to Appendix C – "California 2001 through 2014 Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2009 through 2016 Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles"

Part I. Subpart B.

Section 2.

"Small volume manufacturer" – The current definition has been deleted and replaced by a reference to the definition of a small volume in title 13, §1900. This has been done, for simplification purposes.

Part I. Subpart E

Subsection 2

Subsection 2.1

Subsection 2.1.1: The footnote for this table erroneously says that MDPVs are included in the LEV II fleet average NMOG value for LDTs 3751 lbs. LVW – 8500 lbs. GVW. It is necessary to change the text to correct this error.

Part I. Subpart F

Section 4

Subsection 4.2: It is necessary to amend this subsection to incorporate the most current version of CFR §86.1823-08. This change is needed to allow harmonization with federal regulations.

Part I. Subpart G

Section 3

Subsection 3.1: It is necessary to amend this subsection to incorporate the most current version of CFR §86.1829-01. This change is needed to allow harmonization with federal regulations.

Part I. Subpart H

Subsection 3

Subsection 3.2: This subsection currently requires manufacturers of vehicles not certified exclusively on gasoline or diesel to submit projected California sales and fuel economy data prior to vehicle certification. This provision was originally adopted to support a requirement that once a certain number of vehicles that used the fuel were sold in California, fuel distributers would have to sell that fuel in California. However, that fuels requirement has never been implemented, and, except for hydrogen fuel, no new fuels requirement has been adopted. Therefore, ARB has no need for this reporting requirement for any alternative fuels other than hydrogen.

Part I. Subpart I.

Section 1

Subsection 1.1

Subsection 1.1.3: The regulations require in-use verification high mileage testing of LEV III vehicles to be conducted at a minimum odometer mileage of 112,500 miles. However, for certain test groups, it is extremely difficult to find test vehicles that meet this minimum odometer requirement. It is, therefore, necessary to amend this requirement to lower the minimum allowable odometer mileage to 105,000 miles.

Part I. Subpart J

Section 3: The CFR section incorporated by this section has been updated to the most current version. This change is needed to allow harmonization with federal regulations.

Sections 15 through 17: The CFR sections incorporated by these sections have been updated to the most current versions. These changes are needed to allow harmonization with federal regulations.

Part II. Subpart A

Section 100.2

86.111-94: The CFR section incorporated by this subsection has been updated to the most current version. This change is needed to allow harmonization with federal regulations.

Section 100.5

86.135-12: The CFR section incorporated by this subsection has been updated to the most current version. This change is needed to allow harmonization with federal regulations.

86.165-12: The CFR section incorporated by this subsection has been updated to the most current version. This change is needed to allow harmonization with federal regulations.

86.166-12: It is necessary to remove the reference to this CFR section, because it has been deleted from the CFR.

86.167-17: It is necessary to incorporate this CFR section, because it applies to vehicles certifying to the 2012-2016 MY National greenhouse gas program.

List of Changes to Appendix D – "California Non-Methane Organic Gas Test Procedures"

Part B, Determination of Non-Methane Hydrocarbon Mass Emissions by Flame Ionization Detection

Section 5

Subsection 5.2

Subsection 5.2.5: A statement has been added to define the NMHC density as 16.33 for all gasoline-based fuel, including Phase 2 gasoline and E85 fuel, rather than using the equation that is provided. This change is necessary to be consistent with USEPA's current practices.

Section 7

Subsection 7.1: Several equations in the sample calculation have been changed. This is necessary to be consistent with the change to section 5.2.5.

Subsection 7.2: Several changes were made to this section. The fuel carbon:hydrogen:oxygen ratio given for the sample calculation has been corrected. This change is necessary to make the stated ratio consistent with the sample calculation that follows. In the previous revision of the test procedures, the fuel type was changed from M85 to E10, but the ratio was inadvertently changed to that of E85 instead of E10. Although the correct information was used for the sample calculations, the ratio given was incorrect. The dilution factor equation was expanded to show how the numerator was calculated from the equation presented in section 5.2.4. This change was made for clarity. A typographical error in the value of $NMHC_{mass\ 1}$ was corrected.

Part D, Determination of C_2 to C_5 Hydrocarbons in Automotive Source Samples by Gas Chromatography, Method No. 1002

Section 2

Subsection 2.2: The type of sample-containing material was changed to include several types of sample material. This change is necessary to reflect current laboratory practices, to allow flexibility, and to be consistent with Part G, subsection 4.1.

Section 4

Subsection 4.1: The wording was revised to reflect the types of sample-containing material typically used. This change is necessary to reflect current laboratory practices, to allow flexibility, and to be consistent with Part G, subsection 4.1.

Part E, Determination of C_6 to C_{12} Hydrocarbons in Automotive Source Samples by Gas Chromatography, Method No. 1003

Section 2

Subsection 2.2: The type of sample-containing material was changed to include several types of sample material. This change is necessary to reflect current laboratory practices, to allow flexibility, and to be consistent with Part G, section 4.1.

Section 4

Subsection 4.1: The wording was revised to reflect the types of sample-containing material typically used. This change is necessary to reflect current laboratory practices, to allow flexibility, and to be consistent with Part G, section 4.1.

Part F, Determination of Aldehyde and Ketone Compounds in Automotive Source Samples by High Performance Liquid Chromatography, Method No. 1004

Section 7

Subsection 7.3: Two paragraphs were combined into one. This change is necessary for clarity.

Part G, Determination of NMOG Mass Emissions

Section 3

Subsection 3.2: A statement has been added to define the NMHC density as 16.33 for all gasoline-based fuel, including Phase 2 gasoline and E85 fuel, rather than using the equation that is provided. This change is necessary to be consistent with USEPA's current practices.

Subsection 3.2 b): The NMHC density is changed to 16.33 in the example given for Phase 2 gasoline. This is necessary to be consistent with the change to subsection 3.2.

Subsection 3.2 e): The NMHC density is changed to 16.33 in the example given for E85 fuel. This is necessary to be consistent with the change made to the NMHC density in subsection 3.2. A capitalization error of the word "where" is also corrected.

Subsection 3.3: Several equations in the sample calculation have been changed. This is necessary to be consistent with the change made to the NMHC density in subsection 3.2.

Section 4

Subsection 4.4

Subsection 4.4.1: Several typographical errors were corrected. The term "$Hc_{mass,}$" used in two places, was corrected to "$HC_{mass\ 2}$" in the first instance and "$HC_{mass\ 3}$" in the second. This is necessary for clarification.

Section 5

Subsection 5.4

Subsection 5.4.1: In the second table, the table header has been changed for one column, VMIX. This is to correct a typographical error in the units (ft^3).

Section 6

Subsection 6.4

Subsection 6.4.1:

In the first table, the table header has been changed for one column, $Ivol_c$. This is to correct a capitalization error in the abbreviation of the units (mL).

In the second table, the table header has been changed for one column, VMIX. This is to correct a typographical error in the units (ft^3).

Section 7

Subsection 7.3: Several equations in the sample calculation have been changed. This is necessary to be consistent with the change made to the NMHC density in subsection 3.2.

Section 8

Subsection 8.2: Several equations in the sample calculation have been changed. This is necessary to be consistent with the change made to the NMHC density in subsection 3.2.

Appendix 1, List of Compounds

The maximum incremental reactivity (MIR) factor for one compound, 3-methyl-1-hexene, has been revised. This change is necessary to correct a typographical error in the previous version of this test procedure.

List of Changes to Appendix E – "California Evaporative Emission Standards and Test Procedures for 2001 and Subsequent Model Motor Vehicles"

Part I. Subpart E

Section 1

Subsection 1.(e)(iii): Carry-Over of 2014 Model Year Evaporative Families Certified to the Zero-Fuel Evaporative Emission Standards. The purpose of this subsection is to allow 2014 model year vehicles certified to the optional zero-evaporative emission standards set forth in section I.E.1.(c) to carry-over to meet the new LEV III phase-in requirements from the 2015 through 2018 model years. The proposed amendment would clarify that for a vehicle certified using this carry-over provision, in-use compliance shall be determined using the zero-evaporative standards the 2014 model year vehicle originally certified to, rather than the family emission limit assigned for the purpose of calculating the fleet-average hydrocarbon emission values.

List of Changes to Appendix F – "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Otto-Cycle Engines"

Part I. Subpart A

Subsection 10

Subsection 10.B

Subsection 10.B.2: This subsection currently allows manufacturers to certify complete heavy-duty gasoline vehicles to medium-duty chassis standards if they share the same engine, on the condition that the heavy-duty vehicle meets the most stringent LEV III standards to which any vehicle within that medium-duty vehicle test group certifies. Since certain incomplete heavy-duty gasoline vehicles also share engines with complete heavy-duty gasoline vehicles and medium-duty gasoline vehicles, it is necessary to amend this subsection to also allow manufacturers to also certify incomplete heavy-duty gasoline vehicles to medium-duty chassis standards if they share the same engine under the same conditions.

List of Changes to Appendix G – "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles"

Part I. Subpart A

Subsection 11

Subsection 11.B

Subsection 11.B.5

Subsection 11.B.5.4: This subsection currently allows manufacturers to certify complete heavy-duty diesel vehicles to medium-duty chassis standards if they share the same engine, on the condition that the heavy-duty vehicle meets the most stringent LEV III standards to which any vehicle within that medium-duty vehicle test group certifies. Since certain incomplete heavy-duty diesel vehicles also share engines with complete heavy-duty diesel vehicles and medium-duty diesel vehicles, it is necessary to amend this subsection to also allow manufacturers to also certify incomplete heavy-duty diesel vehicles to medium-duty chassis standards if they share the same engine under the same conditions.

Part II. Subpart H

1065.701 subsection B.3(a)(1): This subsection incorporates the "California Test Procedures for Evaluating Substitute Fuels and New Clean Fuels through 2014," as amended March 22, 2012, and the "California Test Procedures for Evaluating Substitute Fuels and New Clean Fuels in 2015 and Subsequent Years," as adopted March 22, 2012. These dates have been replaced by text that references the title 13, CCR, section (§2317) that incorporates these documents by reference. This change is needed to ensure that this subsection always incorporates the most current versions of these documents.

List of Changes to Appendix H – "California Exhaust Emission Standards and Test Procedures for 2009 through 2017 Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes"

Section C

Subsection C.2

Subsection C.2.2

Subsection C.2.2(d)

Subsection C.2.2(d)(1): Language in this subsection has been updated to improve readability.

Subsection C.2.2(d)(2): Language in this subsection has been updated to improve readability.

Subsection C.3

Subsection C.3.3

Subsection C.3.3(a): An equation for Zero-emission VMT Allowance has been updated to correct a calculation error. The revision date and revision number for Society of Automotive Engineers (SAE) J2841 has been updated. This change is needed to incorporate by reference the correct version and date of this document.

Section F

Subsection F

Subsection F.8

Subsection F.8.2.6.2(i): A reference was corrected in this section to refer to section G.10 rather than F.10.

List of Changes to Appendix I – "California Exhaust Emission Standards and Test Procedures for 2018 and Subsequent Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes"

Section C:

Subsection C.3

Subsection C.3.2

Subsection C.3.2(b): This subsection establishes which evaporative emission standards a TZEV is to certify to in section 1976, which is the zero evaporative standard. This language is been clarified to ensure TZEVs meet the most stringent evaporative available.

Subsection C.7

Subsection C.7.6

Subsection C.7.6(c)

Subsection C.7.6(c)(1)

Subsection C.7.6(c)(1)(A): This subsection is being modified to include references to the National greenhouse gas fleet standards.

Subsection C.7.6(c)(1)(C).: This subsection is being modified to include references to the National greenhouse gas fleet standards.

Subsection C.7.6(c)(2): This subsection is being modified to include references to the National greenhouse gas fleet standards.

Subsection C.7.6(c)(2)(A): This subsection is being modified to include references to the National greenhouse gas fleet standards.

Subsection C.7.6(c)(2)(B): This subsection is being modified to include references to the National greenhouse gas fleet subsections that may not be included in a manufacturer's greenhouse gas over compliance calculation. Additionally, language has been added to this subsection to clarify manufacturers must use upstream emission values from Title 13,

section 1962.1, CCR when calculation its over compliance with the greenhouse gas fleet standard.

Subsection C.7.6(c)(2)(C): This subsection is being modified to include references to the National greenhouse gas fleet standards.

Subsection C.7.6(c)(3): This subsection is being modified to include references to the National greenhouse gas fleet standards.

Subsection C.7.6(c)(4): This subsection is being modified to include references to the National greenhouse gas fleet standards.

Subsection C.7.6(c)(5): This subsection is being deleted, since this rulemaking is including language which states the Federal greenhouse gas standard is functionally equivalent to California's greenhouse gas fleet standard.